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Original Article

Association of anxiety and depression with acne: evaluation of pathoplastic effect of adolescence on this comorbidity

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Abstract

Objective To see the association of anxiety and depression with acne and to observe pathoplastic effect of adolescence on this comorbidity.

Patients and methods This cross-sectional study was conducted in the out-patients of department of Dermatology, Bahawal-Victoria Hospital/Quaid-e-Azam Medical College, Bahawalpur, from January 01, 2011 to June 30, 2011. After taking written informed consent from each patient, we enrolled 101 patients of acne diagnosed by consultant dermatologist .The severity of acne was determined according to the Global Acne Grading System. The patients of both sexes of the age ranging from 10-39 years were included in the study and divided into three groups (I=10-19y, II=20-29y, III=30-39y) to examine the effect of age on the disease .The patients with concomitant dermatological, psychiatric diseases and on systemic isotretinoin were excluded. The patients fulfilling inclusion criteria were administered Urdu version of Hospital Anxiety and Depression Scale by senior psychiatrist assisted by his team. The score obtained from each patient was used to categorize non-caseness (0-7), mild anxiety and mild depression (8-10), moderate anxiety and moderate depression (11-15) and severe anxiety and severe depression (16-21).

Results Out of 101 patients studied, 35.6% were males and 64.4% females with M: F ratio of I: I.8. 81.18% of the acne patients were having anxiety, 70.29% depression and 18-29% had no psychiatric complication. The large majorities of the enrolled patients were suffering from mild anxiety (76.8%) and mild depression (83.1%). Only the patients with moderate acne had severe anxiety (2.4%) and severe depression (1.4%). 88.1% of the acne patients had duration of illness less than 5 year against 11.9% with duration more than 5 years ($p<0.05$). We found continuous decrease in the frequency of anxiety and depression as the acne patients' age progressed without going into severe psychological handicap.

Conclusion There is high association of anxiety and depression with acne. But no linear relationship between the severities of anxiety and depression with those of acne is found. High frequency of mild anxiety and mild depression in adolescence decreases as the age progresses, which may be due to the pathoplastic effect of the younger age.

Key words
Anxiety, depression, acne, adolescence, pathoplastic

Introduction

Acne is a common skin disorder of the adolescents and the young adults.[1] It affects almost 85% of the youth.[2,3] Predominant adolescent prevalence, anatomical distribution of lesions, misconception regarding etiology and social stigma attached to the disorder, make the young population stretch their psychosocial abilities.[4] When the adolescence is the epoch of

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maximum physical, psychological, and social development, the stressful effects of acne may predispose this vulnerable group to psychiatric complications.[5,6] Sainsbury studied 1352 patients of dermatology including acne by administering the Maudsley Personality Inventory[7] and provided evidence in support of psychosomatic theory.[8] Latter studies discovered high prevalence of psychiatric disorders (mainly anxiety and depression), using screening and diagnostic instruments among the patients of dermatology.[9] Various studies show frequency of depression and anxiety ranging from 26-44% in the patients of acne[10] and suicide rate of 6-7.1%.[11] This is reasonably high psychiatric comorbidity which precedes all other chronic medical diseases like diabetes mellitus, bronchial asthma, and arthritis etc.[12]

One year prevalence of all anxiety disorders in US community survey is 13.5% and that of affective disorders is 4.3%.[13] The overlap of depression and anxiety is 52% when mild, 29% when severe.[14] The cumulative probability of having a depressive disorder seems to be high; 10-20%. Similarly, the prevalence of anxiety disorders is high (20.5-23.7%) in adolescents.[15]

As the adolescence is the classic period of peak sensitivity, high neuroticism and difficulties in emotional adjustment, adolescents are more likely to show disturbances in emotional adaptation during the sufferings of physical appearance in acne.[16] With this fertile background they are vulnerable group to develop anxiety and depression frequently.[17]

This study aimed at confirmation of the high association of anxiety and depression with acne and to see the pathoplastic effect of adolescence on this comorbidity, in the Southern region of the province of the Punjab, Pakistan.

Patients and methods

This cross-sectional study was completed over a period of 6 months from 1st January 2011 till 30th June 2011, in the out-patients of department of Dermatology at Bahawal-Victoria Hospital, affiliated with Quaid-e-Azam Medical College, Bahawalpur which is a tertiary care hospital of southern Punjab in Pakistan. After taking written informed consent from each patient, we enrolled 101 cases of acne diagnosed by consultant dermatologist. The severity of acne was categorized according to Global Acne Grading System.[18] The Urdu version of Hospital Anxiety and Depression Scale (HADS) was administered by senior psychiatrist. The HADS evolved by Zigmond and Snaith[19] has been extensively used all over the world for screening the clinically significant anxiety and depression in patients attending general medical clinics. It was translated into Urdu and validated at King Edward Medical College Lahore by Mumford *et al.*[20] Karim *et al.* used HADS in their research and recommended it as a time saving tool in medical as well as psychiatric settings but showed reservations to us it as a diagnostic instrument.[21] Zigmond and Snaith described two cut-off scores; 7/8, below which anxiety or depression is unusual and 10/11, beyond which a clinically significant syndrome is probable. Alan Priest claims HADS as a diagnostic tool and specific score in incremental pattern measures the severity of the syndrome (0-7= non-caseness, 8-10= mild depression and anxiety, 11-15=moderate anxiety and depression and the score of 16 -21 depicts severe anxiety and depression [22]. We followed the same criteria to diagnose and rate severity of the syndrome in our study.

Table 1 Distribution of patients according to age and gender (n=101).

Age	*Gender*		*Total*
	Female	*Male*	
10-19 years (group-I)	32	20	52 (51.5%)
20-29 years (group-II)	26	14	40 (39.6%)
30-39 years (group-III)	7	2	9 (8.9%)
Total	65 (64.4%)	36 (35.6%)	101

Table 2 Distribution of patients according to duration of acne (n=101).

Duration of acne	*Female*	*Male*	*Total*
Less than 5 years	55 (54.4%)	34 (33.7%)	89 (88.1%)
Greater than 5 years.	10 (9.9%)	2 (2.0%)	12 (11.9%)
Total	65 (64.3%)	36 (35.7%)	101 (100%)

P<0.5

Table 3 Distribution of severities of anxiety and acne among the comorbidity (n=82).

Severity of anxiety	*Severity of acne*			*Total*
	Mild	*Moderate*	*Severe*	
Mild	30 (36.6%)	31 (37.8%)	2 (2.4%)	63 (76.8%)
Moderate	6 (7.3%)	8 (9.75%)	3 (3.7%)	17 (20.7%)
Severe	0	2 (2.43%)	0	2 (2.5%)
Total	36 (43.9%)	41 (50%)	5 (6.1%)	82

Table 4 Distribution of severities of depression and acne among the comorbidity (n=71).

Severity of depression	*Severity of acne*			*Total*
	Mild	*Moderate*	*Severe*	
Mild	31 (43.7%)	26 (36.6%)	2 (2.8%)	59 (83.1%)
Moderate	3 (4.2%)	6 (8.5%)	2 (2.8%)	11 (15.5%)
Severe	0	1 (1.4%)	0	1 (1.4%)
Total	34 (47.9)	33 (47.0%)	4 (5.1%)	71

We included the patients of both the sexes and different age groups ranging from 10-39 years; the patients were divided into three groups (I=10-19, II= 20-29 and III= 30-39years) to see the effect of age on the comorbidity.

The patients with concomitant dermatological diseases and psychiatric disorders and on systemic isotretinoin were excluded. The data recorded was analyzed using SPSS version 16 and *p* value <0.05 was taken as statistically significant.

Results

We studied 101 patients; among those 36 (35.6%) patients were male and 65 (64.4%) female, with male to female ratio of 1:1.8. Most of the acne patients presented were of age 10-19 years {52 (51.5%)}, followed by patients of age 20-29 years {40 (39.6%)} [**Table 1**]. Other important findings depicted in **Table 2**; are the maximum number of acne patients presented for dermatological management was in the age group-I. The decrease in number of acne patiens is significant when the age crosses 30 years.

As shown in the **Table 2**, most of our patients (88.1%) were with less than 5years duration of acne against only 11.9% of the patients with greater than 5years duration (p<0.05). We noted that out of 101 patients with acne, 82 (81.2%) were having anxiety and 71 (70.3%) depression (**Figure 1**). The severity of anxiety and depression did not show linear relationship with the severity of acne. None of the patients having

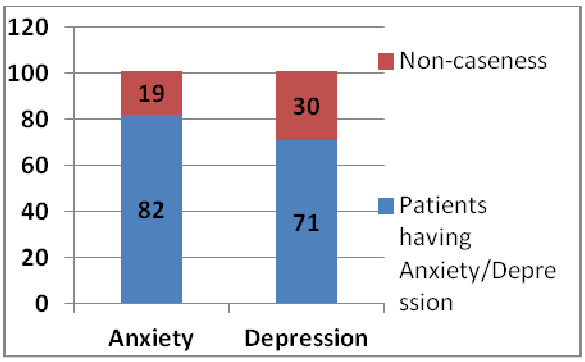

Figure 1 Bifurcation of patients as non-caseness, anxiety and depression (n-101).

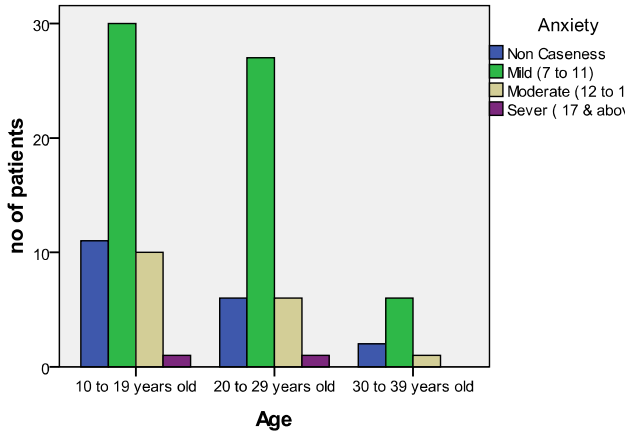

Figure 2 Relationship of age with anxiety.

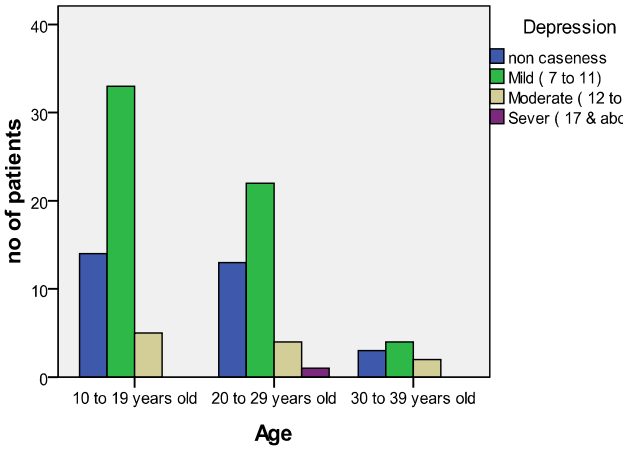

Figure 3 Relationship of age with depression.

severe acne was suffering from severe anxiety or depression (**Table 3** and **4**). The maximum reaction pattern was the mild anxiety and mild depression in younger age (group I). There was a continuous and smooth decrease in the mild anxiety and mild depression as the age progresses without going into severe psychological handicap (**Figures 3** and **4**).

Discussion

Acne afflicts the most dynamic age group of the human population who are passing through their career forming period of life. Comorbidity of psychiatric disorders may leave them with lifelong bio-psycho-social scars or at least may stunt their career growth below their expectations. In this study we found a considerably high morbidity of anxiety (81.2%) and depression (70.3%) among the acne patients attending the dermatology out-patient department. This high frequency of psychiatric symptoms approximates the 70% scores of neurotic symptoms in the study of Hughes *et al*.[9] High frequency of anxiety and depression in our sample may be due to many factors like lack of psychiatric treatment (none of acne patient was on psychological/psychiatric treatment), cohort effect and the use of HADS as both screening and diagnostic instrument which needs further research applications to confirm its validity as diagnostic tool.

The male to female ratio (1:1.8), in this study, is quite in line with the findings of majority international epidemiological studies and surveys for the anxiety disorders[25] and depression.[26] The younger the age, the higher the neuroticism score which makes the young sensitive to the distortions in their physical appearance in acne. This sequence ends up into exuberant emotional disturbances.[16,17] These characteristics of the youth were confirmed in this study as the maximum patients were from the age group I (**Tables 2** and **3**) followed by the group II. The most frequent symptoms have been mild anxiety and mild depression which

constitute a syndrome of an adjustment disorder. This constellation of symptoms decreases as the age progresses and the duration of the acne increases (**Figures 2** and **3**).

In concordance with many previous studies,[23,24] we also did not find any correlation between the severity of acne and the severity of anxiety and depression (**Tables 2** and **3**). We consider the age of onset, duration of acne, personality, perception of the patient, peer acceptance or rejection and other socio-economical parameters are effective in a complex manner. Some researchers give weightage to the influence of certain nutritional factors, a weakened antioxidant defense system and altered intestinal microflora in the production of both; the acne and its psychological sequelae[27]. We did not include these non-specific therapeutic factors in our study but dietary instructions and antioxidants are part of practice of various dermatologists.

This work approves the null hypothesis; there is high association of anxiety and depression with acne and the young age has its pathoplastic effect on this co-morbidity. In the context of these findings we recommend addition of the psycho-education about acne into the school mental health program. For secondary prevention of the complications of acne, early treatment of acne and mandatory incorporation of psychological/psychiatric treatment in this management is required. These measures would minimize the agony of the acne patients and promote health in this vulnerable group during their career building age.

Conclusion

We inferred at strong association of anxiety and depression with acne but there is no linear relationship between the severity of the acne and the severity of anxiety and depression. The early onset of acne is found to be more stressful which points towards the pathoplastic affect of certain personality traits of the affected youth. A broader study aimed at personality details of the acne patients without anxiety and depression (non-caseness) may be helpful to pick the protective traits. Psycho-education of the toddlers, early treatment of the acne and mandatory management of its psychological complications is the solution of this menace.

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