# The Psychological Burden of Chronic Dermatological Diseases.

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## ABSTRACT

**Background:** The psychological burden of skin diseases should not be ignored as it can potentially affect the overall disability experienced by the patient. The relationship between skin diseases and psychiatric illness is bidirectional and is manifested as cause as well as effect. Dermatological disorders like acne, alopecia areata, psoriasis and vitiligo often have a severe form that causes disability and exclusion from a normal life .Psychiatric disorders like stress, anxiety and depression are seen to be instrumental in development and progression of dermatological diseases and this study is to ascertain the association between depression and anxiety with various dermatological diseases. **Methods:** A total of 100 patients, visiting the Out Patient Department of Dermatology, who are referred to Department of Psychiatry for the evaluation of Psychiatric symptom, were included in the study after obtaining written informed consent. Psychiatric morbidities were screened using Brief Psychiatric Rating Scale (BPRS), Hamilton Depression Rating Scale (HAM-D) and Hamilton Anxiety Rating Scale (HAM-A). **Results:** The present study envisaged to explore a relationship between chronic dermatological diseases and psychiatric morbidities. Prevalence of psychiatric comorbidities was maximum in psoriasis (75%) followed by urticaria and Acne Vulgaris(65% each), Alopecia Areata(60%) and Vitiligo (50%). Depression with anxiety disorder (27%) followed by moderate depression with anxiety disorder (23%), anxiety disorder (10%) and severe depression with anxiety disorder (3%) were the most common psychiatric comorbidity. **Conclusion:** The present study was carried out to evaluate the prevalence of psychiatric morbidities among patients with different dermatological illnesses. The growing relationship between skin and psychiatry has given birth to a new branch of medicine, i.e. psychodermatology, which marks the mutual relationship and interaction between psychiatry and dermatology.

*Keywords:* Anxiety, Depression , Psychiatric morbidity, Psychodermatology.

## INTRODUCTION

A healthy skin plays a major role in social and sexual communication and is essential for a person's physical and mental wellbeing and sense of self confidence.[1] Patients with skin lesions are more likely to report anxiety and depressive symptom than those with no chronic skin condition.[2] Dermatological disorders like acne, alopecia areata, psoriasis and vitiligo often have a severe form that causes disability and exclusion from a normal life.[3] With some specific conditions, like vitiligo, majority of patients experience anxiety, depression and disturbances in interpersonal relations while meeting socializing.[4] Alopecia Areata (AA) might be a psychosomatic disease precipitated by tense life events. This impact is so pronounced that alopecia areata has been recommended to be placed under the group of primary dermatologic disorders with mental comorbidities or it can be considered as a primary psychiatric disorder with comorbid skin disorder.[5] Especially in developing countries, people with dermatological diseases have to face severe problems with stigmatization, discrimination and negative attitudes in general among the public, and often bear the brunt of public rejection. Many people with dermatological diseases isolate themselves because of such a deep sense of shame, embarrassment and low self-esteem.[6] All these factors lead to a situation affecting the psychological health of these patients.

## MATERIALS AND METHODS

The study was planned that a total of 100 patients, suffering from the following five chronic skin diseases, viz., Psoriasis, Acne Vulgaris, Vitiligo, Alopecia Areata and Urticaria would be included in the assessment. A stratified sampling design was followed with inclusion of 20 randomly selected patients from amongst each of the five chronic skin diseases.

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## Inclusion Criteria

1. Those patients suffering from chronic dermatological diseases and or accompanying relatives who gave written informed consent regarding participation in study.
2. Patients who did not have any other psychiatric or medical/surgical illness.
3. Persons over age 13 year. In case of age of patient <18 year-Assent of the child (Verbal Consent) along with Consent of parent/Legally Acceptable Representative (LAR) was obtained.

## Exclusion Criteria

1. Patients having major medical or surgical illness.
2. Patients having other chronic dermatological diseases which are not mentioned in the protocol.
3. Patients and/or attendants not giving written informed consent.
4. Patients suffering from mental retardation or any other cognitive dysfunction.
5. Those patients receiving the treatment for chronic dermatological diseases in the last 4 weeks were excluded from the study.
6. Patients suffering from previously diagnosed Psychiatric illness

The patients were diagnosed as per Diagnostic and Statistical Manual (DSM-5) Guidelines. All the patients were assessed using following instruments:

## Instruments

1. A semi structured proforma recording socio-demographic variables of the patient.
2. Brief psychiatric rating scale (BPRS)
3. Hamilton depression rating scale (HAM-D SCALE)
4. Hamilton anxiety rating scale (HAM-A SCALE)

## Statistical Analysis

The data so obtained was subjected to statistical analysis using Statistical Package for Social Sciences (SPSS) version 21.0. Chi-square test and ANOVA was used to evaluate the data. Post-hoc tests were applied wherever necessary. A 'p' value less than 0.05 was considered to be indicative of statistically significant association.

## RESULTS

A total of 100 patients with five different types of chronic dermatological diseases were enrolled in the study as shown in Table 1 below:

**Table 1: Distribution of cases according to type of chronic dermatological diseases**

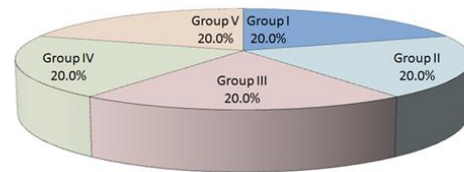| SN | Group | Type of chronic dermatological disease | No. of cases | Percentage |
|---|---|---|---|---|
| 1. | I | Urticaria | 20 | 20 |
| 2. | II | Acne Vulgaris | 20 | 20 |
| 3. | III | Psoriasis | 20 | 20 |
| 4. | IV | Vitiligo | 20 | 20 |
| 5. | V | Alopecia Areata | 20 | 20 |



**Figure 1: Group wise distribution of cases**

A total of 20 (20%) patients were cases of urticaria and comprised the Group I of study, 20 (20%) cases of Acne vulgaris comprised the Group II of study, 20 (20%) cases of psoriasis comprised the Group III of study, 20 (20%) cases of vitiligo comprised the Group IV of study and remaining 20 (20%) were cases of alopecia areata and comprised the Group V of study.

**Table 2: Comparison of age profile of patients in different groups**

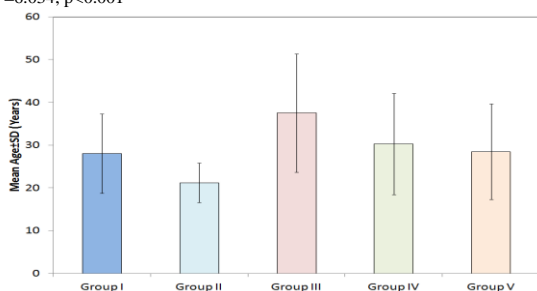| SN | Age Group (Years) | Group I (n=20) | Group II (n=20) | Group III (n=20) | Group IV (n=20) | Group V (n=20) |
|---|---|---|---|---|---|---|
| 1. | ≤20 | 5 (25.0%) | 11 (55.0%) | 4 (20.0%) | 5 (25.0%) | 6 (30.0%) |
| 2. | 21-30 | 8 (40.0%) | 8 (40.0%) | 1 (5.0%) | 6 (30.0%) | 6 (30.0%) |
| 3. | 31-40 | 5 (25.0%) | 1 (5.0%) | 8 (40.0%) | 6 (30.0%) | 6 (30.0%) |
| 4. | 41-50 | 2 (10.0%) | 0 | 4 (20.0%) | 2 (10.0%) | 1 (5.0%) |
| 5. | 51-60 | 0 | 0 | 3 (15.0%) | 1 (5.0%) | 1 (5.0%) |
| Mean±SD (Range) in years | | 28.0±9.3 (16-46) | 21.2+4.65 (15-37) | 37.3+13.4 (14-60) | 30.2+11.57 (17-60) | 28.45+11.18 (15-60) |
| Overall mean age±SD (Range): 29.02±11.46 (14-60) Years | | | | | | |

F=6.034; p<0.001



**Figure 2: Mean age of patients in different study groups**

Age of patients ranged from 14 to 60 years. Mean age of patients was 29.09+11.66 years. Majority of patients in Group II (55%) were aged <20 years while majority of patients in Group I (65%) and Group V (60%) were up to 30 years of age. In contrast, majority of Group IV patients (60%) were in age range 21 to 40 years and majority of Group III patients were in age range 31 to 50 years (60%). Mean age of patients was minimum in Group II (21.2±4.65 years) followed by Group I (28.0±9.3 years), Group V (28.45±11.18 years), Group IV

(30.2±11.57 years) and Group III (37.3±13.4 years) respectively. Statistically, there was a significant difference in mean age of patients among different groups (p<0.001).

**Table 3: Comparison of Marital status of patients in different groups**

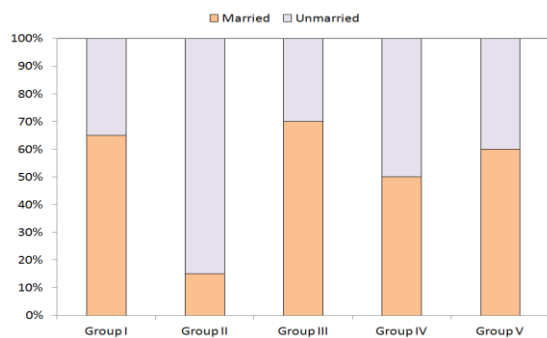| SN | Marital Status | Group I (n=20) | Group II (n=20) | Group III (n=20) | Group IV (n=20) | Group V (n=20) |
|----|----------------|------|------|------|------|------|
| 1. | Married (n=52) | 13 (65%) | 3 (15%) | 14 (70%) | 10 (50%) | 12 (60%) |
| 2. | Unmarried (n=48) | 7 (35%) | 17 (85%) | 6 (30%) | 10 (50%) | 8 (40%) |

$\chi2=15.465$ (df=4); p=0.004



**Figure 3: Comparison of Marital status of patients in different groups**

Overall, majority (52%) patients were married and remaining 48% were unmarried. Except for Group II and IV where only 15% and 50% patients were married, in all the other groups, majority of patients were married. Statistically, there was a significant difference in marital status of patients in different groups (p=0.004).

**Table 4: Distribution of patients in different groups according to socioeconomic status**

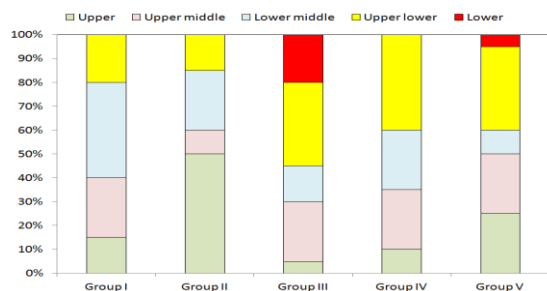| SN | Socioeconomic Status | Group I (n=20) | Group II (n=20) | Group III (n=20) | Group IV (n=20) | Group V (n=20) |
|----|----------------------|------|------|------|------|------|
| 1. | Upper (n=21) | 3 (15%) | 10 (50%) | 1 (5%) | 2 (10%) | 5 (25%) |
| 2. | Upper middle (n=22) | 5 (25%) | 2 (10%) | 5 (25%) | 5 (25%) | 5 (25%) |
| 3. | Lower middle (n=23) | 8 (40%) | 5 (25%) | 3 (15%) | 5 (25%) | 2 (10%) |
| 4. | Upper lower (n=29) | 4 (20%) | 3 (15%) | 7 (35%) | 8 (40%) | 7 (35%) |
| 5. | Lower (n=5) | 0 | 0 | 4 (20%) | 0 | 1 (5%) |

$\chi2=33.582$ (df=16); p=0.006



**Figure 4: Distribution of patients in different groups according to socioeconomic status**

Overall, a total of 21 patients belonged to upper class, 22 to upper middle class, 23 to lower middle class and 29 to upper lower class. There were 5 cases from lower class. In Group I, majority (65%) was from upper middle and lower middle class, In Group II, majority (60%) were from upper and upper middle class. In Group III, majority (55%) were from upper lower and lower class. In Group IV, majority (65%) were from lower middle and upper lower class. In Group V, half (50%) patients were from upper and upper middle class while remaining 50% were from lower middle, upper lower and lower classes. Statistically, there was a significant difference in socioeconomic status of patients with different dermatological disorders (p=0.006).

**Table 5: Distribution of patients in different groups according to duration of dermatological illness**

| SN | Duration of illness | Group I (n=20) | Group II (n=20) | Group III (n=20) | Group IV (n=20) | Group V (n=20) |
|----|---------------------|------|------|------|------|------|
| 1. | ≤6 months (n=24) | 9 (45%) | 7 (35%) | 1 (5%) | 1 (5%) | 6 (30%) |
| 2. | 6-12 months (n=17) | 4 (20%) | 4 (20%) | 1 (5%) | 1 (5%) | 7 (35%) |
| 3. | 1-2 Years (n=27) | 4 (20%) | 5 (25%) | 6 (30%) | 8 (40%) | 4 (20%) |
| 4. | 2-5 Years (n=16) | 3 (15%) | 4 (20%) | 5 (25%) | 4 (20%) | 0 |
| 5. | >5 Years (n=16) | 0 | 0 | 7 (35%) | 6 (30%) | 3 (15%) |

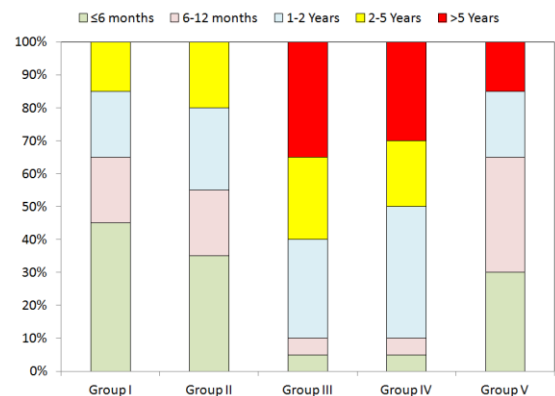$\chi2=38.49$ (df=16); p=0.001



**Figure 5: Distribution of patients in different groups according to duration of dermatological illness.**

Overall, maximum number of cases had duration of illness between 1-2 years (27%) followed by those having duration of illness <6 months (24%), 6-12 months (17%), 2-5 years and >5 years (16% each) respectively.

On GroupWise evaluation, majority of patients in Groups I, II and V had duration of illness <6 months and 6-12 months while majority of patients in Groups III and IV had duration of illness 1-2 and 2-5 years. Statistically, there was a significant difference in duration of illness among different groups (p=0.001).

**Table 6: Distribution of cases according to type of psychiatric comorbidity (N=100)**

| SN | Type of psychiatric comorbidity | No. & % of cases |
|---|---|---|
| 1. | Anxiety disorder | 10 |
| 2. | Mild depression + Anxiety disorder | 27 |
| 3. | Moderate depression + Anxiety disorder | 23 |
| 4. | Severe depression + Anxiety disorder | 3 |
| 5. | No psychiatric comorbidity | 37 |

Mild depression with anxiety disorder (27%) was the most common psychiatric comorbidity followed by moderate depression with anxiety disorder (23%), anxiety disorder (10%) and severe depression with anxiety disorder (3%) respectively.
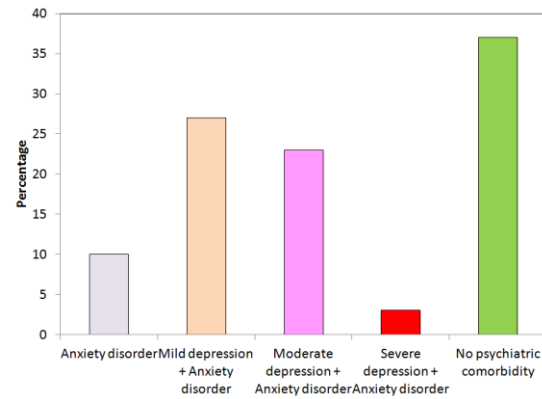


**Figure 6: Distribution of cases according to type of psychiatric comorbidity**

**Table 7: Multiple Logistic Regression**

| Variables | B | S.E. | Wald | df | Sig. | Exp(B) (OR) | 95.0% C.I.for EXP(B) | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| Duration | 0.784 | 0.516 | 2.308 | 1 | 0.129 | 2.190 | 0.797 | 6.021 |
| SES | -0.112 | 0.443 | 0.064 | 1 | 0.800 | 0.894 | 0.375 | 2.131 |
| Suicidal ideation | 2.317 | 1.064 | 4.742 | 1 | 0.029 | 10.149 | 1.261 | 81.716 |
| Constant | 0.132 | 0.350 | 0.143 | 1 | 0.705 | 1.141 | | |

On multivariate analysis, taking into account both the variables found to be significantly associated with occurrence of psychiatric illness among patients with psychiatric illness (i.e. duration=2 or more years, SES- III or above and suicidal ideation), only suicidal ideation was found to be significantly associated with occurrence of psychiatric illness (OR=10.149; 95% CI 1.271-81.716).

## DISCUSSION

Skin diseases are often chronic and need prolonged treatment. The chronicity and prolonged treatment has effect on both psychiatric well-beings as well as on the quality of life of patients. Hence it is essential to identify and understand the burden of psychiatric illness among these patients. A total of 100 patients with five different types of chronic dermatological diseases (20 each with Urticaria, Acne Vulgaris, Psoriasis, Vitiligo and Alopecia Areata) were enrolled in the study and were assessed for presence of psychiatric morbidities. The purpose of including five different dermatological diseases was to understand whether different dermatological disorders have variable impact on psychiatric well-being.

**The findings of the study are being discussed as follows:**
AGE: In present study, age of patients ranged from 14 to 60 years with a mean age of 29.02+11.46 years. Majority of patients in all the groups, except psoriasis were aged <30 years, however, in psoriasis group, majority of patients (75%) were aged >30 years. Mean age of patients in all the other groups ranged from 21.2+4.65 years (Acne) to 30.2+11.57 years vitiligo as compared to 37.3±13.4 years in psoriasis group. With respect to urticaria patients, the mean age of patients in present study was 28 years which is within the described age for peak incidence i.e. between 10 and 40 years.[7] In present study, mean age of Alopecia areata patients was found to be 28.45±11.18 years which are slightly higher than that reported by Sellami et al.[8] who reported it as 32.92 years. Although, vitiligo has been reported to affect the patients more preferably between the ages of 10 and 30 years however, the mean age of patients in present study (30.2 years) showed that most of the patients in present study were chronic suffers of this disease and well above this defined age range of 10-30 years.

**Marital Status**
In present study, proportion of married patients was higher (52%) as compared to unmarried (48%). marital status of the patients in present study was in accordance with the age profile of patients as it was seen that in groups where mean age of patients was minimum (acne vulgaris), the proportion of unmarried patients was higher (85%) wherever among those where the mean age was higher (psoriasis) proportion of married patients (70%) was higher.

**Socioeconomic status**
In present study, significantly higher proportion of patients with psoriasis (55%), vitiligo (40%) and alopecia areata (40%) belonged to upper lower and lower socioeconomic strata as compared to only 20% and 15% of patients with urticaria and acne vulgaris.

**Duration Of Disease**

In present study, maximum number of cases had duration of illness between 1-2 years (27%) followed by those having duration of illness <6 months (24%), 6-12 months (17%), 2-5 years and >5 years (16% each) respectively. Interestingly, patients with urticaria, acne vulgaris and alopecia aerate had significantly shorter duration of illness as compared to psoriasis and vitiligo which had significantly longer duration of illness. As such, acne vulgaris that affects over 90% adolescents but persists into adulthood in approximately 12%-14%, thus showing that it is a transient disease which is cured and does not assume a chronic level that prolongs to a long-duration.[9] However, the difference in duration of illness of different dermatological diseases in present study was not governed by their ability to be cured. For example, while alopecia areata which generally takes a long time to be cured also had a shorter duration of illness in present study, thus reflecting that duration of illness was not in consonance with the clinical course of the disease and was merely incidental, which could be attributable primarily to the small sample size of each dermatological disorder. As such, a significant association between psychiatric morbidity and duration of chronic dermatological disorders has been shown in different studies.[10-12] In view of the differences in duration of disease among different chronic dermatological diseases as observed in present study, we were interested to know whether these differences have an impact on the prevalence of psychiatric morbidity among different chronic dermatological disease groups.

**Psychiatric Morbidity Assessment and Prevalence of Psychiatric Morbidity**
In present study, we used BPRS, HAM-D and HAM-A to assess the burden of psychiatric morbidity and type of psychiatric morbidity in different groups. On evaluating the mean BPRS, HAM-D and HAM-A scores among different groups, we did not find a significant intergroup difference. With respect to prevalence of psychiatric morbidity, it was found to be 63% in study population. It was maximum in Psoriasis patients (75%) followed by Urticaria and Acne vulgaris (65% each), Alopecia areata and Vitiligo recorded 60% and 50% respectively.
Karia et al.[13] who compared psoriasis and acne vulgaris found to psychiatric morbidity rate to be lower in Alopecia areata cases (22%) as compared to psoriasis (38%) cases. In another study, Jain et al.[14] compared psychiatric comorbidities in psoriasis and acne patients and found the prevalence of psychiatric morbidities to be significantly higher in psoriasis (70%) as compared to acne (40%) cases. Though in present study too we found prevalence of psychiatric morbidity to be lesser in acne vulgaris and vitiligo cases as compared to psoriasis cases yet we did not find the difference to be significant statistically. The

main reason for this was the small sample size for each group of dermatological disorders studied by us. Moreover, there was difficulty in assessing the severity of different disorders and to compare them in equivalent terms hence we had to drop the idea of measuring the disease severity. To understand the comparative psychiatric burden of different studies, we need to assess the same in a larger sample size with inclusion of more variables such as location of lesion and severity of disease and in somewhat matched groups.
Among psychiatric morbidities, depression with anxiety disorder comprised were most common comprising 53% of study sample. There were 10% cases with anxiety disorder. Mild, moderate and severe depression was seen in 27%, 23% and 3% cases respectively. Similar to present study, coexisting anxiety and depression disorder have been reported to be affecting the patients with acne.[15] With respect to severity of depression too, similar to our findings Ali Mostafavi et al.[15] also found frequency of mild, moderate and severe depression to be 65%, 29% and 7% respectively, thus showing that severe depression is relatively less common as also observed in present study.

## CONCLUSION

1. Prevalence of psychiatric morbidity was 63% in study population. It was maximum in Psoriasis patients (75%) followed by Urticaria and Acne vulgaris (65% each), Alopecia areata and Vitiligo recorded 60% and 50% respectively.
2. Patients with Psoriasis had significantly higher mean age (37.5±13.84 years) as compared to other illnesses (mean age ranging from 21.2±4.65 to 30.3±11.84 years).
3. Significantly higher proportion of patients with psoriasis (55%), vitiligo (40%) and alopecia areata (40%) belonged to upper lower and lower socioeconomic strata as compared to only 20% and 15% of patients with urticaria and acne vulgaris.
4. Proportion of those with duration of illness 2-5 and >5 years was significantly higher in Groups III (55%) and IV (50%) as compared to Groups I (15%), II (20%) and V (15%) respectively.
5. Among psychiatric morbidities, depression with anxiety disorder comprised were most common comprising 53% of study sample. There were 10% cases with anxiety disorder. Mild, moderate and severe depressions were seen in 27%, 23% and 3% cases respectively.

The findings of present study showed that prevalence of psychiatric morbidity is quite common among patients with dermatological illnesses and it is generally unaffected by the type of illnesses and other demographic/clinical variables, however, duration of illness socioeconomic status and suicidal ideation were significant determinants thus implying

that patients with prolonged dermatological illness, especially from lower socioeconomic strata and those with suicidal ideation should be assessed for presence of psychiatric illness. Moreover, social support and counselling programs for persons with prolonged dermatological illness should be recommended.

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