

Depression and Anxiety in Melasma: Prevalence and Correlates in North India

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Abstract

Introduction: Melasma affects patient's psychological and emotional well-being. It has a negative impact on the quality of life of patients.

Aims: The aim of the study was to find the prevalence of depression and anxiety and its correlates (if any) in melasma patients.

Settings and Design: This study was done with the collaboration of Department of Dermatology and Psychiatry, Christian Medical College, and Hospital, Ludhiana. All the patients of melasma attending dermatology OPD during the study period were included in the study. Written informed consent of the patients was taken.

Methods and Material: Study protocol was approved by the Institutional ethics committee. The patients were interviewed with specially designed Socio-demographic Performa, clinical profile sheet, PHQ-9 and GAD-7. Patients not willing to give consent and patients already on treatment for depression were excluded from the study.

Statistical analysis: Data was analyzed using Epidata analysis Version 2.2.2.

Results: Among 123 patients 100 were females and 23 were male. Mean age of the study population was 34.42 years. Mean duration of the illness was 42.19 months. Approximately one third (34.96%) of the patients had depression. 36.6% of the patients had anxiety. Majority of the patients had mild to moderate anxiety and only 1 patient had severe anxiety. Statistically significant association of depression was found with age, education and marital status and statistically significant association of anxiety was found with age, gender and marital status.

Conclusions: Melasma is associated with depression and anxiety in approximately one third of the patients.

Keywords: Depression, Anxiety, Melasma.

Key Messages: Melasma is associated with significant depression and anxiety. More studies with larger sample size are needed to find psychiatric morbidity in melasma patients.

Introduction

Melasma is a common acquired hypermelanotic disorder affecting sun-exposed areas of the face. This disease is characterized by brownish macular discoloration involving cheeks, bridge of the nose, chin, forehead and upper lip. Involvement of neck and forearms are uncommon. It affects all races and sex and has female preponderance. This disease is more common in Hispanics, Asians and Africans.^(1,2) Melasma is the most common pigmentary disorder among Indians.^(3,4) Although, melasma is a common cutaneous disorder its prevalence in most of the countries is unknown. According to American Academy of Dermatology melasma affects more than 5 million people in the United States.⁽⁵⁾

Some disorders of pigmentation are more prevalent in Asia and differences are due to the complex interaction of the genetic composition, the environment and the cultural practices. Vitiligo and melasma are the two most common pigmentary disorders in Asia.⁽⁶⁾

Melasma causes distress in the patients as it mainly affects the face. It has a negative impact on the quality of life of the patients. It affects their psychological and emotional well-being.⁽⁷⁾

In Brazil, 300 patients responded to the MelasQoL (Melasma Quality of Life Scale) and it was observed that

all the time or most of the time 65% of patients reported discomfort due to the spots, 55% felt frustration and 57% were embarrassed.⁽⁸⁾

In a study 84% of the melasma patients were depressed. 14% of the melasma patients had severe or very severe depression and 70% of the patients had mild or moderate depression.⁽⁹⁾

Bashir et al. found that 37.5% of the melasma patients had depression.⁽¹⁰⁾

Lot of work has been done on psychiatric morbidity in psoriasis, some work has also been done on vitiligo but very little work is done on psychiatric illness in melasma. Hence we planned a study to find depression and anxiety in melasma patients.

Aims and Objectives

The aim of the study was to find the prevalence of depression and anxiety and its correlates (if any) in melasma patients.

Materials and Methods

This study was done with the collaboration of Department of Dermatology and Psychiatry, Christian Medical College, and Hospital, Ludhiana. All the patients of melasma attending dermatology OPD during the study period were included in the study. Study

protocol was approved by the Institutional ethics committee. The patients were interviewed with specially designed Socio-demographic Proforma, clinical profile sheet, PHQ-9 and GAD-7.

Tools:

1. Socio-demographic Proforma: A Proforma especially designed for the study was used to record the relevant socio-demographic data, past psychiatric history, family history of psychiatric disorders, family history of melasma or any other pigmentary disorder etc.
2. Clinical profile sheet: A Proforma, specifically constructed for this study was used to record the clinical details related to melasma.
3. PHQ-9: PHQ-9⁽¹¹⁾ is a subset of Patient health questionnaire. PHQ is a self-report version of Primary Care Evaluation of Mental Disorders (PRIME-MD). The PHQ-9, a tool specific to depression, simply scores each of the 9 DSM-IV criteria based on the mood module from the original PRIME-MD. Hindi and Punjabi Version of the PHQ-9^(12,13) was used. PHQ-9 total score for the nine items ranges from 0 to 27. Scores of 5, 10, 15 and 20 represent cut points for mild, moderate, moderately severe and severe depression, respectively.
4. GAD – 7: GAD-7⁽¹⁴⁾ is a subset of Patient health questionnaire. The GAD-7 scores 7 common anxiety symptoms. GAD – 7 total score for the seven items ranges from 0 to 21. Scores of 5, 10 and 15 represent cut points for mild, moderate and severe anxiety, respectively. Hindi and Punjabi Version of the GAD-7^(15, 16) were used.

Inclusion Criterion:

1. All patients of melasma

Exclusion criterion:

1. Not willing to give consent
2. Patient already on treatment for depression.

Written informed consent of the patients was taken and the patients were assured of confidentiality. Data obtained was analyzed statistically.

Data Analysis

Data was analyzed using Epidata analysis Version 2.2.2. Mean scores and standard deviation were derived. The factors associated with depression and anxiety in the patients with melasma were analyzed by univariate analysis. Chi-square was applied where ever applicable. Level of significance was considered at $p < 0.05$.

Results

Socio-demographic characteristics: In the total of 123 cases, 100 (81.3%) were females and 23 (18.7%) were males. The majority of the patients were in the age group of 31–40 years in both males and females (47.8% and

50%, respectively). The youngest patient in our study was 15 years and eldest was 59 years old. The mean age was 34.42 ± 8.1 years. Mean duration of the illness was 42.19 months. More than 2/3rd (69.9%) of the patients belonged to urban area. Majority of the patients were literate. Only 13% were illiterate and three fourth of the patients (76.4%) had education up to or more than matriculation. Majority of the patients (71.5%) were not on paid jobs (homemakers/ housewives) and only 28.5% patients were on paid jobs. Majority of the patients (75.6) were married. 50.4% of the patients had a nuclear family and 48.8% had a joint family.

Sixteen (13%) patients had a comorbid illness. Hypothyroidism was most common co-morbid condition present in the 5 patients. Only one patient had past history of Depression. A family history of melasma was present in only 4 (3.3%) patients. A family history of psychiatric illness was present in only 5 (4.1%) patients.

PHQ-9 scores: Approximately one third (34.96%) of the patients had depression. Majority of the patients had mild to moderate depression and no patient had severe depression. (Table 1)

Table 1: Distribution of patients according to PHQ-9 scores

	N=123	%
Normal	80	65.04
Mild Depression	32	26.02
Moderate Depression	10	8.13
Moderately Severe Depression	1	0.81
Total	123	100.0

GAD-7 Scores: 36.6% of the patients had anxiety. Majority of the patients had mild to moderate anxiety and only 1 patient had severe anxiety. (Table 2)

Table 2: Distribution of patients according to GAD-7 Score

	N=123	%
Normal	78	63.4
Mild Anxiety	36	29.3
Moderate Anxiety	8	6.5
Severe Anxiety	1	0.8
Total	123	100.0

PHQ-9 score and socio-demographic characteristics:

The demographic analysis of patients with and without depression revealed a statistically significant association of prevalence of depression with age, education and marital status. Depression was found to be more prevalent among young patients, patients with a postgraduate degree and unmarried patients. No significant differences were noted between patients with and without depression in terms of various socio-demographic variables such as gender, place of living

(Rural/urban), family type, occupation, family history of psychiatric illness, past history of depression, duration of the illness, and family history of melasma. (Table 3)

GAD-7 score and socio-demographic characteristics:

On comparing the patients with and without anxiety, a statistically significant association was found between anxiety and socio demographic characteristics such as age, gender and marital status. Anxiety was more prevalent among young, female and unmarried patients. No significant differences were noted between patients

with and without anxiety in terms of various socio-demographic characteristics such as place of living (Rural/urban), family type, education, occupation, family history of psychiatric illness, past history of depression, duration of the illness, and family history of melasma. (Table 4)

Table 3: Correlation between socio-demographic characteristics of the patients and Depression

Socio-demographic characteristics	Number of patients N=123	Number of patients With Depression (n = 45)	Number of patients Without Depression (n = 78)	χ^2	P-Value
Gender					
Females	100 (81.3)	36(36)	64(64)	0.255	0.614
Males	23 (18.7)	7(30.43)	16(69.57)		
Age Group					
< 20	5 (4.1)	4 (80)	1 (20)	10.658	0.030
21-30	36 (29.3)	16(44.4)	20 (55.60)		
31-40	61 (49.6)	18 (29.5)	43 (70.5)		
41-50	18 (14.6)	3 (16.7)	15 (83.3)		
51-60	3 (2.4)	2 (66.7)	1 (33.3)		
Residence					
Rural	37 (30.1)	12 (32.4)	25 (67.6)	0.149	0.699
Urban	86 (69.9)	31 (36)	55 (64)		
Occupation					
On paid jobs	35 (28.5)	13 (37.1)	22 (62.9)	0.103	0.749
Not on paid jobs (house makers/ house wives)	88 (71.5)	30 (34.1)	58 (65.9)		
Education					
Illiterate	16 (13)	5 (31.25)	11(68.75)	21.003	0.0008
Under matric	13 (10.6)	2 (15.4)	11 (84.6)		
Matric	19 (15.4)	7 (36.8)	12 (63.2)		
Secondary	20 (16.3)	3 (15)	17 (85)		
Graduate	44 (35.8)	16 (36.4)	28 (63.6)		
Post graduate	11(8.9)	10 (90.9)	1 (9.1)		
Marital status					
Married	93 (75.6)	25 (26.9)	68 (73.1)	11.272	0.0035
Unmarried	24 (19.5)	15 (62.5)	9 (37.5)		
Widow/widower/ Divorced	6 (4.9)	3 (50)	3 (50)		
Type of family					
Joint	60 (48.8)	22 (36.7)	38 (63.3)	2.136	0.343
Nuclear	62 (50.4)	20 (32.3)	42 (67.7)		
Living alone	1 (0.8)	1 (100)	0 (0)		

Table 4: Correlation between socio-demographic characteristics of the patients and Anxiety

Socio-demographic characteristics	Number of patients With Anxiety (n = 45)	Number of patients Without Anxiety (n = 78)	χ^2	P-Value
Gender				
Females	41 (41)	59 (59)	4.492	0.034
Males	4 (17.4)	19 (82.6)		
Age Group				
< 20	5 (100)	0 (0)	15.191	0.0043
21-30	17 (47.2)	19 (52.8)		
31-40	17 (27.9)	44 (72.1)		
41-50	4 (22.2)	14 (77.8)		
51-60	2 (66.7)	1 (33.3)		
Residence				
Rural	11 (29.7)	26 (70.3)	1.072	0.3005
Urban	34 (39.5)	52 (60.5)		
Occupation				
On paid jobs	11 (31.4)	24 (68.6)	0.561	0.454
Not on paid jobs (house makers/ house wives)	34 (38.6)	54 (61.4)		
Education				
Illiterate	6 (37.5)	10 (62.5)	7.623	0.1782
Under matric	2 (15.4)	11 (84.6)		
Matric	7 (36.8)	12 (63.2)		
Secondary	4 (20)	16 (80)		
Graduate	21 (47.7)	23 (52.3)		
Post graduate	5 (45.5)	6 (54.5)		
Marital status				
Married	24 (25.8)	69 (74.2)	20.388	0.0003
Unmarried	18 (75)	6 (25)		
Widow/widower/ Divorced	3 (50)	3 (50)		
Type of family				
Joint	20 (33.3)	40 (66.7)	2.127	0.3452
Nuclear	24 (38.7)	38 (61.3)		
Living alone	1 (100)	0 (0)		

Discussion

In our study 81.3 % of the patients were females and this finding is in agreement with the fact that melasma is more prevalent in female patients. Various studies have found the female preponderance in melasma ranging from 4:1 in an Indian study to 21:1 in a Singapore study. Mean age of the patients was 34.42 years which is similar to other studies.^(17,18)

In the present study, a positive family history was observed in only 3.33% of the patients whereas in an Indian study 33.33% patients had positive family history and this vast difference can be due to smaller sample size.⁽¹⁷⁾

In our study 34.96% of the patients had depression. The result is in agreement with a study by Bashir et al⁽¹⁰⁾ who found depression in 37.5% of the patients but less than the study by Jaiswal et al⁽⁹⁾ who found that 84% of the patients had depression. In our study 36.6% of the

patients had anxiety. Fatima et al⁽¹⁹⁾ found anxiety in 60% of the patients and depression in 16.7% of the patients. The difference in results may be due to the difference in scales used and sample size.

In our study the statistically significant association of depression was found with age, education and marital status and statistically significant association of anxiety was found with age, gender, and marital status. With best of our efforts, we couldn't find any study showing the relationship between depression, anxiety, and various socio-demographic variables.

To conclude melasma is associated with depression and anxiety. More studies with larger sample size are needed to find psychiatric morbidity in melasma patients.

Limitations

1. Sample size was small.
2. It was a hospital based study.

3. Patients were assessed by PHQ-9 and GAD-7 only and were not assessed by a psychiatrist using structured clinical interview.
4. Only depression and anxiety were assessed.
18. Goh CL, Dlova CN. A retrospective study on the clinical presentation and treatment outcome of melasma in a tertiary dermatological referral centre in Singapore. *Singapore Med J.* 1999; 40:455-8.

References

1. Lapeere H, Boon B, Scheffer SD et al. Hypo-melanosis and hypermelanosis, Wolff K, Goldsmith C A, Katz SI, Gilchrist BD, Pattor AS, Leffell DT (Eds) *Dermatology in General Medicine*, 5th edition, New York; Mcgraw Hills 2008 PP 622–40.
2. Bandhopadhyay D, Topical treatment of Melasma. *Indian J. Dermatol.* 2009; 54(4):303–9.
3. Pasricha JS, Khaitan BK, Dash S. Pigmentary Disorder in India. *Dermatol Clin* 2007; 25(3):33–522.
4. Sivayatharn A. Melasma in Orientals. *Clin Drug Invest* 1995; 10 (Suppl 2):34–40.
5. Grimes PE. Melasma: Etiologic & Therapeutic considerations. *Arch Dermatol.* 1995; 131(12):1453–7.
6. Prasad D. Kumarasinge SPW. Psycho-social Implications of Pigmentary Disorders in Asia. Available from <http://www.pasper.org/commentaries/2006-10-commentaty.pdf>. (cited on 07.02.17)
7. Handel AC, Miot LDB, & Miot HA. Melasma: a clinical and epidemiological review. *Anais Brasileiros de Dermatologia* 2014; 89(5):771-782.
8. Cestari TF, Hexasel D, Viegas ML, Azulay L, Hassun K, Almeida AR, et al. Validation of a melasma quality of life questionnaire for Brazilian Portuguese language: the MelasQoL-BP study and improvement of QoL of melasma patients after triple combination therapy. *Br J Dermatol.* 2006; 156:13-20.
9. Jaiswal SV, Nayak CS, Shah HR, Kamath RM, Kadri K. Comparison of Quality of Life, Depression and Self-Esteem in Patients of Vitiligo and Melasma. *Journal of Medical Science And clinical Research* 2016; 04(11):13675-13682.
10. Bashir K, Dar NR, SibghatUllahRao. Depression in adult dermatology outpatients. *J Coll Physicians Surg Pak.* 2010 Dec; 20(12):811-3.
11. Spitzer RL, Kroenke K, Williams JB. Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *Primary Care Evaluation of Mental Disorders. Patient Health Questionnaire. JAMA* 1999; 282:1737-44.
12. PHQ-9(Hindi). Available from http://www.phqscreeners.com/sites/g/files/g10016261/f/201412/PHQ9_Hindi%20for%20India.pdf (cited on 23.09.2017)
13. PHQ-9(Punjabi). Available from http://www.phqscreeners.com/sites/g/files/g10016261/f/201412/PHQ9_Punjabi%20for%20India.pdf (cited on 23.09.2017)
14. Spitzer RL, Kroenke K, Williams JBW, Löwe B. A Brief Measure for Assessing Generalized Anxiety Disorder. *Archives of Internal Medicine* 2006; 166:1092-97.
15. GAD-7(Hindi). Available from http://www.phqscreeners.com/sites/g/files/g10016261/f/201412/GAD7_Hindi%20for%20India.pdf (cited on 23.09.2017)
16. GAD-7(Punjabi). Available from http://www.phqscreeners.com/sites/g/files/g10016261/f/201412/GAD7_Punjabi%20for%20India.pdf (cited on 23.09.2017)
17. Achar A, Rathi SK. Melasma: A clinico-epidemiological study of 312 cases. *Indian J Dermatol* 2011; 56:380-2.