

ORIGINAL RESEARCH ARTICLE

# A Study on the Association between Acne Vulgaris and Stress among Medical Students

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## Abstract:

*Acne vulgaris is a common skin disorder. Stress as a factor for acne vulgaris has come up as an important issue these days. The study was conducted among 500 MBBS students of the age group 19-23. The aim of the study was to find whether there is a correlation between acne and stress and to find the prevalence of acne and stress among the student community. It is a cross-sectional study by using a structured questionnaire and stress calculated using perceived stress scale and data analyzed using epi-info. After data analysis it was found that acne (prevalence 52%) and stress (prevalence 40%) are common among the student community. 72% of the students with acne had stress. A definite correlation between acne and stress could be found. Treatment of acne should include attention to management of psychosocial comorbidities in addition to the standard dermatologic therapies. Interventions for stress reduction are needed among medical students.*

**Key Words:** Acne Vulgaris, Medical Students, Stress.

## Introduction:

Acne vulgaris is a common skin disorder. Eighty-five percent of people between the ages of 12 and 24 will have some form of acne [1]. It is a multifactorial and complex disease, originating in the pilosebaceous follicle characterized by comedones, papules, pustules and nodules. Four primary inter-related pathogenic factors of acne are over production of sebum, abnormal keratinization of follicular epithelial cells, Propionibacterium acnes colonization & inflammation [2].

Psychological factors associate with acne in two ways. Emotional stress can exacerbate acne, as reported by a high number of acne patients and it is common for acne patients to develop psychiatric problems like social

phobias, low self-esteem, or depression. The basis for the association between emotional stress and the onset or exacerbation of acne is in several cutaneous neurogenic factors which interact with a pathogenic cascade in acne 1) stimulating adrenal glands to produce more hormones which increase sebum 2) slowing down the healing process 3) effect of stress on hypothalamus and release of corticotropin -releasing hormone (CRH) which induced sebum production by oil glands [3]. Stress is one of the most common obstacle in medical education. It has been observed that academic related problems are greater perceived stressor and it often exerts a negative effect on their academic performance, physical health and psychological well being [4].

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Majority of medical students are adolescents who are the most sufferers of acne and also the ones suffering from emotional and social stress. There have been relatively few studies examining stress as a possible cause of acne or acne exacerbation; more studies have focused on stress and mental health problems occurring as a result of acne. This study is aiming to find prevalence of perceived stress and acne among medical students and to study relationship between acne vulgaris and stress. This study is stressing the importance of developing psychotherapeutic interventions for treating skin disorders like acne.

**Materials and Methods:**

This is across sectional study conducted among medical and nursing students of age group 18-23

years in Dr. SMCSI Medical College, Karakonam, Trivandrum. 500 students participated in the study. Students were asked to complete a pretested questionnaire which included information on acne history, acne treatment, role of diet in acne, flare of acne during exams, psychological effects of acne etc. All participants provided informed consent. The stress among students was assessed using Perceived stress scale (PSS). It is a simple, well validated scale and does not have any cultural bias. It was designed for use with community samples with at least a high school education. The PSS measures the degree to which situations in ones life are appraised as stressful. The questions are quite general in nature and relatively free of content specific to any subpopulation group. Data was analysed using EPI-info software.

**Observations and Results:**

The study was conducted among 500 MBBS students of the age group 19-23. Among the study subjects there were 200 males and 300 females. The prevalence of acne in our study population was high. 258 among the 500 students (51.6%) had self reported acne.

**Table 1 : Association between Gender and Acne**

Gender	Pimples	No pimples	Total	Chi-square value & P-value
Male	83(32%)	117(48%)	200(40%)	<i>Chi-square =12.98. P &lt; 0.0001 Significant</i>
Female	175(68%)	125(52%)	300(60%)	
Total	258 (100%)	242(100%)	500 (100%)	

Acne was found to be more common in females. The association between acne and gender is found to be statistically significant with chi-square 12.98

91 (35%) of the 258 who have pimples are taking treatment. 43% are taking allopathy, 30% cosmetics and 27% homemade.

75% of students think that diet has a role in flaring of their acne.

33% of the students reported increased acne severity during stressful exam periods.

70 among 258 students (27%) who had pimples feels socially withdrawn and embarrassed. Among them there are 16 males (23%) and 54 females (77%).

**Table 2 : Association between Stress and Acne**

	Pimples	No pimples	Total	Chi-square value & P-value
Have Stress	144 (72%)	56 (23%)	200 (40%)	<i>Chi-square =54.2. P &lt; 0.0001 Significant</i>
No stress	114 (38%)	186(77%)	300 (60%)	
Total	258 (100%)	242(100%)	500 (100%)	

*(Odds ratio 4.1955.( 2.8496 to 6.1770 at 95%CI)*

It was observed that 200 out of 500 students (40%) had stress according to perceived stress scale. This study suggested a significant association between stress and acne.

The proportion of stressed male and female students was 37.5% and 41.7% respectively. 72% of the students with stress had pimples. Rest 38% had no pimples.

When analyzed individually by gender there was not much difference in relation between stress and acne. 70% of the males and 72% of the females with stress have pimples.

**Discussion:**

Among the 500 MBBS students included in the study 52% had acne. So acne has a high prevalence among the student community of the age group 19-23 years. The high prevalence of acne observed in our study population is similar to values reported in previous studies of which some studies report upto 95% [5]. 68% of females had acne showing significant association between acne and gender. A study done in Singapore observed that 92% of female participants in adolescent age group had acne [5]. The factors attributing to prevalence difference seen between males and females are multifactorial-skin care practices, use of cosmetics, hormones, diet etc.

Only 38% of the people are taking treatment for acne. This could be due to lack of concern for acne or not considering acne as a problem. In one study conducted by Leelavathi et al in Malaysia half of the students preferred to discuss acne problems with friends rather than consulting physicians [6].

A large majority of the students (75%) feel that diet has a role in causing acne. Most of them have the opinion that oily food aggravates acne. But recent studies have shown that diet including meats, dairy and high glycemic foods can influence acne pathogenesis by inactivating the regulator of androgen receptor [7]. 33% of them find an increase in pimples during exams and other stressful periods. A prospective cohort study published in 2003, showed increase in severity of acne during stressful exam periods even despite confounding factors like lack of sleep and diet changes [8].

27% of the students who have acne feels socially withdrawn or embarrassed. Among them 77% are females. Many studies have revealed that females are more prone to emotional and behavioral difficulties due to acne [6]. This can be reflected to the fact that females are more conscious and concerned about their appearance.

The prevalence of stress among the student community as per perceived stress scale is 40%. Various studies report overall proportion of stressed students ranging from 40-70% [4]. This may be attributed to many factors among which, academic pressure stands dominant. Both stress and acne was more prevalent among female. This may be because of their sensitive nature and the way of reacting to stressful situations.

There is a definite relationship between stress and acne. Majority of students (72%) with stress are having acne. The odds ratio of stress as a risk factor for pimples was found to be 4 which means that the possibility of having pimples was 4 times more in those who were under stress. An Australian survey including 215 medical students reported that 67% of them identified stress as triggering factor for acne [9]. But one recent study concluded that intensity of stress does not correlate with severity of acne and course of acne depend on tolerance to stress [3].

### Conclusion:

Present study concluded that acne is very prevalent among students and a significant number of the medical students were under stress. A definite relationship between stress and acne could be found. Treatment of acne should include attention to stress

and other chronic emotional states, quality of life and management of psychosocial comorbidities in addition to the standard dermatologic therapies. Effective treatment results in improvement of quality of life, body image, self esteem, social assertiveness and self confidence among the youngsters. Review of academics, exam schedules and patterns, better interaction with the faculty and proper guidance, intervention programs and counseling could certainly help a lot to reduce stress in medical students.

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