Examining the Effects of Melasma on Women's Quality of Life: A Study from Eastern Black Sea Region of Turkey

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Abstract

Background/Aim: Melasma causes significant emotional and psychological effects in patients. Therefore, the investigation of the quality of life in patient with melasma has become increasingly important. In this study, we aimed to learn the demographic features of female patients with melasma in the north of Turkey, assess associated factors, and research how melasma affects quality of life. **Materials and Methods:** The demographic and etiological characteristics of 71 female patients with melasma were recorded. Dermatology Quality of Life (DQoL) index and Melasma Quality of Life Scale (MelasQoL-Tr) were completed by all patients in the presence of a dermatologist. **Results:** When the patients were evaluated according to age, marital status, education, duration of melasma, and age of onset melasma, there was no significant relationship in terms of MelasQoL. There was a statistically significant correlation in positive direction at moderate-good levels between MelasQoL and DQoL scores. **Conclusion:** Based on our study, melasma significantly affects quality of life in women. This situation clearly illustrates the need to give patients treatment not just based on clinical aspects but also including psychological features of the disease.

Keywords: Dermatology quality of life, melasma quality of life scale, melasma, Turkey

Introduction

Melasma is characterized by brown, symmetric, homogeneous, irregular macules mainly in areas exposed to sunlight and mostly on the face.[1] Melasma diagnosis is generally made clinically. However, the disease process is difficult due to being a chronic disease, progressing with frequent recurrences and lack of definite treatment.[2] It causes significant emotional and psychological effects in people.[3] For this reason, investigation of quality of life with this disease which affects physical appearance and emotional state has gained increasing importance.

A variety of factors are mentioned in melasma development; however, the definite cause is not fully known. In the literature, melasma is reported with pregnancy, hormonal treatment, hormonal contraceptives, cosmetics, photosensitizing medications, endocrinopathies, emotional stress, anticonvulsants, genetic tendency, and sunlight exposure.[1]

The prevalence of melasma varies linked to ethnic groups, skin phototype, and sun exposure. It is observed in all ethnic groups and populations. It is observed with higher prevalence in areas with intense ultraviolet (UV) radiation (UVR), especially in east Asia, India, Pakistan, the Middle East, Mediterranean Africa, America, Brazil, and Spain.[4] In Turkey, there is no study investigating the epidemiology of melasma and there are a few studies investigating the quality of life of melasma patients which are arranged as regional studies.[5,6] Our city is located in the north of Turkey in the Eastern Black Sea region and has relatively less UV exposure compared to other regions in Turkey. In this study, we aimed to learn the demographic features

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of female patients with melasma in the north of Turkey, assess associated factors, and research how melasma affects quality of life.

Materials and Methods

Ethics committee approval obtained from Ordu University Training and Research Hospital. The study included 71 female patients with melasma attending our dermatology clinic in 2020. The study is a single-center prospective study.

The study was performed prospectively. Patient age, marital status, educational level, Fitzpatrick skin type, melasma duration, melasma onset age, melasma family history, thyroid disease history, sunscreen use habits, solar melasma activation, association of melasma with hormonal contraception, association of melasma with pregnancy were questioned and noted. The Dermatology Quality of Life (DQoL) index and the Melasma Quality of Life Scale (MelasQoL-Tr) validated by Dogramaci *et al*.[5] were completed by all patients accompanied by the dermatologist.

Statistical analysis

Statistical analyses were performed using SPSS version 17.0 software SPSS (Chicago, IL, USA). Normal distribution of variables was investigated with analytic methods (Kolmogorov-Smirnov/Shapiro Wilk tests). Descriptive analyses present variables as mean and standard deviation and frequency and percentage. Variables obtained with measurements (continuous data) and with normal distribution (MelasQoL-Tr) were compared in independent groups (age and disease duration groups) using the independent *t*-test. Comparisons between educational levels used the one-way ANOVA test. The correlation between MelasQoL-Tr scale and DQoL index was investigated with Pearson correlation analysis. Situations with $P = 0.05$ were accepted as statistically significant.

Results

A total of 71 patients with melasma were evaluated in this study. The mean age of the patients was 37.7 ± 6.9 years (21–58). The mean duration of the disease was 7.2 years (range: 1–25 years). Of the patients, 73% were married and 27% were single. The majority of patients were primary school graduates (46.5%) and most were housewives (52.1%). Most of the patients had Fitzpatrick skin Types 3 and 4. Of patients, 52.1% did not use regular sunscreen. Melasma was associated with pregnancy in 45.1% of the patients. For 33.8% of patients, melasma was associated with hormonal contraception. There was family history among first-degree relatives in 36.6% of the patients. For 11.3% of patients, there was a history of thyroid disease. The DQoL index was 5.7 ± 5.7. MelasQoL-Tr was 38.6 ± 15.2. The demographic and clinical data for patients are given in Tables 1 and 2. When the patients with disease for longer or <5 years were compared, no significant difference was found in terms of MelasQoL ($P > 0.05$) [Table 3]. When the patients were evaluated as those above the age of 40 and under the age of 40, MelasQoL was found to be significantly higher in patients under the age of 40 ($P = 0.037$) [Table 4]. When the patients were evaluated according to age, marital status, education, duration of melasma, and age of onset melasma, there was no significant relationship in terms of MelasQoL ($P > 0.05$). There was a statistically significant correlation in positive direction at moderate-good levels between MelasQoL and DQoL scores ($P < 0.001$; $r = 0.689$).

For questions on the MelasQoL-Tr scale, in answer to the question about whether the appearance of their skin made them uncomfortable, 35.2% stated they were bothered most of the time. In answer to the question of whether they had concerns about the appearance of their skin, 36.6% stated that they were sometimes bothered. The question of whether they were embarrassed due to the state of their skin was answered with not bothered at all by 28.1%. The question of whether they felt melancholy and sad about the state of their skin was answered as sometimes bothered by 31%. For the question does the state of their skin affected their social relationships with family, friends, and neighbors, 46.5% stated they were not bothered at all. The question does the state of their skin affects their desire to be with other people was answered with not bothered at all by 49.3%. In answer to the question does the state of their skin prevent them showing interest in people, 57.7% stated they were not bothered at all. The question of whether they feel less attractive due to color changes in their skin was answered as sometimes bothered by 28.2%. In answer to the question do they feel less lively and productive due to color changes in their skin, 33.8% stated they were not bothered at all, while 31% stated they were sometimes bothered. The question of whether

Table 1: Descriptive statistics ($n=71$)

Parameters	Minimum–maximum	Mean±SD
Age	21–58	37.7±6.9
Duration of disease	1–25	7.2±5.8
DQoL score	0–24	5.7±5.7
MelasQoL-Tr	10–70	38.6±15.2
Age of onset	11–45	30.6±7.1

SD: Standard deviation, DQoL: Dermatology Quality of Life, MelasQoL-Tr: Melasma Quality of Life-Turkey

Table 2: Clinical features of patients

Parameters	Subgroups	Frequency, *n* (%)
Marital status	Married	52 (73.2)
	Single	19 (26.8)
Fitzpatrick skintype	2	7 (9.9)
	3	25 (35.2)
	4	27 (38.0)
	5	12 (16.9)
Education	None	1 (1.4)
	Primary	33 (46.5)
	Middle	13 (18.3)
	High school	11 (15.5)
	University	13 (18.3)
Job	Housewife	37 (52.1)
	Student	2 (2.8)
	Worker	16 (22.5)
	Nonworker	16 (22.5)
Using regularly sunscreen creams	Yes	34 (47.9)
	No	37 (52.1)
Association with pregnancy	Yes	32 (45.1)
	No	39 (54.9)
Exacerbation with oral contraceptives	Yes	24 (33.8)
	No	47 (66.2)
Family history	Yes	26 (36.6)
	No	45 (63.4)
Thyroid disease history	Yes	8 (11.3)
	No	63 (88.7)
Exacerbation with sun exposure	Yes	65 (91.5)
	No	6 (8.5)

Table 3: Compare of Melasma Quality of Life-Turkey score between time groups

Duration MelasQoL-Tr (years)	*n*	Mean	SD	SEM	*P*
<5	32	40.3	14.1	2.5	0.385
≥5	39	37.2	16.0	2.6	

Independent *t*-test was used and $P<0.05$ was considered significant. MelasQoL-Tr: Melasma Quality of Life-Turkey, SD: Standard deviation, SEM: Standard error of mean

it affected their feeling of freedom was answered with not bothered at all by 40.8% of women [Table 5].

Discussion

The MelasQoL is a quality-of-life scale used for patients with melasma. It was developed and validated by Balkrishnan *et al*. and was used for studies in many countries. The scale contains 10 questions. In order, it involves the assessment of questions about skin appearance, frustration with skin, embarrassment, feeling depressed, interaction with people, desire to be with people, showing affection, feeling unattractive, feeling less vital or productive, and affecting sense of freedom. Each question is scored from 1 to 7 and high scores show reduced quality of life.[7] In our study, the MelasQoL-Tr, translated to Turkish and validated by Dogramaci *et al*.,[5] was used and the effect on women with melasma living in a city in the Black Sea climate in the north of Turkey was investigated in light of the literature, along with demographic features, factors associated with disease and quality of life.

The mean age of women in our study was 37.7 ± 6.9 years. A global study had mean age 42.90 ± 9.60, a study in Indonesia had mean age 39.3 ± 4.7, and a study in Australia had mean age 41.4 ± 7.6.[8-10] The study by Balkrishnan *et al*.[7] had a mean age of 40 years, while in Turkey the study by Dogramaci *et al*.[5] had mean age 31.8 ± 7.3 years.

In our study, the MelasQoL score was 38.6 ± 15.2. When the literature is examined, some studies were identified to have higher scores. Scores were 55 ± 10.6 in an Australian study,[10] 44.4 ± 14.9 in a Brazilian study,[11] 42 in a Spanish study,[3] and 52.85 in an Iranian study.[12] When we look at these countries, they all have hot climates and intense exposure to UV light. Similar studies in other countries

Table 4: Compare of Melasma Quality of Life-Turkey score between age groups

Age MelasQoL-Tr	*n*	Mean	SD	SEM	*P*
<40	41	41.8	14.3	2.2	0.037
≥40	30	34.2	15.4	2.8	

MelasQoL-Tr: Melasma Quality of Life-Turkey, SD: Standard deviation, SEM: Standard error of mean

Table 5: Distribution of questions answers

Answer	Frequency, *n* (%)									
	1. The appearance of melasma	2. Frustration about melasma	3. Embarrassment about melasma	4. Feeling depressed about melasma	5. The effects on interactions with other people	6. Desire to be with people	7. Show affection	8. Feeling unattractive	9. Feel less vital or productive	10. Affecting sense of freedom
1	5 (7.0)	5 (7.0)	20 (28.2)	12 (16.9)	33 (46.5)	35 (49.3)	41 (57.7)	14 (19.7)	24 (33.8)	29 (40.8)
2	0	2 (2.8)	2 (2.8)	4 (5.6)	1 (1.4)	3 (4.2)	2 (2.8)	3 (4.2)	3 (4.2)	3 (4.2)
3	5 (7.0)	6 (8.5)	8 (11.3)	8 (11.3)	7 (9.9)	4 (5.6)	3 (4.2)	7 (9.9)	5 (7.0)	2 (2.8)
4	0	4 (5.6)	3 (4.2)	6 (8.5)	4 (5.6)	3 (4.2)	1 (1.4)	0	2 (2.8)	3 (4.2)
5	18 (25.4)	26 (36.6)	17 (23.9)	22 (31.0)	15 (21.1)	12 (16.9)	15 (21.1)	20 (28.2)	22 (31.0)	17 (23.9)
6	25 (35.2)	13 (18.3)	9 (12.7)	11 (15.5)	5 (7.0)	8 (11.3)	7 (9.9)	10 (14.1)	8 (11.3)	10 (14.1)
7	18 (25.4)	15 (21.1)	12 (16.9)	8 (11.3)	6 (8.5)	6 (8.5)	2 (2.8)	17 (23.9)	7 (9.9)	7 (9.9)

had lower MelasQoL scores compared to our study. For example, values were identified as 37.19 ± 18.15 in a study from India[13] and 34.40 ± 13.50, 37.5 ± 15.2 and 27.2 ± 13.4 in some Brazilian studies.[2,14,15] Studies by Balkrishnan *et al*.,[7] Misery *et al*.[16] and Dogramaci *et al*.[5] had lower scores compared to our study (36, 20.9, and 29.9, respectively). When we examine these countries, again there is higher UV exposure than our region; however, our results were higher. This leads to the consideration that results are affected by differences in the study groups and that quality of life is affected by other factors independent of melasma. We did not find a significant correlation between MelasQoL with marital status, education, duration of melasma, and age of onset melasma in our study ($P > 0.05$). Studies by Balkrishnan *et al*.,[7] in Spain[3] and Singapore[17] did not find statistical correlations between demographic variables and MelasQoL. When patients are assessed according to age, MelasQoL was affected more for patients under the age of 40 years, compared to patients over the age of 40 ($P = 0.037$). Misery *et al*.[16] found the MelasQoL scores were higher for those over the age of 45 and with long-term melasma. Balkrishnan *et al*.[7] found that patients in the 20–30 age group had significantly higher MelasQOL scores than patients in the 31–40 and >41 age groups.

In our study, the mean disease duration was 7.2 ± 5.8 years. There was no significant correlation between MelasQoL and disease duration in our study. When cases are assessed as those with disease for more than or <5 years, no significant difference was found in terms of MelasQoL. This again leads to the consideration that quality of life is affected independently of disease duration. Studies in the literature display different results. Mexican[11] and French[16] studies showed a positive correlation between MelasQoL and disease duration. A study in Australia found no significant correlation between duration and MelasQoL.[10]

In our study, the mean age at disease onset was 30.6 ± 7.1 years. In some studies, this value is higher than our study; in others, it is lower. Values in studies by Ortonne *et al*.[8] of 34 years, the Australian study[10] of 35.6 ± 6.7 and an Indian study[18] assessing 1001 patients of 34.57 ± 10.561 years were higher than our study. Studies with lower values include 27.5 ± 7.8 years in the study by Tamega Ade *et al*.,[1] and mean onset ages of 29.18 ± 7.05 years and 29.8 ± 8.8 years in some Brazilian studies.[2,19]

There was a family history among first-degree relatives in 36.6% of the patients in our study. There are different results in the literature. Studies have observed family history in 6%–54.7% of patients.[8]

In our study, 73.2% of the patients were married and 26.8% were single. This result is consistent with the literature. In the study by Balkrishnan *et al*.,[7] most patients were married (64%), for Dogramaci *et al*.[5] 78.1% were married and in a Spanish study[3] 75.8% were married. One study[20] investigating quality of life showed that quality of life was affected less in married patients; however, in our study, there was no significant difference between MelasQoL points between married and single participants.

In our study, 45.1% of cases had melasma associated with pregnancy. A global study identified the most frequent onset time for melasma was after pregnancy (42%). Another study in the same study had 20% rate of cases with melasma observed during pregnancy. Some studies show that melasma is triggered by pregnancy at rates from 16% to 45%.[8]

In our study, 11.3% of the patients had a history of thyroid disease. In a study, abnormal thyroid stimulating hormone hormonal profiles were present in 25.3%.[1] Another study found that thyroid disorders were present in 7.84% of patients.[2] Sacre *et al*.[21] found normal thyroid hormonal levels, prolactin, and gonadotrophic stores in their patients. There are different results in the literature and the relationship between melasma and thyroid diseases is not fully understood.

Exposure to UV light, especially in areas with intense UVR, increases melasma development by a significant degree.[22-24] In a study by Harumi and Goh, patients stated that the most frequent triggering factor was the sun (67.3%).[17] A study in India observed solar activation in 55.5% of cases.[25] In our study, activation by the sun was identified in 91.5% of patients and 52.1% of patients did not use sunscreen regularly in our study. This situation leads to the consideration that patients did not regularly and correctly use sunscreen. There are different results in the literature. In one study[10] regular sunscreen use was seen in 57.3%, while a study of 1001 patients found only 19.6% used sunscreen.[18] Our study mostly included primary school graduates (n = 33). Melasma patients with low educational levels may have deficient information about prevention and may have less desire to protect themselves from the sun due to the cost of sunscreen products.[26] In the literature, in studies by Freitag *et al*.[14] and Dominguez *et al*.[3] patients with low educational level had higher MelasQoL scores compared to patients with higher educational level. In our study, there was no significant difference in terms of MelasQoL when investigated in terms of educational level. Another study in our country by Dogramaci *et al*.[5] found no significant difference, similar to our study.

In our study, the DQoL index was 5.7 ± 5.7. Studies found the DQoL scores were 6.81 ± 1.40, 6.02 ± 4.94, and 4.5 ± 5.[6,17,27] There was a correlation between MelasQoL and DQoL scores in a study by Harumi and Goh.[17] In our study, a positive correlation was observed. When studies investigating other dermatological diseases in Turkey are examined, a study of psoriasis patients found DQoL Score 5.6 ± 4.2, a study of vitiligo patients found DQoL Score 5.6 ± 5.1 and in the same study the DQoL for acne patients was 6.4 ± 6.2.[28,29] When these studies are examined, it can be said that melasma affects quality of life to a similar degree as diseases such as psoriasis, vitiligo, and acne.

Limitations of this study are the low number of participants and the assessment of patients from only one city in Turkey.

Different results in studies may be due to group heterogeneity, disease severity, previous treatments, and cultural effects.

Conclusion

When melasma develops in visible areas, it may have significant effects on quality of life. Based on our study and other information in the literature, melasma significantly affects quality of life in women. This situation clearly illustrates the need to give patients treatment not only based on clinical aspects but also including psychological features of the disease.

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Conflicts of interest

There are no conflicts of interest.

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