Scars on Body are the Scars on Mind - Anxiety, Depression and Low Self-Esteem in Acne Vulgaris Patients

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ABSTRACT

Background: Acne, or acne vulgaris, a chronic inflammatory disorder of the pilosebaceous unit of the skin, can severely affect an individual's social and psychological functioning, progressing into psychiatric morbidity including anxiety, depression, and decreased self-esteem. The objective of this study was to determine the frequency of Anxiety, Depression and Low Self-esteem in patients with Acne Vulgaris visiting dermatology clinics at tertiary care hospitals in Karachi.

Methods: This cross-sectional study was conducted on 215 patients with acne vulgaris of both genders, ≥ 13 years recruited from Dermatology clinics at two tertiary care hospitals in Karachi, from July 2011-February 2012. Anxiety, depression and self-esteem were evaluated using, Anxiety and Depression Scale (HADS) and Rosenberg self-esteem scale (RSES). The severity of acne was assessed by three grades (Mild, Moderate and Severe) according to American academy of dermatology. Data was analyzed using SPSS and a p-value of < 0.05 was considered statistically significant.

Results: Out of 215 patients (113 males, 102 females), 107 participants were from private hospital and 108 from public hospital. Patients with mild, moderate and severe acne were 41.4%, 42.8% and 15.8% respectively. Similarly, anxious, depressed and low self-esteem was found 67%, 40% and 69.3% respectively. Most acne patients were young adults (61.4%) between 19-24 years, followed by adolescents (20.9%). between 13-18 years of age.

Conclusion: Overall the patients with moderate acne were found with highest anxiety, depression and low self-esteem, but the results were not significant. The physicians should treat acne with early intervention and holistic management.

Keywords: Acne Vulgaris; Depression; Anxiety.

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INTRODUCTION

Acne vulgaris, or acne, is a chronic inflammatory disorder of the pilosebaceous unit of skin, primarily involving the face and upper part of the trunk. With an estimated global prevalence of 9.4%, acne is the eighth most prevalent disease in the world[1,2]. Factors including androgen-induced increased sebum production, altered keratinization and colonization of *Propionibacterium acnes* play a major role in pathogenesis[3]. Clinically, it presents with seborrhea, comedones, red papules, pustules and cystic nodules which contribute to physical scarring, erythema, hyperpigmentation and disfigurement leading to emotional and psychological stress[3,4].

Acne can severely affect an individual's social and psychological functioning with the development of potential psychiatric morbidity including anxiety, depression, social embarrassment, withdrawal, social phobia and decreased self-esteem[5]. A recent meta-analysis of 42 studies found a significant association between acne, and depression and anxiety (r = 0.22 and 0.25 respectively). Moreover, compared to those without acne, patients with acne, reported more depressive symptoms, chronic sadness, a greater feeling of worthlessness, anhedonia and suicidal ideation[6,7]. Studies have also linked acne with low self-worth, decreased body image satisfaction, decreased self-confidence, interpersonal relationship difficulties and unemployment[8].

Although acne affects 85% of adolescents and young adults worldwide it can also affect individuals in their late adulthood and has shown to have a greater male predominance[9]. Lello et al. reported that males had significantly higher levels of moderate to severe acne as compared to females[10]. Other studies have shown female predominance also, especially in adolescent girls[11]. Adolescence, however, is a complex stage, comprising multiple biological, physical and interpersonal changes, along with the integration of personality, self-image and overall formation of identity as the child moves towards adulthood. Pressure to meet the socially perceived image of attractiveness and suffering from acne only compounds to increased psychological morbidity in the adolescent age group[12].

To date, only a few studies in Pakistan have assessed the association of acne with anxiety and depression. These studies had a small sample size and did not appraise the effect of acne on self-esteem. Therefore, the main objective of this study was to evaluate the psychological impact of acne vulgaris with its severity and determine the frequency of psychological morbidity mainly anxiety, depression and low self-esteem in acne patients visiting outpatient clinics at tertiary care hospitals in Karachi.

METHODS

This cross-sectional study was carried out in outpatient dermatology clinics of two tertiary care hospitals in Karachi from, January 2021 to June 2021 after approval from the ethical review committee. Two hundred and fifteen patients from both the study sites of either sex was equally enrolled. All patients with acne vulgaris age 13 years and above, irrespective of the duration and severity of acne, were selected through non-probability consecutive sampling. Those patients who had a history of any psychiatric illness, any other skin disease (e.g., psoriasis or eczema), any chronic medical or surgical problem lasting more than 6 months, or those unable to comprehend meaningfully were excluded. Informed consent was taken from each patient. All demographic data was collected through a predesigned Performa.

The severity of acne was graded according to the American academy of dermatology into mild, moderate and severe[13]. Depression and anxiety were assessed by HAD scale (HADS). The HAD Scale is a validated, self-assessment scale (sensitivity 96.9%; specificity= 68.7%) with 14 items and two subscales, one for depression and one for anxiety, with a cut-off score for depression subscale 7 and the anxiety subscale 10 [13]. Self-esteem was assessed using the Rosenberg self-esteem scale (RSES). The RSES is a 10-item scale that reveals the self-worth that a person has about themselves by focusing on both positive and negative feelings experienced by an individual[14]. An RSES Score of less than 15 was suggestive of low self-esteem. Both scales used were validated in English and Urdu versions and Performa was translated into Urdu for ease for patients. Data was analyzed using SPSS, and chi-square was used for association and a *p*-value of < 0.05 was considered statistically significant.

RESULTS

There was a total of 215 participants in the study including 107 (49.8%) from a private hospital and 108 (50.2%) from a public hospital The overall age range of the participants was 13 to 30 years which included 45 (20.9%) in the age range of 13 to18 years, 132 (61.4%) in the age group of 19 to 24 years and this group was in the majority and the remaining 38 (17.7%) were in the age range of 25 to 30 years. As per gender status, 113 (52.6%) participants were male and 102 (47.4%) were female. The education status shows that 6 (2.8%) had completed education till primary level, 15 (7%) completed secondary level education, 80 (37.2%) had done Matric, 63 (29.3%) were intermediate and 51 (23.7%) had done Bachelors or more (Table 1).

Table 1: Baseline characteristics of the study participants

Variables	Frequency n (%)	Severity of acne		
		Mild n (%)	Moderate n (%)	Severe n (%)
Healthcare Facility Tertiary care Public Tertiary care	107 (49.8%) 108 (50.2)	48 (44.9) 41 (38.0)	39 (36.4) 53 (49.1)	20 (18.7) 14 (13.0)
Age groups 13-18 years 19-24 years 25-30 years	45 (20.9) 132 (61.4) 38 (17.7)	22 (48.9) 50 (37.9) 17 (44.7)	12 (26.7) 64 (48.5) 16 (42.1)	11 (24.4) 18 (13.6) 5 (13.2)
Gender Male Female	113 (52.6) 102 (47.7)	47 (41.6) 42 (41.6)	53 (46.9) 39 (38.6)	13 (11.5) 21 (20.8)
Marital status Single Married	174 (80.9) 41 (19.1)	73 (42) 16 (39)	74 (42.5) 18 (43.9)	27 (15.5) 7 (17.1)
Education Primary Secondary Matric Intermediate Bachelors or Higher	6 (2.8) 15 (7.0) 80 (37.2) 63 (29.3) 51 (23.7)	4 (66.7) 7 (46.7) 35 (43.8) 24 (38.1) 19 (37.3)	0 5 (33.3) 30 (37.5) 27 (52.9) 92 (42.8)	2 (33.3) 3 (20) 15 (18.8) 9 (14.3) 5 (9.8)

Of the patients attending the dermatology clinics of the two tertiary care hospitals 41% were suffering from mild, 43% from moderate and only 16% from severe acne (Figure 1).
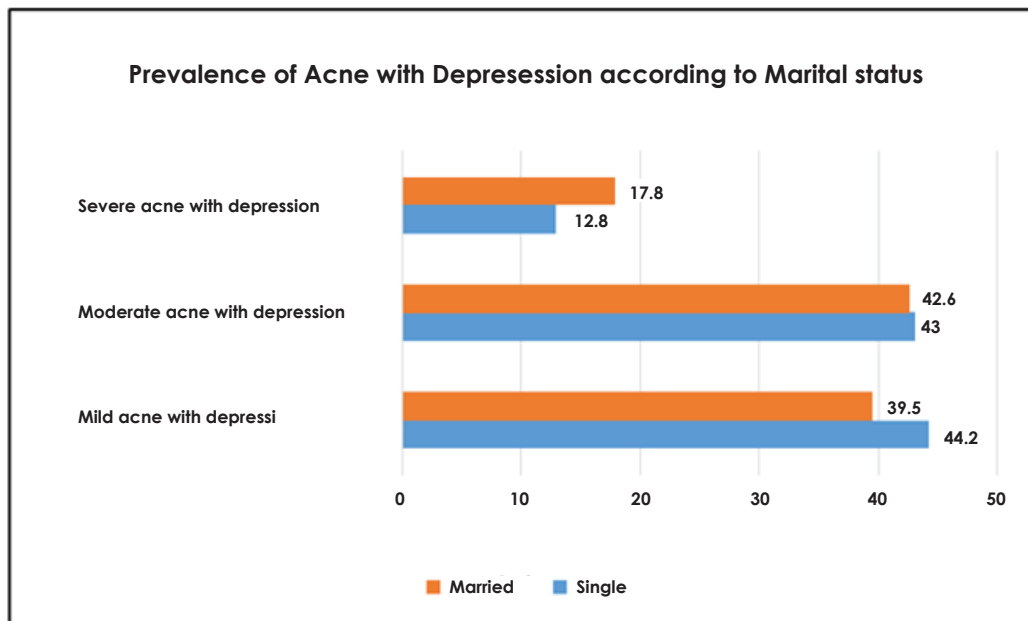

Figure1: Prevalence of acne with depression according to marital status.

Overall, more than 65% of the study participants suffering from acne vulgaris, were having anxiety with a *p*-value of 0.84. Among the age groups, the most affected 86 (59.7%) were 19 – 24 years of age, 36 (25%) 13 -18 years of age and 22 (15%) 25 – 30 years of age. The association between anxiety and age was quite significant with a *p-value* of 0.079. As per gender status, out of 144 participants having anxiety, 75 (52%) were male and 69 (47.9%) females, thus depicting a slightly more (5%) prevalence among males. The participants experiencing anxiety were mostly-116 (80.6%) single and 28 (19%)

were married. Among the anxiety-positive participants, the majority 97 (81%) were at matric level 47(32%) and intermediate level-50 (34%) of education. A strong association was depicted between anxiety-positive respondent and their level of education with a significant *p*-value = 0.001. The association between anxiety and severity of acne was not significant as depicted by a *p*-value of 0.56. When compared with anxiety alone, level of education (*p* – 0.001), depression (*p* - 0.001) and low self-esteem (*p* - 0.03) among participants were significantly associated with anxiety (Table 2).

Table 2: Comparison of demographic characteristics with anxiety, depression and low self-esteem.

Variables	Anxiety		Depression		Low Self-esteem	
	Frequency n (%)	*p*-Value	Frequency n (%)	*p*-Value	Frequency n (%)	*p*-Value
Site Private Hospital Public Hospital	71 (49.3%) 73 (50.7%)	0.847	37(43%) 49(57%)	0.213	88(59.1%) 61(40.9%)	0.000
Age 13-18 years 19-24 years 25-30 years	36 (25.0%) 86(59.7%) 22(15.3%)	0.079	23(26.7%) 50(58.1%) 13(15.1%)	0.079	26(17.4%) 92(61.7%) 31(20.8%)	0.064
Gender Male Female	75(52.1%) 69(47.9%)	0.843	49(57%) 37(43%)	0.289	76(51%) 73(49%)	0.494
Marital Status Single Married	116(80.6%) 28(19.4%)	0.842	73(84.9%) 13(15.1%)	0.228	115(77.2%) 34(22.8%)	0.842
Education Primary Secondary Matriculation Intermediate Bachelors	6 (4.2%) 14(9.7%) 47(32.6%) 50(34.7%) 27(18.8%)	0.001	3(3.5%) 3(3.5%) 41(47.7%) 22(25.6%) 17(19.8%)	0.072	6(4.0%) 10(6.7%) 53(35.6%) 36(24.2%) 44(29.5%)	0.006

The association between anxiety and depression among the participants was significant with a *p*-value of 0.001. The association between anxiety and low self-esteem was also significant with a *p*-value of 0.03. The data depicts that overall, 86 (40%) of the respondents who were suffering from acne experienced depression. There was no statistically significant association of depression with age, gender, marital status, education and severity of acne. However, an association between depression and anxiety was found significant with a *p*-value of 0.001. Low self-esteem and depression also had no significant association. Prevalence of

Low self-esteem was found significant (59.1%) among the study participants with a *p*-value of 0.000. Low self-esteem does not seem to have an association with age, gender and marital status. There was a significant association between the level of education and low self-esteem of participants suffering from acne. No association was found between low self-esteem and the severity of acne and depression. However, as mentioned earlier there was a significant association between anxiety and low self-esteem with a *p*-value of 0.03 (Table 3).

Table 3: Severity of acne and presence of anxiety, depression and low self-esteem.

Severity of Acne	Anxiety		Depression		Low Self Esteem	
	Frequency n (%)	*p*-Value	Frequency n (%)	*p*-Value	Frequency n (%)	*p*-value
Mild **Moderate** **Severe**	56(38.9%) 64(44.4%) 24(16.7%)	0.565	38(44.2%) 37(43.0%) 11(12.8%)	0.577	63(42.3%) 62(41.6%) 24(16.1%)	0.871

DISCUSSION

In this study, 69 % of the acne patients were found to be suffering from anxiety due to acne. This result was in concordance with some studies conducted previously which reported anxiety to be 44% and 68% respectively[10,15-17]. We found no association between anxiety and the severity of acne and our findings were like those reported earlier. A few previous studies have shown a positive relationship between anxiety and the severity of acne[18-20]. Our study also reported that anxiety was neither related to age (*p* 0.07), gender (*p* 0.84), or marital status (*p* 0.84). These results were like those reported previously[15]. Anxiety was found to be related to education (*p* 0.001). A correlation was found between anxiety and depression (*p* 0.001), which is like the result of a previous study in which there was a positive relationship between anxiety and depression (*p*< 0.05). In our study, there was also a correlation found between anxiety and lower self-esteem (*p* 0.03) which contrasts with the results by Unal et al[21].

Most of the study participants belonged to the age group 19-24 years. Adolescents and early adulthood age groups favor previous studies indicating acne is not only more common but also a matter of concern in this age group as they become more image-conscious and hence seek treatment for acne[22]. Similarly, many participants were unmarried and students by occupation. This can be attributed to the need for more social interaction and perceived self-image in this age group. This is also in concordance with the previous studies[23]. Similarly, in various studies conducted previously, mild to moderate forms of acne have been observed in most patients presenting to outpatient clinics while only a small number of patients have shown concern for a severe form of acne[11].

The frequency of depression in our study was found to be 40% which is similar to another study by Sood et al[24]. Results from Lukaviciute et al. showed a prevalence of depression of 23.1% in patients with acne which was much lower than found in our study[25]. On further analysis, we did not find any association between depression and acne severity. In contrast to these results, Öztürk et al. reported significantly higher levels of anxiety and depression in patients with acne as compared to the control group[26]. Depression was not related to age, gender, or marital status. Yazici et al. also did not find any significant difference between male and female acne patients concerning depression[17]. These results were in contrast to the results of some studies in which the prevalence of depression was more in women than men[27].

The results of this study indicated that about 69% of the total acne patients suffered from lower self-esteem. No significant association between self-esteem and gender was found in this study. The results of the present study are like those reported by previous studies in which acne patients had lower self-esteem than controls, with marked embarrassment and social inhibition. They also did not find significant differences between the frequency of self-esteem among male and female patients[28,29]. Vilar et al. found that the severity of acne leads to impaired quality of life but no correlation between acne severity and low self-esteem was reported[28]. The findings of our study were in concordance with those of Akinboro et al. who discovered that acne patients had significantly lower self-esteem than controls[29].

Previous studies done to determine the effect of severity of acne on anxiety, depression and self-esteem have yielded varying results. Altunay et al. observed that a correlation exists between psychosocial effect and grading of facial acne[30]. However, finding from this study indicate that there is no direct relation between acne severity and psychological distress as reported in other studies[17]. The primary basis for the observation that the psychological comorbidity in acne does not correlate with the severity of acne is probably because the peak incidence of acne is in mid-adolescence, a life stage when the patient is also dealing with core developmental issues related to body image, sexuality and socialization, educational, and other issues related to normal individuation into adulthood. Although in this study we did not find any association between the severity of acne and anxiety, depression and low self-esteem yet it is important to treat acne early in developing countries like Pakistan where there is already a lack of mental health services, thus making it more important for the general practitioners and dermatologist to understand the importance of the risks of untreated psychological problems in acne patients.

CONCLUSION

Acne is no longer merely a skin disorder but a psycho-dermatologic manifestation, therefore, early intervention is important because it has a significant impact on mental health. Overall, the patients with moderate acne were found with highest anxiety, depression and low self-esteem, but the results were not significant. Studies with bigger sample size should be conducted to find out the significant impact. Because, Treatment of acne may promote better mental health outcomes in the general population. Therefore, the physicians should treat acne with early intervention and holistic management.

ACKNOWLEDGEMENTS

CONFLICT OF INTEREST

The authors declared no conflict of interest.

ETHICAL APPROVAL

This study has been approved by the ethics review committee of the hospital.

PATIENT CONSENT

Consent of the patient was taken before recruitment in the study.

AUTHORS' CONTRIBUTION

MM did the concept writing, statistical analysis and manuscript writing. AI assisted in the data collection, statistical analysis and manuscript writing. GH contributed to the data collection, result writing and compilation. SY, AF, FS and UJ also assisted in data collection and compilation.

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