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Research Article

**QUALITY OF LIFE IN PATIENTS WITH MELASMA IN KING KHALID  
UNIVERSITY HOSPITAL, SAUDI ARABIA****<sup>1</sup>Dr. Hend Alotaibi, <sup>2</sup>Rasha alanazi, <sup>3</sup>Shatha alzahrani, <sup>4</sup>Areej alanazi**

<sup>1</sup>Assistant professor & Consultant College of Medicine, King Saud University, Dermatology Department /KKUH., <sup>2</sup>medical student-King Saud University, <sup>3</sup>medical student-King Saud University, <sup>4</sup>medical student-King Saud University

**Abstract:**

**Objectives:** To assess the quality of life in patients with melasma. To correlate quality of life scores with severity of melasma. To determine the association between quality of life in melasma patients with their sociodemographic status. To determine the association between quality of life in patients with melasma and the risk factors of this disease

**Methods:** A cross sectional observational quantitative study done on a total of 80 melasma patients in the dermatology clinic at King Khalid University Hospital, Riyadh, Saudi Arabia. The questionnaire consisted of the following types of questions:

Sociodemographic data, which included age, gender, educational level, marital status, monthly income and occupation, Patient history, Disease information and

Clinical data

**Results:** The majority of patients were aged greater than 39 years [63.8%], married [72.5%], have bachelor degree [45%], monthly family income [5000-10000 SR], don't work [52.5%], Chronic diseases patients [42.5%], hypothyroidism patients [23.8%], have 10 years or more duration of melasma [41.3%], melasma onset was associated with pregnancy in [51.3%], [60%] have family history, [68.8%] have Fitzpatrick skin phototype IV. The mean  $\pm$  SD of MelasQoL and MASI scores were  $29.64 \pm 16.755$ ,  $11.093 \pm 4.3643$ , respectively. And no correlation between MelasQoL and MASI scores [ $r = 0.117$ ;  $p = 0.301$ ].

There was association between MelasQoL and the age at onset of melasma [ $p = 0.040$ ]

**Conclusion:** Melasma has a major impact on quality of life of patients in Saudi Arabia.

Dermatologists should pay attention to this effect in the management plans of melasma patients.

**Keywords:** quality of life; melasma; severity of melasma; sociodemographic status.

**Corresponding author:****Dr. Hend Alotaibi,**

Assistant professor & Consultant College of Medicine,  
King Saud University, Dermatology Department /KKUH.

QR code



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**INTRODUCTION:**

Melasma is a common, chronic, acquired hyperpigmentation disease distributed on sun exposed areas of the skin[1].

Melasma occur in all races but epidemiological studies showed that melasma is more prevalent in darker skin phenotypes [Fitzpatrick skin phenotype III-VI] such as Hispanic,

Asian, our community and African-American people who live in areas that have higher exposure to ultraviolet radiation[10]. There are multiple risk factors associated with Melasma including: sun exposure, pregnancy, oral contraceptives, genetic predisposition, thyroid disorder and medications [11] Melasma has a significant negative impact on the quality of life of patients, because of their skin appearance, and can cause emotional and psychosocial distress. Previous studies of the quality of life in patients with melasma have demonstrated a great impact on the quality of life of melasma patients[2-7]

Melasma has an adverse impact on the quality of life of patients. In order to understand effect of melasma on quality of life of patients it is important to understand the meaning of quality of life. QoL has been defined by the World Health Organization [WHO] as: 'individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns'[12]. Or quality of life is defined as a measure used to describe the physical, social and psychological wellbeing of and an individual and to assess the effect of disease on daily life activities[13].

Despite that the incidence of melasma is not precisely known in Saudi population, Melasma is one of the most common skin diseases for seeking dermatological care among Saudi population, in both males and females. this study aimed to assess the quality of life in patients with melasma, to correlate quality of life scores with severity of melasma, to determine the association between quality of life in melasma patients with their sociodemographic status and to determine the association between quality of life in patients with melasma and the risk factors of this disease.

**MATERIAL AND METHODS:**

A cross-sectional study was conducted in the dermatology clinic at King Khalid university hospital, Riyadh, Saudi Arabia during the period between [November2015-April2016]. Done on a total of 80 melasma patients visiting dermatology clinic.

The inclusion criteria will be patients with clinical diagnosis of melasma, aged 18 years and above from both genders. Patients will be excluded if they were diagnosed with psychiatric disorders.

**Data Collection Method:**

In this study we have distributed questionnaire consists of 20 questions. Categorized into: Sociodemographic data, which included [age, gender, educational level, marital status, monthly income and occupation], Patient history, Disease information and Clinical data.

In addition, the volunteers answered Melasma Quality of Life Scale [MELASQOL] which is a questionnaire, to measure the effect of melasma on patients' quality of life. Initially it was developed and validated in English, then it translated and validated in Arabic language. This questionnaire consists of 10 question each question has 7 possible answer. The final score ranges from 7 to 70, higher scores mean worse quality of life.

The patients were examined to determine Fitzpatrick skin type and the severity of melasma, using Melasma Area and Severity index [MASI]. Which is a specific measurement to assess the clinical severity of melasma. Based on area of melasma involvement, darkness of pigmentation and homogeneity.

**Ethical consideration:**

Participation in the study was completely voluntary. All participants received a written consent form. The investigators explained the purpose of the research. Patients were able to withdraw from the study at any point in time. Confidentiality was maintained throughout the study and effort made to limit the disclosure of subject's information. And subjects were assured that results will be used only for the stated scientific research purposes. Also, there are no conflicts of interests.

**Statistical analysis:**

The statistical analysis was carried out using SPSS software [version 21.0, SPSS Inc, Chicago, IL]. Frequency analysis was used to describe sociodemographic data and risk factors for study participants. The Pearson correlation coefficient test was used to test for association between MelasQoL and MASI scores.

Chi square test was used to determine the association between quality of life in patients with melasma and the risk factors of this disease. P value <0.05 was considered as statically significant.

**RESULTS:**

A total of 80 patients participated in the study, 72 females [90%] and 8[10%] males. The majority, 63.8% were aged greater than 39 years. 72.5% of patients were married, 45% had completed their bachelor degree, the monthly family income was 5000-less than 1000 Saudi riyals for 41.3 % of patients, and 52.5% of patients didn't work [Table 1]. Chronic diseases were present in 42.5% of patients. 23.8% of patients had hypothyroidism and 2.5% had hyperthyroidism. The majority of patients 61.3% were taking medication. 17.5% of patients were taking thyroxin, 13.8% of patients were taking vitamin D, 6.3% of patients were taking calcium, and 2.5% of patients were taking Iron [Table 2]. The age at onset of melasma were 18-24 years in 32.5%. Duration of melasma were 10 years or more in 41.3% of patients. 56.3% of patients had not much sun exposure. 13.8% of patients use sunscreen most of the time. Melasma onset was associated with pregnancy in 51.3% of patients. 51.3% of patients were taking oral contraceptives. 60% of patients had a familial history of melasma. 22.5% of patients were using treatment for melasma. The most common Fitzpatrick skin phototype was IV [68.8%]. The most common location pattern was malar followed by combined in 71.3% and 28.8% of patients respectively. [Table 2]. The mean  $\pm$  standard deviation of MelasQoL score was  $29.64 \pm 16.755$  and the median was 24.50. The mean  $\pm$  SD of MASI score was  $11.093 \pm 4.3643$  and the median was 10.800. There was no correlation between MelasQoL and MASI scores, pearson correlation [r] and p value were 0.117 and 0.301 respectively.

There was statistically significant association between MelasQoL and the age at onset of Melisma. While there was no statistically significant association between monthly family income, melasma treatment and family history of melasma, use of contraceptive, onset of melasma during pregnancy, melasma duration, and use of medication, and chronic diseases. The other sociodemographic and risk factors were not applicable because of the sample size.

**DISCUSSION:**

Sociodemographic status and risk factors of the melasma patients were tested in multiple studies and our study because of the variability in the prevalence of melasma and clinical presentation due to the skin type and ethnicity. The majority of patients were aged greater than 39 years [63.8%]. This result was higher than those observed in previous studies which reported that the majority of patients were in the age group of 13-40 years.

In present study, majority of patients were married [72.5%] this is consistent with other studies. This can be attributed to pregnancy and oral contraceptives which are risk factors for developing melasma in married women.

45% of patients in this study had completed their bachelor degree; this is similar to Balkrishnan et al. study who observed that 87% of patients had at least a college education.

The monthly family income in this study was 5000-less than 1000 Saudi riyals for 41.3 % of patients. This is higher compared to Freitag et al. study who reported that the monthly family income for 47.6% of patients was US\$500.00–US\$1500.00.

Majority of patients in this study didn't work [52.5%] similar to Dominguez et al. study who reported that 66.7% of patients were Unemployed.

In present study, chronic diseases were present in 42.5% of patients; this is higher compared to Dominguez et al. study who observed that 32.3% of patients had one or more medical comorbidities. This difference may be due to that age group of this study was greater than other studies or because the sample was from hospital.

In present study, 23.8% of patients had hypothyroidism and 2.5% had hyperthyroidism, while other study by Ikino et al. found that Thyroid diseases were present in 7.84% of patients. This difference may due that thyroid disorder is common in Saudi Arabia [18]. This suggests that there is a possible association between thyroid disease and melasma [19]. Further studies should be done to understand the association between melasma and thyroid disease.

Interestingly, we found that 13.8% of patients were taking vitamin D supplements. No studies done to detect an association between melasma and vitamin D [20]. Future studies should be done to investigate an association between melasma and vitamin D.

Duration of melasma in this study were 10 years or more in 41.3% of patients, this is higher compared to Misery et al. and Yalamanchili et al who reported that 48.2% of patients had melasma for 5 years or less and 67.1% of patients had melasma for more than 6 months respectively. This shows the chronic nature of melasma.

In present study, 13.8% of patients use sunscreen most of the time. This could be due to that many female patients believe that head cover is protective against ultraviolet radiation. This is different to other cultures not using sunscreen because it decreases vitamin D synthesis [21]. This shows the need to

educate patients about importance of using sunscreen. In present study, melasma onset was associated with pregnancy in 51.3% of patients and 51.3% of patients were taking oral contraceptives where as in Ikino et al study who reported that 45.10% of patient had melasma onset during pregnancy while 9.80% of patients had melasma after oral contraceptives use. This shows that pregnancy and oral contraceptives play important role in development of melasma. A positive family history in this study were in 60% of patients, this is similar to Handel et al. study who reported that 61% of patients had family history of melasma.

In present study, 22.5% of patients were using treatment for melasma, in comparison to Dominguez et al. study who observed that 56.6% of patients being treated for melasma. This is may be due that melasma is asymptomatic and because patients may not be aware of treatment options for melasma.

Most common Fitzpatrick skin phototype in this study was IV [68.8%]. This is different to kino et al. study who observed that 49.02% of patients had III. In present study, the common melasma pattern was malar followed by combined in 71.3% and 28.8% of patients respectively similar to Freitag et al. study who reported that 46.4% of patient had malar pattern followed by 21.4% had combined pattern. in our study the mean  $\pm$  SD of MelasQoL score was  $29.64 \pm 16.755$  [range: 10-68 higher score indicates worse quality of life], Freitag et al [effect], Ikino et al [melasma] and Cestari et al [validation] reported means of  $[37.5 \pm 15.2, 34.40 \pm 13.50, 44.4 \pm 14.9]$  respectively. and another study done in San Francisco by Balkrishnan et al [development N=102], reported mean of [36].in our opinion, the difference in our mean comparing to the means in the other studies can be explained by that the majority of patients have skin phototype IV, that makes melasma less visible so, they do not recognize it. And also because most of the patients were older than 39 years who are usually not concerned about melasma.

- In our study the mean  $\pm$  SD of MASI score was  $11.093 \pm 4.3643$  [ranging from 1.8 to 26.4]. was similar to a study done by Cestari et al [validation], which enrolled 300 patients and the most common skin phototype was IV, and the mean was  $13.3 \pm 6.7$  and another study done by Freitag et al [effect], which enrolled 85 patients and the predominant skin phototype was III-IV, and the mean was  $10.6 \pm 6.6$  there was no correlation between MelasQoL and MASI scores [ $r = 0.117; p = 0.301$ ]. The result was similar to other published studies done by Freitag et al [effect], Handel et al [M2] and Magalhães et al

[v2]. In contrast to another study done by Balkrishnan et al [development] with sample size of 102, that shows moderate correlation. Suggesting that melasma effect patient's quality of life no matter how severe it is.

In many studies there are variability in the association with multiple sociodemographic factors and risk factors of the patient. In the present study, there was association between MelasQoL and the age at onset of melasma [ $p=0.040$ ]. The older the onset the higher the score. And that could be because the older someone get the more aware and worry about skinchanges and appearance

Those who had less than 10000 SR monthly family income states scored more than 30, similar to a study done by Charussri Leeyaphan et al demonstrate poorer quality of life if they had low payment occupations majority of chronic diseases' patientscored more than 30, while a study was done by Laurent Misery et al[18] showed no association between BMI or an associated diseases and who are not using any medication have lower quality of life, Those who have 10 years or more duration of melasma had more negative impact of melsma. Which is similar to study conducted by Raafia Ali et al [16], and Dominguez et al [17]. Who had onset of melasma during pregnancy or used contraceptives they equally scored more than 30, which could be because of abounded malar pattern and centrofacial pattern in pregnant woman according to a study conducted by Moin et al [19]. There was no impact of family history onMelasQoL as what a study done by Juliana Kida Ikino et al showed.

A study was done by Cestari et al [20] reveled lower MelasQoLafter triple combination treatment. But in our study the majority of who used melasma treatment scored more than 30, and that may be because we didn't consider type of treatment, patient compliance.

### CONCLUSION:

Our data showed that MelasQoL score is high, indicating that melasma has a negative impact on the quality of life. No correlation between MelasQoL and MASI scores. There was statistically significant association between MelasQoL and the age at onset of melasma.

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**Tables and Graphs:****Table 1:** Descriptivestatistics of sociodemographicdata for melasma patients

	n [%] n=80
<b>Age</b>	
18-24	8 [10]
25-31	10 [12.5]
32-38	11 [13.8]
Greater than 39	51 [63.8]
<b>Gender</b>	
Male	8 [10]
Female	72 [90]
<b>Marital status</b>	
Single	9 [11.3]
Married	58 [72.5]
Divorced	9 [11.3]
Widowed	4 [5]
<b>Educational level</b>	
No schooling completed	4 [5]
Primary	7 [8.8]
Intermediate	12 [15]
High school	13 [16.3]
Bachelor degree	36 [45]
Master	7 [8.8]
Doctorate	1 [1.3]
<b>Monthly family income</b>	
Less than 5000	17 [21.3]
5000-less than 10000	33 [41.3]
10000 -less than 15000	16 [20]
15000 or more	14 [17.5]
<b>Occupation</b>	
Student	7 [8.8]
Working	31 [38.8]
Do not work	42 [52.5]

**Table 2** Risk factors for melasma patients

	n [%] n=80
<b>chronic diseases</b>	
Yes	34 [42.5]
No	46 [57.5]
<b>Thyroid disorders</b>	
No	59 [73.8]
Hypothyroidism	19 [23.8]
Hyperthyroidism	2 [2.5]
<b>Medication</b>	
Yes	49 [61.3]
No	31 [38.8]
<b>Thyroxin</b>	
Yes	14 [17.5]
No	66 [82.5]
<b>Vitamin D</b>	
Yes	11 [13.8]
No	69 [86.3]
<b>Iron</b>	
Yes	2 [2.5]
No	78 [97.5]
<b>Calcium</b>	
Yes	5 [6.3]
No	75 [93.8]
<b>Age at onset of melasma</b>	
18-24	26 [32.5]
25-31	23 [28.8]
32-38	17 [21.3]
Greater than 39	14 [17.5]
<b>Duration of melasma</b>	
Less than 6 months	8 [10]
6 months- 3 years	21 [26.3]
4-9 years	18 [22.5]
10 years or more	33 [41.3]
<b>Daily sun exposure</b>	
Most of the time	9 [11.3]
Sometimes	26 [32.5]
Not much	45 [56.3]
<b>Use of sunscreen</b>	
Most of the time	11 [13.8]
Sometimes	23 [28.8]
Not much	9 [11.3]
No	37 [46.3]
<b>Onset of melasma during pregnancy</b>	
Yes	41 [51.3]
No	39 [48.8]
<b>Use of oral contraceptives</b>	
Yes	41 [51.3]
No	39 [48.8]
<b>Family history of melasma</b>	
Yes	48 [60]
No	32 [40]
<b>Use of treatment for melasma</b>	

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Yes	18 [22.5]
No	62 [77.5]
<b>Fitzpatrick skin phototype</b>	
I	–
II	–
III	8 [10]
IV	55 [68.8]
V	12 [15]
VI	5 [6.3]
<b>Melasma location pattern</b>	
Forehead	–
Malar	57 [71.3]
Chin	–
Combined	23 [28.8]

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