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Original Research Article

Assessment of Depression and Anxiety in Patients Affected by Melasma using PHQ-9 and GAD-7 Scores at Rajawadi Hospital, Ghatkopar, Maharashtra

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Conflict of interest: Nil

Abstract:

Background: Melasma is a common acquired disorder of hyperpigmentation that affects both genders with female preponderance. Due to its refractory and recurrent nature it poses therapeutic challenge.

Aims: To evaluate the prevalence of depression and anxiety in patients affected by Melasma using PHQ-9 and GAD-7 scores.

Method: A total of 65 (sixty-five) adult patients with melasma were included in the study. Every patient underwent a clinical assessment followed by filling of self-response questionnaire for socio-demographic proforma, PHQ-9 and GAD-7 scores.

Results: PHQ-9 scores were 40 (61.5%) normal, 18 (27.6%) had mild depression, 5 (7.69%) had moderate depression, and 2 (3.07%) had moderately severe depression. In the GAD score, 37 (56.9%) were normal, 21 (32.3%) had mild depression, 5 (7.69%) had moderate depression, and 2 (3.07%) had severe anxiety. In comparison to depression and without depression, 25 (38.4%) had depression, and 40 (61.5%) had no depression. In the comparison socio-demographic study, 20 (30.7%) had anxiety and 45 (69.2%) had no anxiety.

Conclusion: Melasma patients are associated with depression and anxiety in approximately one-third of the patients. Hence, apart from dermatological treatment, they should be treated with antidepressants and their mood stabilized.

Keywords: PHQ-9, GAD-7 Score, Depression, Anxiety, Hyperpigmentation.

Introduction

Skin disorders affect patients's appearance, influencing their self-esteem, personality development, and social relationships, leading to stress and psychological co-morbidities [1]. In skin conditions such as atopic dermatitis and psoriasis, psychological co-morbidities might even affect the reimbursing treatment algorithm.

Melasma is a common acquired disorder of hyperpigmentation that affects men and women of all ethnicities and skin types, but is especially common in women. It is considered a complex epidermal-dermal dynamic interaction with various cell types, inflammation, oxidative stress, and photo damage [2]. Although its cause is unknown, several etiological factors have been identified, including exposure to ultraviolet (UV) radiation and visible light during pregnancy, exogenous hormone use, and heredity. Clinically, it presents bilateral, light-brown or dark-brown patches symmetrically distributed on the checks, forehead, upper lip, and mandible with unclear borders [3].

Histologically, it is characterized by increased melanin in the epidermis and/or dermis, as well as basement membrane disruption, pendulous melanocytes, melanophages, mast cells, solar elastosis, and neurovascularization [4]. Although various therapeutic modalities are available, melasma poses a therapeutic challenge due to its refractory and recurrent nature.

Hence, an attempt was made to study the anxiety, depression, and quality of life in patients with melasma.

Materials and Method

65 (sixty-five) patients of different age groups regularly visiting the skin and VD Department of Dermatology, Seth V.C. Gandhi and M.A. Vora Municipal General Hospital, Rajawadi, Mumbai, Maharashtra 400077 were studied.

Inclusion Criteria: All clinically diagnosed patients with melasma.

Exclusion Criteria:

Patients with vitiligo, a history of significant sun exposure, pregnancy, patients under the use of oral contraceptives, and immune-compromised patients were excluded from the study.

Method:

The present study was conducted in collaboration with Psychiatry department. Patients were counseled with the socio-demographic Performa clinical profile sheets PHQ-9 and GAD-7.

1. Socio-demographic Performa is especially designed for the study to record relevant socio-demographic data, past psychiatric history, family history of psychiatric disorders, family history of melasma, or any other pigmentary disorders.
2. Clinical profile sheet: specially constructed to record the details related to melasma.
3. PHQ-9 is a subset of patient health questionnaires; PHQ is a self-reported version of the primary care evaluation of mental disorders (PRIME-MD). The PHQ-9 is a tool for specific depression. Simple scores for each of the DSM-IV criteria based on the mood are obtained. The PHQ-9 total score for the nine items ranges from 0 to 27. Scores of 5, 10, 15, and 20 represent the cut points of mild, moderate, moderately severe, and severe depression, respectively.
4. GAD-7 [6] is a subset of patient health questionnaires. The GAD-7 common score for the seven items is marked as 0, 1, 2, 3. Final scores of 5, 10, and 15 represent cut points for mild, moderate, and severe anxiety, respectively.

The duration of the study was May 2020 to May 2021.

Statistical analysis: PHQ-9 scores and GAD-7 scores were obtained and classified as percentages.

The patients with depression and without depression, with anxiety and without anxiety, were also classified by percentages.

The statistical analysis was performed in SPSS software. The ratio of males male females was 1:2.

Observation and Results

Table 1: Study of the distribution of PHQ-9 scores in the melasma patients: 40 (61.5%) were normal, 18 (27.6%) had mild depression, 5 (7.69%) had moderate depression, and 2 (3.07%) had moderately severe depression.

Table 2: Study of GAD-7 scores in melasma patients: 37 (56.9%) were normal, 21 (32.3%) had mild anxiety, 5 (7.69%) had moderate anxiety, and 2 (3.07%) had severe anxiety.

Table 3: Comparison of a socio-demographic study in melasma with and without depression

Age group:

- 21–30: 3 were with depression, 10 were without depression [total 13 (20%)].
- 31–40: 9 were with depression, 15 were without depression [total 24 (36.9%)].
- 41–50: 5 had depression, 9 were without depression [total 9 (13.8%)].
- 51–60: 8 had depression, 11 were without depression [total 19 (29.2%)].

Locality:

- Rural 10 had depression, 20 were with depression, [total 30 (46%)].
- Urban 15 had depression, 20 had no depression [total 35 (53.8%)].

Marital Status:

- Married: 10 had depression, 15 had no depression [total: 25 (38.4%)].
- Unmarried: 8 had depression, 10 had no depression [total 18 (27.6%)].
- Widow/widower: 4 had depression, 8 had no depression [total: 12.4%]]
- Divorce: 3 had depression, 7 had no depression [total of 10 (15.3%)].

Type of Family:

- Joint family: 12 had depression, 20 had no depression [total of 32 (49.2%)].
- Nuclear Family: 8 had depression, 13 had no depression [total 21 (32.3%)].
- Living alone: 5 had depression, 7 had no depression [total: 12.4%]]

Table 4: Comparison of socio-demographic status in anxiety and with status in anxiety and without anxiety in Melasma patients

Age group:

- 20 (30.7%) patients had anxiety, and 45 (69.2%) had no anxiety.
- Age group 21–30: 7 had anxiety, and 16 had no anxiety [total of 23 (35.3%)].
- 31–40: 10 had anxiety, 19 had no anxiety [total: 29 (44.6%)].
- 41-60-3 had anxiety, 10 had no anxiety, [total 13 (20%)].

Location:

- Rural: 8 had anxiety, 22 had no anxiety [total: 30 (46.1%)].
- Urban: 12 had anxiety, 23 had no anxiety [total: 35 (53.8%)].

Marital Status:

- Married: 9 had anxiety, 22 had no anxiety [total 31 (47.6%)].
- Unmarried: 5 had anxiety, 11 had no anxiety [total: 16 (24.6%)].
- Widow/widower: 3 had anxiety, and 7 had no anxiety [total of 10 (15.3%)].
- Divorcee: 3 had anxiety, 5 had no anxiety [total of 8 (12.3%)].

Type of Family:

- Joint family: 7 had anxiety, 17 had no anxiety [total 24 (36.9%)].
- Nuclear family: 9 had anxiety, 19 had no anxiety [total 28 (43.07%)].
- Living alone: 4 had anxiety, 9 had no anxiety [total: 13 (20%)].

Table 1: Study of distribution of PHQ-9 scores in Melasma patients

PHQ-Score	Number of patients	Percentage
Normal	40	61.5
Mild depression	18	27.6
Moderate depression	5	7.69
Moderately severe depression	2	3.07

PHQ = Patient Health Questionnaire

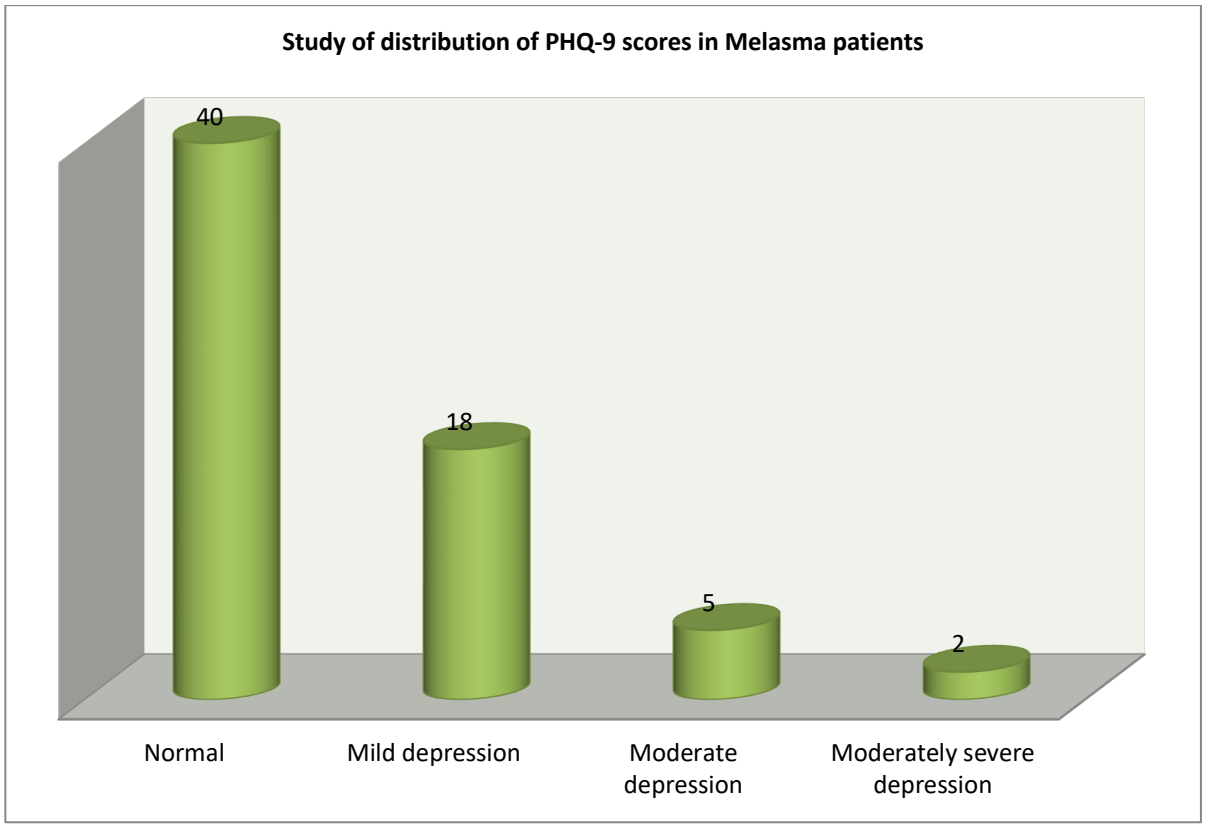

Figure 1: Study of distribution of PHQ-9 scores in Melasma patients

Table 2: Study of GAD-7 scores in Melasma patients

GAD-7 Score	Number of patients (65)	Percentage (%)
Normal	37	56.9
Mild depression	21	32.3
Moderate depression	5	7.69
Severe anxiety	2	3.07

GAD = Generalised Anxiety disorder

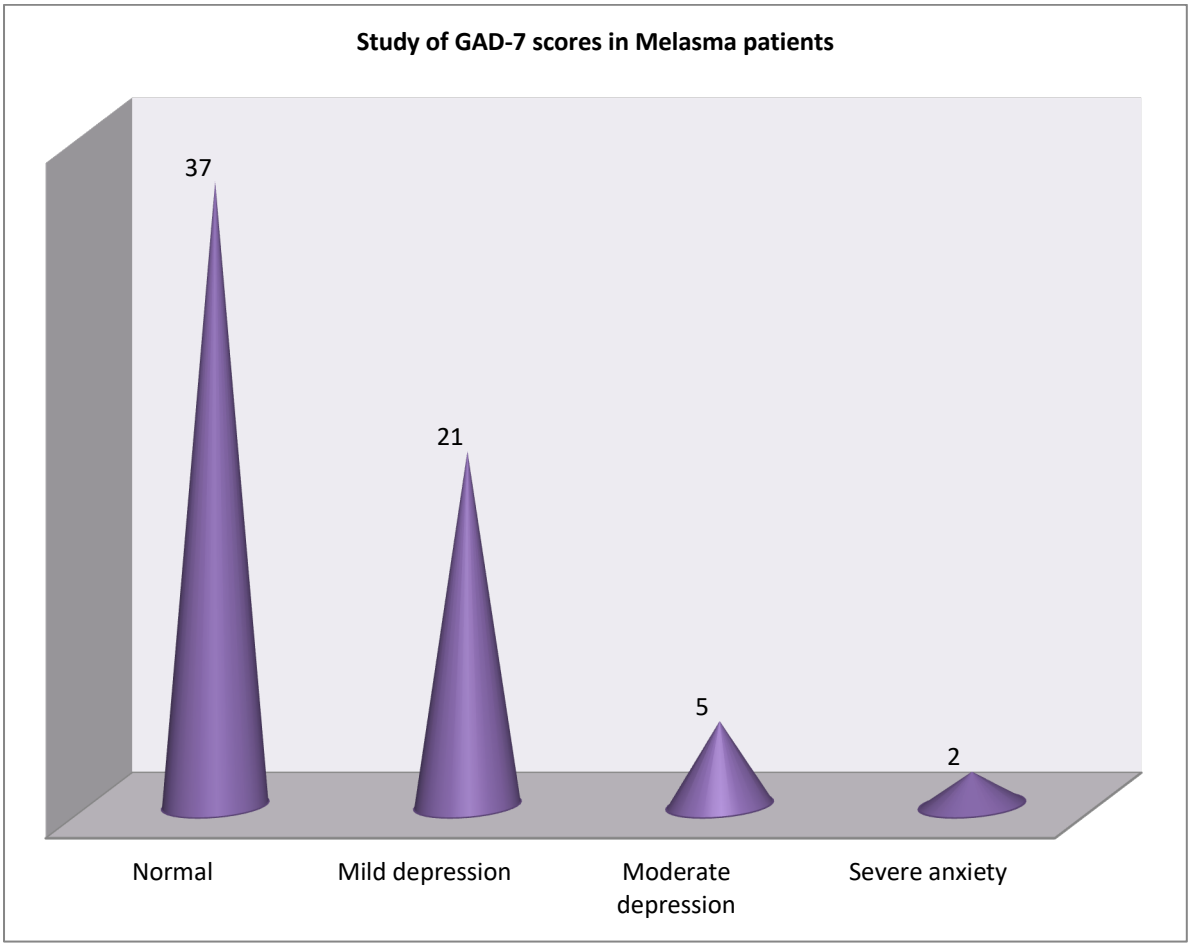

Figure 2: Study of GAD-7 scores in Melasma patients

Table 3: Socio-demographic Comparison of Melasma patients with and without depression

Socio-Demographic status	No. of patients with depression (25)	No. of patients without depression (40)	Total No. of patient with Percentage % (65)
a. Age group 21-30	3	10	13 (20%)
31-40	9	15	24 (36.9%)
41-50	5	4	9 (13.8%)
51-60	8	11	19(29.3%)
b. Locality Rural	10	20	30 (46%)
Urban	15	20	35 (53.8%)
c. Marital Status Married	10	15	25 (58.4%)
Un-married	8	10	18 (27.6%)
Window/widower	4	8	12 (18.4%)
Divorcee	3	7	10 (15.5%)
D. Type of Family Joint Family	12	20	32 (49.2%)
Nuclear Family	8	13	21 (32.3%)
Living alone	5	7	12 (18.4%)

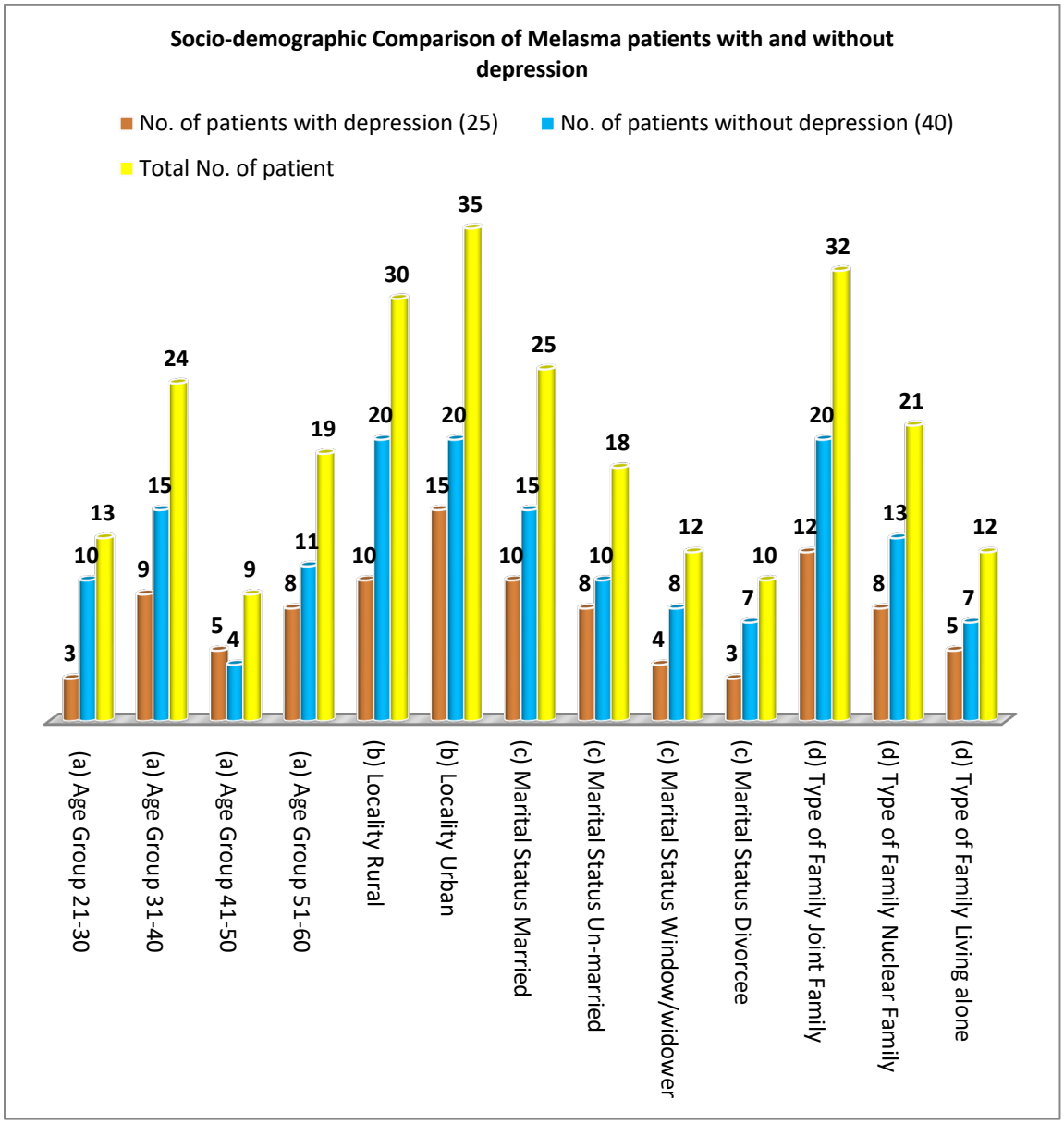

Figure 3: Socio-demographic Comparison of Melasma patients with and without depression

Table 4: Comparison of socio-demographic status of melasma patients with anxiety and without anxiety

Socio-Demographic status	No. of patients with anxiety (20)	No. of patients with-out anxiety (45)	Total No. of patient with Percentage % (65)
a. Age group			
21-30	7	16	23 (35.3%)
31-40	10	19	29 (44.6%)
41-60	3	10	13 (20%)
b. Locality			
Rural	8	22	30 (46.1%)
Urban	12	23	35 (55.8%)
c. Marital Status			
Married	9	22	31 (47.6%)
Un-married	5	11	16 (24.6%)
Window/widower	3	7	10 (15.3%)
Divorcee	3	5	8 (12.3%)
D. Type of Family			
Joint Family	7	17	24 (36.9%)
Nuclear Family	9	19	28 (43.7%)
Living alone	4	9	13 (20%)

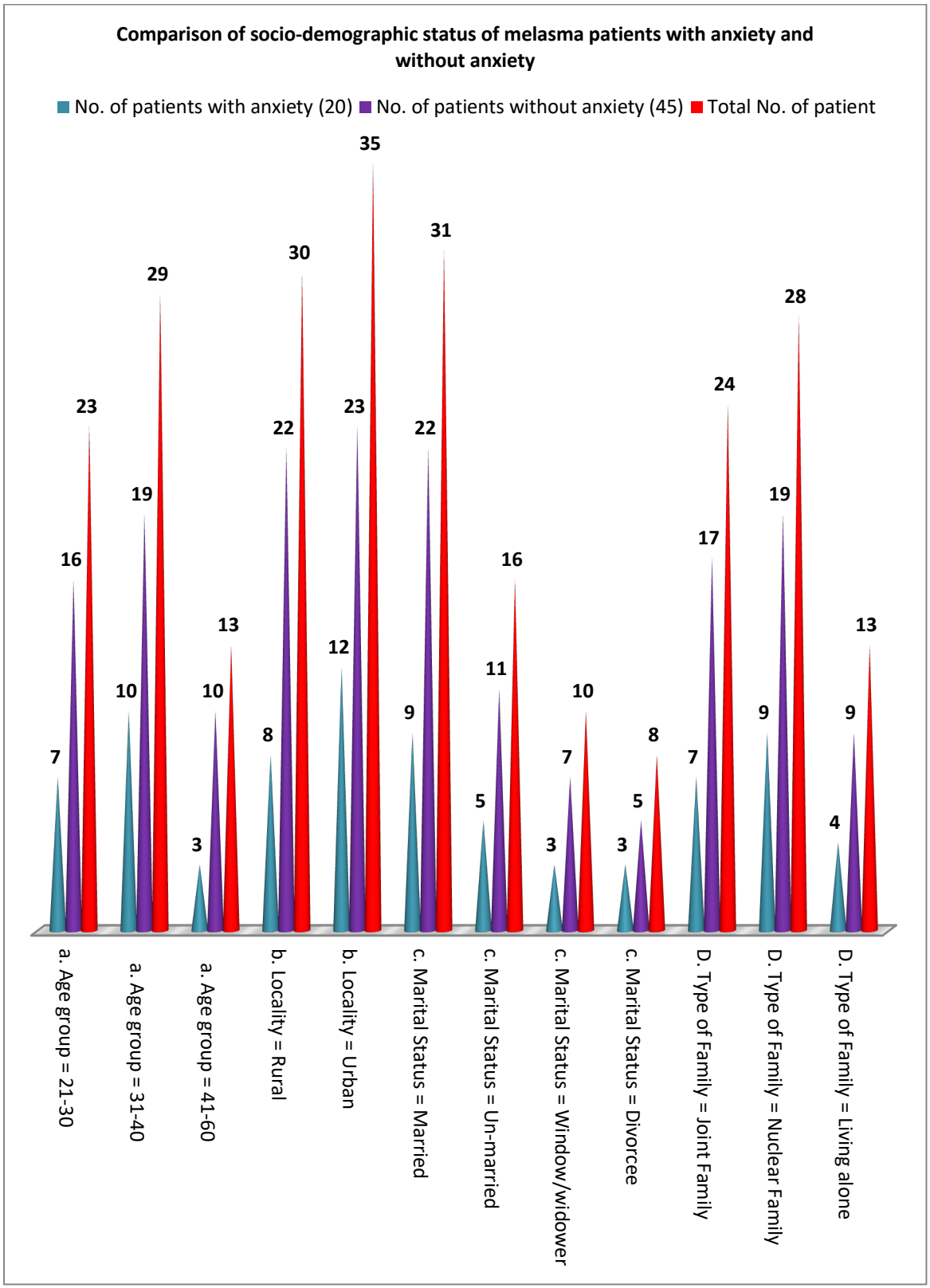

Figure 4: Comparison of socio-demographic status of melasma patients with anxiety and without anxiety

Discussion

Present correlative study of depression anxiety in Melasma in Maharashtra population. In the study of PHQ in melasma patients, 40 (61.5%) were normal, 18 (27.6%) had mild depression, 5 (7.69%) had moderate depression, and 2 (3.07%) had moderately severe depression (Table 1).

In the study of the GAD-7 score in melasma patients, 37 (56.9%) were normal. 21 (32.3%) had mild anxiety, 5 (7.69%) had moderate anxiety, and

2 (3.07%) had severe anxiety (Table 2). In the comparison of depression and without depression in malesma patients, 25 (38.4%) had depression and 40 (61.3%) had no depression (Table 3). In the comparison of socio-demographic status of anxiety and without anxiety, patients with malesma, 20 (30.7%) had anxiety and 45 (69.2%) were without anxiety (Table 4). These findings are more or less in agreement with previous studies [7,8,9[.

Prevalence of melasma depends on geographical location. It varies according to skin color, race, sun exposure habit, and habitat. Dark-skinned races that live in India, Pakistan, and the Middle East tend to develop melasma more frequently than white-skinned races. In coastal south India, melasma affects paddy field workers (41%) [10]. Since melasma results from local changes in pigmentation, it preferably affects more strongly melanized phenotypes and is mainly present in intermediate skin types III–V (Fitzpatrick classification) but rare in extreme skin types.

There is evidence that patients with lower phototypes tend to develop the disease earlier in life. This suggests that melanin plays a photo protective role and delays the appearance of melasma [11].

Melasma associated with pregnancy typically completely disappears (with treatment) within a year of delivery. The exact causes of melasma are unknown, although some triggering factors include sun exposure, pregnancy, use of oral contraceptives and other steroids, consumption of certain food items, ovarian tumors, intestinal parasitosis, hepatopathies, hormone replacement therapy, use of cosmetics and photosensitive drugs, procedures, inflammation of the skin, and stressful events [12].

This suggests that the development of melasma is induced by many factors and depends on the interaction of environmental and hormonal influences with susceptible genetic backgrounds.

It is observed that melasma severely affects psychology in young adults; however, it may not have the same impact on an elderly person. The quality of life in patients with melasma was worse in unmarried young patients; hyperpigmentation on exposed areas of the body often leads to social stigma and affects familial, social, and workplace interactions negatively, more so in India.

Summary and Conclusion

The present correlation between depression, anxiety, and melasma in the Maharashtra population is a challenge to dermatologists due to an incomplete understanding of its pathogenesis. Apart from dermatology, psychiatric treatment is also necessary to elevate the mood and depression among melasma patients. The present study demands further hormonal, patho-physiological, environmental, nutritional, and pharmacological studies because the factors and mechanisms of melanogenesis are still unclear.

Limitation of study: Owing to the tertiary location of our center, only a small number of patients were studied, and detailed patho-physiological studies were not possible.

This research study was approved by the ethical committee of Department of Dermatology, Seth V.C. Gandhi and M.A. Vora Municipal General Hospital, Rajawadi, Mumbai, Maharashtra 400077.

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