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Original Article

Association of depression, anxiety and stress in acne vulgaris in Bangladesh

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Abstract

Objective To observe the association of depression, anxiety and stress in acne vulgaris patients in Bangladesh.

Methods The study was designed as a descriptive, cross-sectional study for the duration of 6 months (from July 2021 to December 2021) and a pre-validated structured questionnaire was used. The study included 102 acne vulgaris patients with 16–40 years of age who consulted dermatology clinic at a tertiary care hospital of Dhaka, Bangladesh.

Results Severity of acne vulgaris was assessed by Global Acne Grading System (GAGS) and psychological impact of acne vulgaris was assessed by the Bangla Validated Depression, Anxiety and Stress Scale 21(DASS-21). It revealed that nearly one-fourth (24.5%; n=25) had severe to extremely severe stress, while the figure for anxiety and depression was 43.1% (n=44). A positive, strong and significant correlation was observed between acne, stress, anxiety and depression (acne vs. stress: 0.853, acne vs. anxiety: 0.790, acne vs. depression: 0.838; $p<0.01$).

Conclusion The present study suggest and recommend for an assessment of psychological status in acne patients in Bangladesh to identify any sort of psychological illness and provide necessary support to alleviate their sufferings.

Key words
Acne, depression, anxiety, stress, DASS 21.

Introduction

Acne vulgaris is one of the most prevalent skin diseases and approximately 85% of teenagers worldwide are affected that sometimes persist upto adulthood.[1,2] It has been well established as a substantial risk factor for psychological

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morbidity in all age group. Psychological distress associated with acne vulgaris are low self-esteem, social withdrawal, stress, anxiety, depression, frustration, body shame and problems in family life and relationships, and even suicidal ideation is not so rare. A study during 90s revealed that among dermatology patients 7 out of 16 cases of suicide were due to acne.[3] The association between acne and stress has been explained by several neuro-endocrinological systems. Both endogenous and external stressors can cause or exacerbate acne by producing more sebum in response to cortisol secretion.[4]

Different scales are available to asses the psychological status of non psychiatric patients. Of them mostly used are Hospital Anxiety and Depression Scale (HADS) and Depression, Anxiety and Stress Scale 21. The DASS 21 is the only scale available in Bangla to assess the symptoms of psychiatric morbidity. In this study we wanted to observe the association of acne to depression, anxiety and stress among patients attended at a Dermatology clinic of a tertiary care hospital at their first visit.

Material and Methods

We had conducted a cross-sectional study, over a period of 6 months (from July 2021 to December 2021) and used a pre-validated structured questionnaire. A total of 102 patients of acne vulgaris aged 16–40 years who had given informed written consents and without any known psychological illness were enrolled. The study was approved by an institutional review board.

The questionnaire had two sections. The first section of the questionnaire was comprised of personal information of the participants. The questions in the second section was designed to grade the acne severity by using the Global Acne Grading System (GAGS) scale, and to assess the psychological impact by Depression Anxiety Stress Scale-21 (DASS-21). In GAGS score six locations on the face, chest and upper back, with a factor for each location based roughly on surface area, distribution, and density of pilosebaceous units were considered. The severity was graded as mild (1–18), moderate (19 to 30), severe (31 to 38), and very severe if the score was more than 38.[5] Depression, Anxiety and Stress scales (DASS) was first introduced to find out depression, anxiety and stress among the respondents by English researchers Professor SH Lovlbond and Professor PF Lovlbond at the University of New South Wales Australia.[6] This was a useful tool to identify and also to measure the severity of psychological symptoms. Alim SMAHM *et al*. translated this scale to Bangla and also validated it.[7] The scale was explained to the patients and instructed to fill up the self reported questionnaire, followed by scoring was done.[7,8]

After completion of data collection, analysis for descriptive statistics of the responses was done by IBM SPSS statistics (version 25.0). To measure the statistical association between continuous variables we had conducted Pearson's correlation coefficient test. Data were presented as either mean±standard deviation, SD, or as frequency (n) and percentage (%). p-value <0.05 was considered statistically significant.

Results

Out of 102 acne patients, 88.2% (n=90) were female, and only 11.8% (n=12) were male. The average age of the participants was 21.52±3.14 years, where 78.5% (n=80) had ages between 16 and 25 years. The mean BMI score was 22.72±3.41, with nearly half (47.0%; n=48) of the respondents having a BMI between 21 and 25. The majority of the participants with AV

Table 1 Descriptive characteristics of the participants with acne vulgaris.

	n	*%*
Gender		
Male	12	11.8
Female	90	88.2
Age (mean age: 21.52 ± 3.14 years)		
16 to 20	43	42.2
21 to 25	37	36.3
26 to 30	22	21.5
BMI (mean score: 22.72 ± 3.41)		
16 to 20	28	27.5
21 to 25	48	47.0
26 to 30	25	24.5
30 and above	01	1.0
Occupation		
Student	68	66.7
Housewife	15	14.7
Service	19	18.6
Residence		
Urban	81	79.4
Rural	21	20.6

were students (66.7%; n=68), and 79.4% (n=81) lived in the urban area **(Table 1)**.

When the severity of acne was measured using the GAGS scale, it was observed that 47.0% (n=48) were affected by moderately severe acne, while 20.6% (n=21) of the respondents had severe acne vulgaris.

The psychological impact of AV on the participants was assessed with the help of the DASS-21. **Table 2** shows relationship between severity of acne with severity of depression, anxiety and stress where chi square test was done and found positive correlation ($p<0.01$). That is severity of depression, anxiety and stress increases with severity of acne vulgaris. Again Pearson's correlation was done to understand the association between variables **(Table 3)**. A positive, strong and significant correlation was observed between acne, stress, anxiety and depression (acne vs. stress: 0.853, acne vs. anxiety: 0.790, acne vs. depression: 0.838; $p<0.01$).

Discussion

Skin is the organ that reflects ones well-being, personality, beauty. Acne occurs at the age of adolescence, when one becomes conscious about his or her appearance. In this study most of the respondents were at the age group of 16 to 20 years, that is the peak age of acne vulgaris.

Table 2 Relationship between acne severity and presence of depression, anxiety and stress.

	DAS scoring	*Severity of acne*				*p value*
		Mild (1-18) n=27	*Moderate (19-30) n=48*	*Severe (31-38) n=21*	*Extremely severe (39+) n=06*	
Depression	Normal (0-4)	25.9%	0	0	0	0.000**
	Mild (5-6)	51.9%	22.9%	0	0	
	Moderate (7-10)	22.2%	41.7%	0	0	
	Severe (11-13)	0	33.3%	23.8%	0	
	Extremely Severe (14+)	0	2.1%	76.2%	100%	
Anxiety	Normal (0-3)	44.5%	0	0	0	0.000**
	Mild (4-5)	37.0%	22.8%	0	0	
	Moderate (6-7)	14.8%	43.8%	0	0	
	Severe (8-9)	0	16.7%	28.6%	0	
	Extremely severe (10+)	3.7%	16.7%	71.4%	100%	
Stress	Normal (0-7)	63.0%	10.4%	0	0	0.000**
	Mild (8-9)	33.3%	50.0%	0	0	
	Moderate (10-12)	3.7%	31.6%	28.6%	0	
	Severe (13-16)	0	8.0%	28.6%	16.7%	
	Extremely severe (17+)	0	0	42.8%	83.3%	

** p value< 0.01, significant

Table 3 Correlation matrix for acne vulgaris and psychological disorders (stress, anxiety, and depression) among the participants.

	Acne	*Stress*	*Anxiety*	*Depression*
Acne	1	0.853**	0.790**	0.838**
Stress	0.853**	1	0.769**	0.853**
Anxiety	0.790**	0.769**	1	0.700**
Depression	0.838**	0.853**	0.700**	1

** Significant correlation is at the 0.01 level (2-tailed).
* Significant correlation is at the 0.05 level (2-tailed).

In most studies the Hospital Anxiety and Depression Scale (HADS) was used. Here patients with no known psychiatric illness were instructed to respond to a number of questions, followed by evaluation of depression and anxiety was done depending on their response.[9,10] But using this scale we cannot grade the patient according to severity of depression and anxiety. Again we cannot evaluate mental stress with this scale. On the other hand DASS 21, can measure depression, anxiety and stress altogether along with severity. Assessing the severity of psychological symptoms of the patients is immense important for that it would help what sort of counseling the patient would need or if he or she might require medication.

In this study severity of psychological symptoms increased with the severity of acne. This finding correlates with several studies in different countries around the world. A study conducted by Hussien and Eladl at a university hospital in Egypt, where they used Hospital Anxiety and Depression Scale (HADS) and they found significant correlation between severity of acne and anxiety and depression.[11] Another study in Turkey by Öztürk *et al*. where they found significantly higher HADS score in acne patients compared to control group.[12]

In this study we found significant difference in severity of depression, anxiety and stress among different acne severity sub groups. This is contrary to Öztürk *et al*. where they could not find any difference between acne severity sub groups. This might be due to different scale used to determine the presence of psychological symptoms.

In contrast to healthy individuals, it is now well established that dermatology patients suffer from more or less psychological distress. A meta-analysis conducted by Xu *et al*. had found positive association between acne and suicide. They had included five studies involving a total of 2,276,798 participants and 52,075 participants had acne.[14] Interestingly they urged the need for taking care of mental health of acne patients.

In our study, we observed a significant, strong and positive relationship between acne, stress, depression and anxiety. Around 90% respondents screened positive for depression and anxiety, and 80% screened positive for stress. Our findings correlates with study conducted by L Lukaviciute *et al*. where they found around fifty percent of patients with acne had comorbid emotional disorders. Depression was more prevalent and life quality had been impaired to more than 90% of patients.[15] S Aktan *et al*. showed that acne in adolescent age group were more prone to negative psychological effects of the disease.[16] K Yazici *et al*. revealed that depression and anxiety proportionately increases with impairment of quality of life due to acne.[17] Another cross-sectional study in India, which reported an anxiety prevalence of 68.3%.[18]

Conclusion

This study revealed that four out of every five acne patients go through psychological distress in Bangladesh. The Bangla Validated DASS 21 has appeared to be a useful instrument for screening depression, anxiety and stress in acne patients.

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