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Prevalence and Correlates of Unrecognised Depression Associated with Common Skin Morbidities among Attendees in a Teaching Hospital Dermatology Outpatient's Department

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ABSTRACT

Background: The health care providers need to be aware of solving psychodermatological disorders by a multidisciplinary team approach.

Objectives: This study was carried out to find the prevalence and correlates of unrecognised depression linked with common skin morbidities among attendees in a teaching hospital dermatology outpatients department.

Methods: This was as institution based cross-sectional study conducted during October and November 2016 at Indira Gandhi Institute of Medical Sciences, Patna, India among 356 consecutive consenting adults with common skin diseases attending dermatology outpatient department fulfilling inclusion criteria using Patient Health Questionnaire (PHQ-9).

Results: Among 356 participants aged 18 years and above having one of six most commonly diagnosed disease depression was present among 204 (57.3%), mostly mild depression 84 (41.18%) followed by moderate (23.53%) moderately severe (21.57%) and severe (13.72%). Depression among various dermatological ailments was mostly noted with Tinea infection (66%) and least among Vitiligo and Acnae cases (20% each). In statistical analysis, probability of having significantly increased risk of depression was found among females, illiterates and less educated, perusing household works, from larger families, having lower personal income, suffering for more than 13 months and suffering from itching skin disease, receiving continuous treatment, and having comorbidities.

Conclusions: Magnitude of depression among patients suffering from dermatological conditions was alarmingly high and was influenced by the various risk factors.

Key words: depression, skin disease, risk factors

INTRODUCTION

Depression is characterized by persistent sadness with a loss of interest and inability to carry out daily activities, which anyone normally enjoys, for at least two weeks. It is one of the most common forms of mental ill-health in the general population associated with chronic morbidity and mortality, and imposes a substantial burden in developing and developed countries.[1] In India, the National Mental Health Survey 2015-16 revealed that virtu-

ally 15 percent of Indian adults need active interventions for one or more mental health issues and one in 20 suffers from depression. WHO finally recognised this major public health problem with slogan for the World Health Day 7 April 2017 is: "Depression: Let's talk".[2] The skin has long been recognized as the "organ of expression" and serves as the boundary between ourselves and the outside world. Psychological factors have long been known to be associated with dermatological conditions.[3] The field of psycho-dermatology encompasses all conditions involving the mind and the skin. A close relationship has long been hypothesized to exist between these two structures owing to their common embryological origin from the ectoderm and the fact that they are affected by similar neurohormonal factors.[4] Thus, it is imperative for clinicians need to be aware of overlapping zones between the specialties so that treatment of psychodermatological disorders can be effected by liaison involving a multidisciplinary team approach comprising dermatologist, psychiatrist, psychologist and family physician. In the above scenario a study was conducted to find out the prevalence and severity of unrecognised depression among attendees of Dermatology outpatient department along with socio–economic profile and other probable risk factors of depression.

METHODS

This institution based cross-sectional study was conducted during October and November 2016 to find out the prevalence severity of unrecognised depression and to assess the socio–economic profile and other probable risk factors of depression among Dermatology outpatient department (OPD) attendees suffering from common dermatological morbidities of the teaching hospital Indira Gandhi Institute of Medical Sciences (IGIMS), Patna, India.

The study population consisted of all adult consecutive patients presenting with common skin diseases who attended dermatology outpatient department of the teaching hospital fulfilling inclusion and exclusion criteria as well as providing informed written consent to participate in the proposed study.

Inclusion criteria for recruitment of participants was Patients ≥ 18 years, Patients attending dermatology at outpatients, Patients not critically ill, Patients who have given written informed consent, Willing to participate, and who has given written consent, Patients diagnosed with Tinea infection, Chronic Idiopathic Urticaria, Psoriasis, Acne, Hansen's Disease, Vitiligo. We excluded patients who were severely ill, did not consent to the study and those who did not fulfil the inclusion criteria

This cross-sectional survey was conducted among 356 consecutive outpatients visiting the Dermatology Outpatient Clinic. To find the estimated prevalence of depression among dermatology outpatients was set at 30 percent from published literature.[5] In order to determine the prevalence among the study population with a precision of 5 percent and a 95 percent confidence interval (CI), the required sample size was 336 subjects and additional 5 percent added to take care of non-response related issues who were unable to respond even with the help of caregivers on three separate attempts. Consequently 356 dermatological patients were included in the study.

Ethical consideration:

Ethical clearance was obtained from the Institutional Review Board. Written informed consent was obtained from each study participant after they were introduced to the purpose of the study and informed about their rights to interrupt the interview at any time. Confidentiality was maintained at all levels of the study. Patients who were found to have depression were referred for further investigations.

Data collection and study instrument:

Data regarding family and personal characteristics were recorded by interview technique by the principal investigator using predesigned & pretested semi structured questionnaire. This data collection tool used for the study was an interview schedule that was developed at the Institute with the assistance from the faculty members and other experts for socio-demographic profile and social support had variables relating to family and personal characteristics like age, gender, religion, education, occupation, income, family size and family support along with the duration of disease, treatment and others chronic disease. By initial translation, back-translation, retranslation followed by pilot study, the questionnaire was custom-made for the study. The pilot study was carried out at the outpatients department of the Institute among comparable geriatric subjects, following which some of the questions from the interview schedule were modified.

For assessment of depression Hindi translated version of Patient Health Questionnaire (PHQ-9) was used.[6] PHQ-9 was used as a diagnostic tool both for the assessment of prevalence of depression and for measuring the level of depression containing nine items. This was calculated by assigning scores of 0, 1, 2, and 3, to the response categories of "not at all", "several days", "more than half the days", and "nearly every day", respectively. In the PHQ-9 the total score for the nine items range from 0 to 27. The interpretation of scores are as follows: 0-4 - None-minimal, 5-9 – Mild, 10-14 – Mod-

erate, 15-19 - Moderately Severe and 20-27 – Severe.

The health workers informed and motivated the patients and their caregivers to freely participate in the study. All the participants were explained about the purpose of the study and were ensured strict confidentiality. Written informed consent in their vernacular was obtained from each participant prior to to participate in the proposed study and were given the options not to participate in the study if they wanted.

Body weight of the participants was measured (to the nearest 0.5 kg) in the standing, motionless position on the calibrated bathroom scale in minimum clothing with feet 15 cm apart, and weight equally distributed on each leg. Height was measured (to the nearest 0.5 cm) by a Stadeometer in the standing position with closed feet, holding their breath in full inspiration and in the Frankfurt line of vision.

Information on the field of psycho-dermatology was disseminated to participants and their caregivers in health education sessions to complement the findings of study.

Data Processing and Analyses: Data were analysed using SPSS evaluation version 16 and Epi-Info 7. Bivariate analysis was done to see the association of each independent variable with the outcome variable. Potential confounders (important) variables were entered into binary logistic regression model to identify the effect of each independent variable with the outcome variables. A *p*-value of less than 0.05 was considered statistically significant, and adjusted odds ratio with 95% CI was calculated to determine association.

RESULTS

Total 356 participants aged 18 years and above were recruited who had any one of the six most commonly diagnosed disease; among them Majority (67.41%) were males. Overall, 204 (57.30%) study subjects had PHQ-9 (Patient Health Questionnaire 9 modified) diagnosed depression and out of this, most of the patients i.e. 84 (41.18%) had mild depression, followed by moderate depression (23.53%) moderately severe depression (21.57%) and severe depression (13.72%). Same trend was observed for males but for the females reverse observed. [Table 1]

On assessing the depression severity among various dermatological diseases, highest percent of the patients with Tinea infection had depression (65.96%), followed by participants suffering from Chronic Idiopathic Urticaria (62.50%) and Psoriasis (56.25%), Hansen's disease (50%) and lowest among patients with Vitiligo and Acnae (20% each). [Table 2]

Table 1: The prevalence and severity of mental depression among the study population

Severity of depression (PHQ-9 total score)	Total Population (n= 356)	Male: (n=240) (67.41)	Female: (n=116) (32.59)
Non-minimal (0-4)	152 (42.70)	124(51.67)	(24.14)
Depression present	204 (57.30)	116(48.33)	88 (75.86)
Mild (5-9)	84 (41.18)	68 (80.95)	16 (19.05)
Moderate (10-14)	48 (23.53)	24 (50.00)	24 (50.00)
Moderately Severe (15-19)	44 (21.57)	16 (36.36)	28 (63.64)
Severe (20-27)	28 (13.72)	8 (28.57)	20 (71.43)

Chi-square = 66.061, p-value = **0.00007;** PHQ-9 = Patient Health Questionnaire 9 modified.

Table 2: Prevalence of mental depression in different common skin diseases in study population

Disease	Depression		Total
	Yes (%)	No (%)	
Tinea infection	124 (65.96)	64 (34.04)	188
Chronic Idiopathic Urticaria	20 (62.50)	12 (37.50)	32
Psoriasis	36 (56.25)	28 (43.75)	64
Acne	4 (20.00)	16 (80.00)	20
Hansen's Disease	16 (50.00)	16 (50.00)	32
Vitiligo	4 (20.00)	16 (80.00)	20
Total	**204 (57.3)**	**152 (42.7)**	**356**

Chi-Square = 29.58 and p-value = **0.0003**

On assessing the relation between depression and associated risk factors in the univariate analysis, probability of having significantly increased risk of depression was noted among, females, not educated (illiterates), perusing household works, belongs to larger family, having skin disease from more than 13 months, taking continuous treatment and also had some other diseases along with skin disease. Observed prevalence of depression was more in Muslims (75%) as compared to 55.6% in Hindus; yet weakly associated. [Table 3]

The final model of multivariate logistic regression LR method showed that the depression was significantly more among females, illiterates and less educated, having lower personal income and BMI, belongs to larger family, taking continuous treatment, suffering from itching skin disease and were also suffering from some other diseases in addition to skin disease. [Table 4]

DISCUSSION

Dermatological diseases have an effect on the daily life, self-confidence and self-respect and may lead to questions on self-image; thus, creating a problem of identity.[7] Dermatologists observed that their

Table 3: Correlates of mental depression among adults: unvariate analysis

Correlates	Study population (n=356) (%)	Depression (%)		OR (95% CI)	p-value
		Yes (n=204)	No (n=152)		
Age (years)					
18 – 27	156 (43.8)	96 (61.5)	60 (38.5)	1	0.228
28 – 37	68 (19.1)	32 (47.1)	36 (52.9)	1.800 (1.013 – 3.199)	
38 – 47	72 (20.2)	40 (55.6)	32 (44.4)	1.280 (0.727 – 2.254)	
≥48	60 (16.9)	36 (60.0)	24 (40.0)	1.066 (0.580 – 1.961)	
Gender					
Female	116 (32.6)	88 (75.9)	28 (24.1)	3.36 (2.04 – 5.51)	**0**
Male	240 (67.4)	116 (48.3)	124 (51.7)	1	
Religion					
Muslim	32 (9.0)	24 (75.0)	8 (25.0)	2.400 (1.046 – 5.502)	**0.053**
Hindu	324 (91.0)	180 (55.6)	144 (44.4)	1	
Education					
Illiterate	52 (14.6)	40 (76.9)	12 (23.1)	6.000 (2.828 – 12.73)	**0**
1st to 9th standard	44 (12.4)	28 (63.6)	16 (36.4)	3.150 (1.524 – 6.508)	
10th to 12th standard	148 (41.5)	56 (48.3)	52 (35.1)	1.938 (1.129 – 3.327)	
Graduation & professional	112 (32.5)	40 (35.7)	72 (64.3)	1	
Occupation					
Household work	100 (28.1)	68 (68.0)	32 (32.0)	2.276 (1.305 – 3.970)	**0.022**
Labourer	44 (12.3)	28 (63.6)	16 (36.4)	1.875 (0.918 – 3.829)	
Student	96 (27.0)	52 (54.2)	44 (45.8)	1.266 (0.736 – 2.177)	
Service & business	116 (32.6)	56 (48.3)	60 (51.7)	1	
No Personal Income	188 (52.8)	116 (61.7)	72 (38.3)	1.464 (0.960 – 2.238)	0.095
Body Mass Index (BMI)					
Under weight (<18.5)	88 (24.7)	56 (63.6)	32 (36.4)	1.250 (0.689 – 2.264)	0.558
Normal (18.5 – 24.99)	172 (48.3)	92 (53.5)	80 (46.5)	0.821 (0.496 – 1.360)	
Overweight & obese (≥25)	96 (27.0)	56 (58.3)	40 (41.7)	1	
Family Size					
≥6	204 (57.3)	128 (62.7)	76 (37.3)	1.684 (1.099 – 2.579)	**0.021**
<6	152 (42.7)	76 (50.0)	76 (50.0)	1	
No Family Support	28 (7.9)	20 (71.4)	8 (28.6)	0.511 (0.218 – 1.193)	0.169
Duration of disease					
≥13 months	180 (50.6)	116 (64.4)	64 (35.6)	1.812 (1.185 – 2.771)	**0.005**
<13 months	176 (49.4)	88 (50)	88 (50)	1	
Treatment continued	68 (19.1)	48 (70.6)	20 (29.4)	2.030 (1.147 – 3.593)	**0.02**
Co-morbidities Present	124 (34.8)	84 (67.7)	40 (32.3)	1.960 (1.242 – 3.092)	**0.005**

Table 4: Correlates of mental depression among adults: final model—Multivariate logistic regression backward stepwise (likelihood ratio) method

Variables in final step	p-Value	aOR	95.0% CI	
			Lower	Upper
Sex	.021	2.419	1.143	5.120
Education	.017	1.415	1.065	1.881
Individual Income	.010	1.000	1.000	1.000
Body Mass Index (BMI)	.019	1.090	1.014	1.171
Also had some other disease	.017	2.247	1.158	4.358
Skin disease	.000	1.406	1.260	1.570
Continuations of Treatment	.001	3.928	1.709	9.024
Size of the family	.000	.903	.857	.951

aOR=Adjusted Odds ratio

Variable(s) entered on step 1: Age in year, Sex, Religion, Education, Occupation, Individual income, BMI, Family support, Duration of disease in months, Also had other disease, Skin disease, Continuations of treatment, Size of the family

patients to be relatively more concerned and worried about the diseases that are related to their physical appearance as a result of which they may be afflicted with disorders like anxiety, depression and other psychosocial problems.[8]

In the present study, prevalence of depression was 57.30 percent, in patients with a wide range of dermatological conditions; while other study noted 25-43 percent [8] and 56.2 percent[9] and 50.75 percent depression in outpatient dermatological cases.[10] Among Indian studies in this field of research, Kosaraju et al. reported 89 percent depression; of this mild 31.5 percent, moderate 23.3 percent moderately severe 28.8 percent and severe 5.5 percent;[11] yet other research group reported lower 30.1 percent[9] and up to 40 percent.[12]

In this study individual age was not significantly associated with depression. Similar finding was noted by other research groups.[5, 13-14] In the present study, depression was more among females in general. Published literatures have also supported our findings [5, 9, 14, 15] while Kumar et al reported no gender bias.[13] Iliteracy and lower education were associated with depression, but Kohli et.al [5] and Seyhan et al [14] reported no association. Depression

was significantly more who also had other co-morbidities in addition to skin diseases, while other research groups reported no association.[5]

In our study depression was found more in person with *Tinea* infection, Chronic idiopathic urticaria and psoriasis and Hansen's disease.

Comparable findings were reported by other research groups [13-14], yet few studies reported that acne was most commonly related with depression, followed by eczema and psoriasis.[11, 16] Researchers from central India reported experiences of patients with Hansen's disease including disturbed marital relationships (90.1%) or social life (94.1%), loss of employment (54.5%), isolation with the situation to talk to people (29.7%), family members not sharing food (94.1%); being forced to leave the family (54.45%).[17]

In this study depression was more prevalent in those who were economically disadvantaged. Similar observation made by other research groups. [18-19] Our study has shown that depression is more common in subjects with poor nutritional status. Similar observation made by other researchers also. [18] In the final analysis of this study religion not shown any association with depression but in univariate analysis depression was more observed among Muslims as compared to Hindus while Kohli et.al reported more among Hindus.[5] In the present study, occupation was not a significant correlates of depression in final analysis but in univariate analysis it was significantly more in household works. similar finding reported by Kohli C. et.al. [5,14] but some studies have shown that unemployment is risk factor for depression.[20]

In the univariate analysis in our study, depression was more observed among patients with diseases of longer durations, but no association was noted in the final analysis. The lower rate of psychiatric morbidity in patients with long-standing disease reported by Seyhan M. et al.[14] Abebe et al reported positive association with duration of illness less than six month.[15] In our study family support was not shown association with depression but Ahmed Anwar E. et al.[21] reported lack of family support was associated with depression. Abebe et al reported positive association with poor social support.[15]

CONCLUSION

The magnitude of depression among patients suffering from dermatological conditions was exceptionally high among our study participants that were influenced by various other factors. Dermatologists should be aware about the psychiatric illness, and appropriate referral for making a proper diagnosis and better prognosis. For substantial impact on this burden, unique preventive health care strategies need to be formulated. Holistic researches are needed on all dimensions of psychodermatological disorders. In spite of professional indifference to psychiatric patients, current trends point toward the foundation of sensitization of medical teachers, advance specialty of psychosocial aspect of all diseases and accessibility of resources.

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