



**ACNE MORE THAN SKIN DEEP-PSYCHIATRIC MORBIDITY AND SELF ESTEEM IN
ACNE PATIENTS: A CROSS SECTIONAL STUDY FROM INDIA**

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ABSTRACT

Introduction: Acne vulgaris is chronic inflammatory disorder of pilo-sebaceous unit. Acne can cause psychiatric morbidities like depression, anxiety disorders mainly social anxiety and generalised anxiety disorder, obsessive compulsive disorder, somatisation disorder, delusional disorder, body dysmorphic disorder and suicidal ideations. Predominant adolescent prevalence of acne, distribution of lesions mostly on face, strong emphasis on external appearance have psychological impact like decreased self esteem. With this background, this study was conducted to assess psychiatric morbidity and self esteem in acne patients and to find out impact of clinical variables of acne on psychiatric morbidity. **Materials and Methods:** 100 patients of acne studied. Acne severity graded by dermatologist using Global Acne Grading System. Subjective grading of acne severity done by patients on visual analogue scale. Psychiatric morbidity and self esteem were assessed using DSM IV TR criteria and Rosenberg Self Esteem Scale respectively. Data thus collected subjected to statistical analysis. **Results:** Psychiatric morbidity was observed in 81% and low self esteem in 66% of the acne patients. Anxiety disorders (51%) were observed more than major depressive disorder (30%). Female patients, young age, subjectively perceived severe acne, facial acne were associated with higher psychiatric morbidity. **Conclusions:** Acne vulgaris negatively affects patients' self esteem and cause significant higher psychiatric morbidity. Hence, treatment needs to address both the primary skin condition of acne and psychiatric manifestations.

KEYWORDS: acne, psychiatric morbidity, self esteem.

INTRODUCTION

Acne vulgaris is the most common dermatological disease, affecting at least 85% of adolescents and young adults.^[1,2] Acne vulgaris is a chronic inflammatory disorder of the pilosebaceous unit, characterized by comedones, papules, pustules, nodules, cysts, and/or scarring.^[3] While neither life threatening nor physically debilitating, acne can severely affect social and psychological functioning. Prevalence of acne predominantly in adolescent age group which is a time of significant physical, emotional and social development, face being most common site of involvement by acne which can't be covered by clothing, effect on opposite gender relationships, strong emphasis on physical appearance by media and society are factors believed to have psychological impact on patients. Psychological sequelae are decreased self-esteem, fear of rejection, social avoidance/withdrawal, embarrassment, frustration, preoccupation with acne. These in turn may lead to psychiatric morbidities.

Psychiatric morbidities found by earlier studies are depression, anxiety disorders mainly social anxiety and generalised anxiety disorder, obsessive compulsive

disorder, somatisation disorder, delusional disorder, body dysmorphic disorder and suicidal ideations.^[4-8] Cotterill and Cunliffe have described sixteen cases of completed suicide among dermatology patients, seven of whom had acne.^[9] It was found that acne patients report greater levels of anxiety and depression than other dermatology patients.^[10]

As western society places more emphasis on physical appearance, majority of earlier studies on psychiatric morbidity in acne patients have been conducted among patient groups in western countries, but there is dearth of Indian studies in this subject. Now a days even in Indian society there is rising societal pressure and media's emphasis for good external appearance and ideal perfect skin. Inability to reach these unrealistic ideals can lead to psychiatric morbidity. With this background, study of psychiatric morbidity and self esteem in acne patients was conducted.

AIMS AND OBJECTIVES

1. To assess psychiatric morbidity and self esteem in patients with acne.

2. To study socio-demographic profile of patients in relation to psychiatric morbidity.
3. To study impact of clinical variables of acne on psychiatric morbidity.

MATERIALS AND METHODS

Inclusion criteria

1. Patients with definitive diagnosis of acne as made by dermatologist.
2. Patients of acne in 15-30 years of age group.
3. Patients who agree to give informed consent to participate in the study.

Exclusion criteria

- 1) Patients with pre-existing psychiatric disorder prior to acne.
- 2) Patients with co-morbid medical and dermatological disorder.
- 3) Patients who used topical or systemic medicines predisposing to acne during one month before consultation

METHODOLOGY

Prior to study, Ethics committee approval was taken. It was a cross sectional study conducted in a tertiary care teaching hospital in an urban area; where patients with acne vulgaris lesions were studied jointly by dermatologist and psychiatrist. Dermatologist diagnosed acne vulgaris and graded acne severity using Global Acne Grading Scale (GAGS). Also, other dermatological disorders were excluded by dermatologist by taking detailed dermatological history and examination of lesions.

These patients with definitive diagnosis of acne vulgaris were referred to psychiatrist for further assessment. These assessments were done by single psychiatrist (first author) to maintain uniformity in assessment and confirmed by senior consultants (second and third authors). Patients with co-morbid medical disorders and pre-existing psychiatric disorders prior to acne were excluded by taking detailed history. Also, patients who used topical or systemic medicines predisposing to acne during one month before consultation were excluded; these medicines included anabolic steroids, corticosteroids (topical, oral, injection), Corticotropin, Phenytoin, Phenobarbital, lithium, Isoniazid, Iodides, Bromides, Cyclosporine and Azathioprine.

After exclusion of co-morbid medical and dermatological and pre-existing psychiatric disease; 100 consecutive patients with definitive diagnosis of acne vulgaris, in the age group of 15-30 years, were briefed about the study and recruited after obtaining written informed consent. They were asked to subjectively rate their acne severity on visual analogue scale (VAS). Socio-demographic details of the patients and acne related clinical variables (site of lesions, clinical and subjective severity) were noted on specially designed semi-structured proforma. Using DSM IV TR criteria by

taking detailed history psychiatric morbidity was assessed. Self esteem was determined using Rosenberg Self Esteem Scale (RSES). Data thus obtained were entered in Microsoft office excels 2007, analyzed by using SPSS 17.0 software. Results obtained were represented using tables, charts, frequency and percentage. Following test of significance were used: Chi- Square test, Post-hoc (standardised residual) test and Fisher's exact test.

Measures used

- 1) **Semi structured proforma:** specially designed for the study to obtain the data about socio-demographic details of the patients, acne related variables and detailed history of psychiatric complaints and duration.
- 2) **Global Acne Grading Scale (GAGS):** In 1997, Doshi, Zaheer and Stiller devised a Global Acne Grading System (GAGS) for determining the severity of acne.^[11]

This system divides the face, chest and back into six areas (forehead, right cheek, left cheek, nose, chin, chest and back) and assigns a factor to each area. Lesions are given grades from 0-4 depending on their severity. Local score for each area is calculated and then a global score (GS:0-44) is obtained by adding local scores.

Assessments of the global scores were made according to following values:

Score 0	: No acne,
Score 1–18	: mild severity,
Score 19–30	: moderate severity,
Score 31–38	: severe,
Score >39	: very severe.

- 3) **Visual Analogue Scale (VAS):** It is a device to measure subjective characteristics or attitudes that is believed to range across a continuum of values and cannot easily be directly measured. For patients to evaluate their acne severity subjectively on a scale of 0 to 10 patients are asked to rate their acne severity from 0 (I do not have acne) to 10 (my acne is very severe). It is a self reporting device.

- 4) **Diagnostic and Statistical Manual IV Text Revised (DSM IV TR)** criteria used for clinical assessment of psychiatric morbidity.^[12]

- 5) **Rosenberg Self Esteem Scale (RSES):** The RSES developed by sociologist Dr. Morris Rosenberg in 1965 to measure self esteem.^[13] It is a ten-item scale, with items answered on a four-point scale from strongly agree to strongly disagree. Five of the items have positively worded statements and five have negatively worded ones. Total score ranges from 0-30. Scores between 15 and 25 are within normal range; scores below 15 suggest low self-esteem.

RSES has good evidence of reliability and cross-cultural validity. This scale was translated in Hindi and retranslated in English by an expert for validation for purpose of the study.

6) SPSS 17.0 Software

Using this software, the statistical tests of Frequency, Chi-Square tests, Post-hoc (Standardised Residual) Chi-square test, Fisher's exact test were applied to the data.

RESULTS

A total of 100 patients with acne vulgaris were studied.

Table 1: Socio-demographic details of patients

Socio demographic variables		Percentage (n= 100)
Age	15-17 yrs	34.0%
	18-20 yrs	40.0%
	21-23 yrs	8.0%
	24-26 yrs	18.0%
Sex	Male	38.0%
	Female	62.0%
Education	Primary	41.0%
	Secondary	39.0%
	Graduate	16.0%
	Post Graduate	4.0%
Marital status	Unmarried	90%
	Married	10%
Occupation	Student	69%
	Unemployed	12%
	Employed	19%

Majority of the patients were females, students, in the age group of 18-20 years, had primary education and were single as seen in Table 1.

Table 2: Acne related clinical variables

Clinical variables		Percentage(n=100)
Localization	Face	90.0%
	Body	7.0%
	Equally	3.0%
Clinical acne severity by GAGS	Mild(1-18)	29.05
	Moderate(19-30)	54.0%
	Severe(31-38)	13.0%
	Very severe(>39)	4.0%
Subjective acne severity	Mild	0.0%
	Moderate	31.0%
	Severe	69.0%

As seen in Table 2, we found that 90% of them had acne lesions localised predominantly on face. Using GAGS, it was found that clinically observed acne severity was moderate in 54% of patients and mild in 29%. Subjective acne severity was severe in 69% of patients.

As seen in chart 1, of which 51% had anxiety disorders and 30% had major depressive disorders.

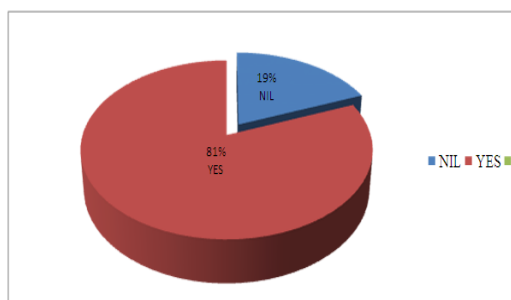


Chart 1: Prevalence of psychiatric morbidity

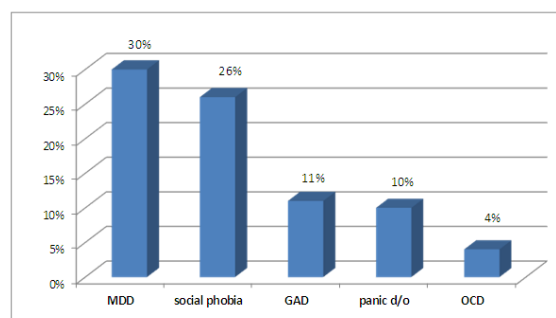


Chart 2: Types of psychiatric morbidity

As seen in the chart 2 above, amongst anxiety disorders: social phobia-26%, generalised anxiety disorder-11%, panic disorder-10% and obsessive compulsive disorder-4% was found in the patients studied.

In our sample, 66% of the patients had lower scores on RSES, as seen in the chart above.

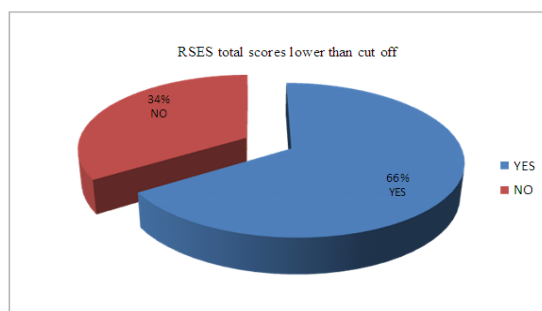


Chart 3: Self esteem assessed by RSES

Table 3: Association between socio-demographic variables and psychiatric morbidity

Socio-demographic variables		Psychiatric morbidity		Total (n)	'p' value
		Yes n (%)	No n (%)		
Age	15-17 yrs	32 (94.11%)	2 (5.9%)	34	0.001**
	18-20 yrs	34 (85%)	6(15%)	40	
	21-23 yrs	7(87.5%)	1(12.5%)	8	
	24-26 yrs	8(44.44%)	10(55.6%)	18	
Sex	Male	26(8.42%)	12 (31.6%)	38	0.012*
	Female	55(88.7%)	7(11.3%)	62	
Education	Primary	38(92.68%)	3 (7.3%)	41	0.000**
	Secondary	34(87.17%)	5(12.8%)	39	
	Graduate	8(50%)	8(50%)	16	
	Post graduate	1 (25%)	3(75%)	4	

(* $p < 0.05$, ** $p < 0.005$; Statistical test: Chi-square test, Fisher's Exact test). Columns of Major Depressive Disorder and Anxiety disorder were clubbed as patients having psychiatry morbidity.

The association of age group of 15-17years, female gender and primary education with psychiatric morbidity was found to be statistically significant in our study.

As seen in table 4 below, we observed that psychiatric morbidity was higher in patients with acne localised on face than on trunk, but this difference was statistically not significant. Patients with very severe acne had higher

psychiatric morbidity than moderate and mild group but this association was statistically not significant. Psychiatric morbidity was found to be significantly higher in patients who self perceived their acne as severe than in patients who self perceived their acne as moderate.

Table 4: Impact of clinical variables on psychiatric morbidity

Clinical Variables		Psychiatric morbidity		Total	'p' value
		Yes	No		
Localization	Mostly on Face	74 (82.2%)	16 (17.8%)	90	NS(0.472)
	Mostly on body	5 (71.43%)	2 (28.6%)	7	
	Equally distributed	2 (66.66%)	1 (33.3%)	3	
Subjective acne severity on VAS	Mild	0 (0.0%)	0 (0.0%)	0	0.001*
	Moderate	19 (61.3%)	12 (38.7%)	31	
	Severe	62 (89.9%)	7 (10.0%)	69	
Clinical Acne Severity by GAGS	Mild(1-18)	19(48.7%)	10 (34.5%)	29	NS(0.516)
	Moderate (19-30)	47 (87.3%)	7 (13.0%)	54	
	Severe (31-38)	11 (84.6%)	2 (15.4%)	13	
	Very severe (>39)	4 (100%)	0 (0.0%)	4	

(** $p < 0.005$, NS-Not significant; Statistical test : Chi-Square test; Fisher's Exact test) Columns of Major Depressive Disorder and Anxiety disorder were clubbed as patients having psychiatry morbidity.

Table 5: Association between self esteem and psychiatric morbidity in acne patients

Self Esteem by RSES	Psychiatric morbidity		Total	'p' value
	Yes	No		
Low self esteem	66 (100.0%)	0 (0.0%)	66	0.000**
Self esteem normal	15 (44.1%)	19 (55.9%)	34	

(* $p < 0.5$, ** $p < 0.005$, Statistical test: Chi square test). Columns of Major Depressive Disorder and Anxiety disorder were clubbed as patients having psychiatry morbidity.

As seen in Table 5 above, the association between psychiatric morbidity and self esteem was found to be statistically significant.

DISCUSSION

In our study, 100 acne patients were studied with the aim of assessing psychiatric morbidity and self esteem.

Most of our patients were in age group of 15 to 20 yrs. A study by James Wa D et al, found that most patients had developed acne by 21 years of age, with the greatest frequency of occurrence between the ages of 15 and 18 years.^[14] This could be because, during adolescence the frequency of acne increases with pubertal development. Females predominated over males. This is probably because there is early onset of puberty in females and the commencement of menstruation is associated with increased frequency of acne. Also, lesser number of males having acne seeks treatment. Similarly Pawin et al, surveyed French adolescents who telephoned a youth helpline; amongst callers female were more than males.^[15] While most of the patients were students, few were employed. This could probably be explained by inclusion criteria of patients of age group 15-30 years in this study. Acne patients were unemployed or lost their jobs, this may be due to the overall negative perceptions about acne patients of being shy.

Face was the most common site of acne in our patients. Overall face has more number of pilo-sebaceous glands. Also, as face has high cosmetic value, patients are more likely to seek treatment when acne is predominantly on face. Almost half the patients had moderate clinical acne severity using GAGS, very few had severe acne. In contrast, more than two third patients self rated their acne as severe and none rated as mild. This is similar to the findings in a study done by Yarpuz AY et al, they found that subjective evaluation of acne severity by the patients and the objectively assessed acne severity by the clinicians using GAGS were related;^[16] however, the patient self evaluation acne scores were much higher than the objective acne scores on GAGS i.e. patients perceive their acne as more severe than it actually are. We found that prevalence of psychiatric morbidity in acne patients using DSM IV TR criteria was 81%. Anxiety disorders were more than Major Depressive Disorder. Similarly study conducted by Javad Golchai et al, which compared prevalence of anxiety and depression in acne patients found that prevalence of anxiety was more as compared to depression.^[17] Reverse was seen in study done by Shrivastav S et al, in which prevalence of depression was more than anxiety on Hamilton Rating

Scale for Anxiety and Depression.^[18] On the contrary, few studies have reported that acne patients do not demonstrate increased frequency of depression and anxiety compared to healthy controls.^[19,20] High level of anxiety in acne patients could be because occurrence of acne is at peak when teenagers are learning to form relationships and their identity formation is at stack. Therefore those with acne may lack the self-confidence to go out and make these bonds. The main concern can be fear of negative appraisal and being judged as unattractive by others, in extreme cases social phobia can develop. In a survey conducted by Ritvo E et al, by interviewing teens they found that most of the teen respondents who had ever had acne; would stay off facebook for a year or not go on a date for a year.^[21]

Self-esteem is a positive or negative orientation toward oneself; an overall evaluation of one's worth or value. As observed in many studies two third of our acne patients self esteem was negatively affected and they had low scores on RSES.^[22,23,24] Girls tend to wear heavy make-up to disguise the acne. Acne sufferers grow their hair long to cover the face. A study done by Magin et al concluded that acne causes embarrassment, anxiety with the opposite sex, decreased self-confidence, preoccupation with acne, decreased self-esteem.^[25]

We observed that socio-demographic variables like young age, female gender and less education had statistically significant association with psychiatric morbidity. Similar findings have been reported in a study by Yarpuz AY et al, in which as patient's age and level of education decreased, the severity of psychiatric symptom scores increased.^[16] 15-17 years of age is an adolescence period marked by intensive preoccupation with body image and period of limited coping abilities and lower level of problem solving skills as a result of less education may contribute to increased psychiatric symptoms. Various studies have reported that females with acne are more likely to have psychiatric morbidity than males.^[26,27] This gender difference observed can be explained due to the different level of cosmetic concern, perception regarding appearance and fear of disfigurement in females. This is in contrast to an Egyptian study by Hafez KMA et al, in which male patients had higher scores on Symptom checklist 90 Revised than females,^[28] which may be due to culture differences, where females tend to cover their face according to religious background and tend to be more housebound and not exposed to social embarrassment like men.

Similar to study done by Hanna et al, we found that patients having acne predominantly located on face had higher psychiatric morbidity than other sites.^[29] As facial acne is visible & can't be hidden and covered by clothing, it causes distress and has greater effect on psychiatric symptom. However, there was no significant difference found between 3 localization groups (face, body, and equal distribution) regarding presence of psychiatric morbidity. This could be because most of our acne patients in sample had lesions on face. Previous studies have reported that after recovery of acne, patients that had acne localized on the face experienced significant positive changes in anxiety, whereas patients with acne localized on the body experienced lesser degree of change in anxiety.^[30,31] Patients with clinically graded severe acne on GAGS and who self rated their acne as severe had higher prevalence of psychiatric morbidity than less severe acne. Interestingly, in our study self rated severity of acne had significant association with psychiatric morbidity whereas clinician rated severity had no significant association. This implies that although a clinician's evaluation is objective, more precise and valuable; the self-perception of a patient has a greater impact on his/her psychiatric condition. On the contrary, Gupta et al found that patients with acne were at increased risk for anxiety and depression compared to the normal population, irrespective of severity of acne and concluded that for acne to lead to psychological problems, it need not be severe.^[32]

Association between psychiatric morbidity and self esteem in our acne patients was statistically significant. This could be due to societal pressure and media's emphasis on external appearance and ideal perfect skin as portrayed in advertising, film, and television contributes to self-image and self-esteem issues in acne vulgaris. Ultimately this may lead to feeling of inadequacy, negative perception of self and feeling of uselessness.

CONCLUSIONS

In the present study 100 consecutive patients of acne vulgaris were studied. Some conclusions can be drawn from this study. First, acne lesions negatively affect patients' self esteem and patients with acne clearly depict higher psychiatric morbidity. Prevalence of anxiety disorders (51%) was higher than major depressive disorder (30%). Hence, treatment needs to address both the primary skin condition and psychiatric manifestations. Second, female patients of younger age and lower level of education have significantly higher psychiatric morbidity. Third, patient's perception of acne severity and appearance of acne on face which can't be covered by clothing have emerged as important clinical variables which are associated with higher psychiatric morbidity. Also, acne patients with low self esteem had significantly higher psychiatric morbidity.

Our results highlight the importance of recognizing psychiatric co-morbidity in acne patient. Also, patients self perceive their acne as more severe than their actual

clinical severity and indicate that self rated severity of acne rather than clinical grading of acne severity can be associated with significant anxiety and depression.

RECOMENDATIONS

Acne vulgaris is an illness with the potential to cause important psychological and psychiatric complications and negatively affect self esteem. Thus, collaborative work of psychiatrist and dermatologist for psychiatric evaluation, psychological support in the form of use of psychiatric medications if needed and psychological therapies like supportive therapy, relaxation technique and counselling to help rebuild confidence and self esteem should be a part of the acne treatment plan.

Limitations of the study are

- Absence of control group,
- Cross sectional study

Strengths of the study are

- Study was done using both clinical evaluation (DSM IV TR criteria) and measurement scales (RSES, GAGS)
- This is a pragmatic study which has direct treatment implications.

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