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## A study of the clinical profile and assessment of the quality of life in patients of Melasma

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#### Abstract

**Background:** Melasma is one of the most common and distressing pigmentary disorders presenting to dermatology clinics. The precise cause of melasma remains unknown; however, there are many possible contributing factors. It is notably difficult to treat and has a tendency to relapse. Its population prevalence varies according to ethnic composition, skin phototype and intensity of sun exposure. Due to its frequent facial involvement, the disease has an impact on the quality of life of patients.

**Aims and Objectives:** To study the clinical profile and clinical severity of patients of melasma and to assess their quality of life by using MELASQoL and DLQI scales.

**Material and Methods:** All patients with melasma were screened. A detailed history, clinical examination, and relevant investigations were done. Severity of melasma was assessed by calculating Melasma Area Severity Index (MASI) score. Quality of life was assessed using MELASQoL and DLQI scale with a standard structured questionnaire.

**Results:** In 100 cases of melasma, 79 were females and 21 were males. Most common age group affected was 21-30 years (45%). Sun exposure was found to be the most common aggravating factor observed in 35% of cases. Centro-facial type (69%) was the most common pattern observed. Mean MASI score was  $7.61 \pm 4.98$ . Mean MELASQoL and DLQI scores were  $33.36 \pm 13.49$  and  $9.37 \pm 5.28$  respectively, with most patients being bothered about their appearance, frustrated and embarrassed about their skin condition. A positive correlation was found between QoL and severity of melasma.

**Conclusion:** This study showed that melasma has a significant negative effect on QoL with MELASQoL and DLQI being useful tools to assess the QoL. Melasma though asymptomatic, affects self-esteem because of cosmetic concern.

**Keywords:** Melasma, QoL, MASI, MELASQoL

#### Introduction

The word melasma originates from the Greek root “melas”, which means black, and refers to its brownish clinical presentation. Melasma is a human melanogenesis dysfunction that results in localized, chronic acquired hypermelanosis of the skin [1]. It is a very common pigmented disorder featuring smoky brown photo distributed discoloration, classically involving face in a mask like distribution [2]. The exact prevalence of melasma is unknown in most of the countries however, it is a very common cutaneous disorder, accounting for 0.25 to 4% of the patients seen in Dermatology Clinics in South East Asia, and is the most common pigmentary disorder among Indians [3]. The disease affects all races, but there is a particular prominence among Hispanics and Asians [4]. Its prevalence in pregnancy is around 50-70% [5]. Melasma can also occur in men, though it is less common [6]. It is more common in persons with Fitzpatrick skin types IV through VI than it is in those with fairer skin [7]. The exact etiology is yet to be established, but various implicating factors include exposure to sunlight, genetic predisposition, pregnancy, oral contraceptives, cosmetic ingredients and phototoxic drugs [8]. Melasma has significant effect on individual's quality of life because of its disfiguring lesions [9]. The impact of disease upon patients overall well-being, their families and personal relationships and upon their work has become an important focus. When there are disfiguring facial lesions, the overall emotional well-being of an individual can be significantly affected, contributing to decrease in social functioning, productivity at work or school and lowered self-esteem [10]. In order to assess the impact of melasma on QoL- DLQI and MELASQoL scales were used.

DLQI is a simple, valid, practical questionnaire consisting of 10 questions designed to measure the disability caused by various skin conditions.

It has been used widely in the clinical settings and is available in more than 40 languages [11]. MELASQoL is a specific questionnaire designed to assess the burden of melasma on patient's quality of life [12]. The scale was originally developed and validated by Balkrishnan *et al* in 2003 [13]. is a ten questionnaire based scale having advantages like that the questionnaire can be completed in 5 minutes on an average. It is reproducible in 72hrs and is internally reliable. It has subclasses assessing distress related to symptoms, emotions and functions. The total scale score ranges from 10-70, with a higher score signifying poorer melasma associated health QOL. The anguish expressed by many melasma patients has been explored extensively in western literature over many decades. Surprisingly very few Indian studies have looked into the psychological aspects of this chronic disfiguring disease. The present study was planned to study the clinical profile and to assess the clinical severity and quality of life in patients suffering from melasma.

### Material and Methods

A total of 100 clinical diagnosed patients of melasma of different age and sex attending the Skin OPD at Maharishi Markandeshwar Institute of Medical Sciences and Research, Mullana, Ambala (Haryana) were enrolled in the study. Patients with signs of some other dermatological problem and those of less than 13 years of age were not included in study. At presentation all the demographic characteristics like age, gender, occupation, education status, marital status were carefully noted in the proforma specially designed for the study. Detailed history of each patient was recorded in the proforma including the presenting complaint, duration, any aggravating factors, medications used for pre-existing lesions or any other cosmetic product used. Needful investigations were carried out and details were noted in the proforma. Severity of melasma was recorded by using Melasma Area and Severity Index scale. All the patients were asked to fill DLQI questionnaire which includes 10 questions covering six different domains of QoL e.g. symptoms and feelings, daily activities, leisure activities, work and schooling, personal relationship and treatment of disease. Each of the ten questions were scored on a scale from 0 to 3. The total score ranged from 0 to 30. The higher the score, the poorer was the quality of life.

Patient's were then asked to fill another questionnaire i.e. MELASQoL which is a ten item scale that primarily focuses on the psychosocial aspects of patients affected due to dyspigmentation of skin. Each of the 10 items were scored on a seven-item Likert scale, graded from 1 to 7 thus a total score ranging from 10 to 70. Higher the MELASQoL score greater the burden of disease.

After all the data was collected, it was tabulated and analyzed using SPSS software version 16.0. Chi square test was used to determine significance of various parameters and Spearman rank correlation was used for correlation between the variables. The statistical analysis was done and a *p* value of <0.05 was considered significant.

### Results

A total of 100 patients, clinically diagnosed as melasma were studied. 79% of total study population comprised of females while only 21% were males. Majority of the patients (45%) were in the age group of 21-30 years. The mean age of presentation was 31.54 years. Fifty one (51%) patients had melasma for 2-5 years and the mean duration of disease was

found to be 3.48 years. Eighty four percent of patients were married and majority of the cases (60%) were reported to be housewives and unemployed. Sun exposure was found to be the most common precipitating factor followed by pregnancy, OCP's and various cosmetics. A total of 66 patients had a past treatment history. Clinically centrofacial type of melasma was found to be the most common type of melasma in our study (69%) followed by malar type in 39% of cases. No case of mandibular type was recorded in our study. According to severity of melasma 47 patients had a MASI score of  $\leq 5$ , 32 had a MASI score from 6-10, 18 patients had a score of 18 while only 3 patients had a severe disease with a MASI score of >20. The mean MASI score of females ( $7.77 \pm 5.37$ ) was only slightly higher than mean MASI score of males ( $7.05 \pm 3.56$ ).

A mean DLQI score of 9.37 was recorded in our study. Females recorded a higher mean DLQI score (9.52) as compared to males (8.81) but it was not statistically significant. Maximum number of patients (44) had a moderate effect of melasma on their quality of life with their DLQI score in-between 6-10. In both females and males the embarrassment/self-consciousness was the most affected question with a mean score of  $2.05 \pm 0.80$  which is related to the feelings of the patient closely followed by impairment of day to day activities with a mean score of  $1.81 \pm 1.08$ .

The mean MELASQoL score recorded in our study was 33.36. Females had a slightly higher mean MELASQoL score as compared to males. Patients were mostly bothered about their appearance, frustrated, and embarrassed about their skin condition in decreasing order of frequency with a mean value of  $4.72 \pm 1.84$ ,  $4.14 \pm 1.88$ ,  $3.86 \pm 2.0$  respectively for each question. Moreover patients hardly felt any reduced sense of importance or productivity due to melasma ( $2.02 \pm 1.09$ ).

In the present study, we also found that, patients who had availed some or other kind of treatment for melasma showed a significant worse quality of life related to melasma when compared to patients who had availed no treatment ( $p=0.048$ ). We found a significant positive correlation between MELASQoL and the MASI score ( $r=0.351$ ;  $p=0.000$ ). This may suggest that patients with severe degree of melasma were more likely to have poorer quality of life. Also a significant correlation was found between DLQI and MASI score ( $p=0.002$ ).

### Discussion

Melasma is a common skin condition manifesting as symmetrical hyperpigmentary macules primarily over the face. Its prevalence varies according to skin colour, race and the sun exposure habits. It is most prevalent in Fitzpatrick skin type IV to VI. Hispanics and Asians (Korean, Japanese and Chinese), dark-skinned races that live in India, Pakistan and Middle East tend to develop melasma more frequently than white-skinned races.

Our study was conducted in northern India at MMIMSR, Mullana, ambala which mostly comprises of people with Fitzpatrick skin type III-V. We evaluated 100 patients of melasma and evaluated the patients QoL affected by melasma. In the present study, majority of melasma affected patients were middle aged adults. Mean age of onset was  $31.54 \pm 7.03$  years. This was similar to various previous studies conducted on melasma. Among the study population, females (79%) contributed to a wider scale of proportion than the males. This was in concordance to studies conducted by Kalla *et al*, Sarkar *et al* and Javaher *et al*. [14, 6] Thus a female

preponderance was observed in all these studies. This can be attributed to various hormonal factors. Johnston GA *et al* in their study pointed out that the depth of pigmentation may fluctuate in synchrony with menstrual cycle. Women are likely to be more conscious and apprehensive about their skin condition and it may also contribute to enhanced percentage of females seeking for medical attention among different studies [15].

Although the exact etiology of melasma is not yet fully understood various factors seem to be responsible for its outcome. The main precipitating factors found in our study were sunlight (35%), followed by pregnancy (19%), oral contraceptive pills (11%) and cosmetics (10%). Kalla *et al* and Hurley *et al* also found similar aggravating factors in their respective studies. The present study indicates that cosmetics are one of the significant factors in etiopathogenesis of melasma. This may be due to their indiscriminate use in the modern era. Pathak *et al*, had documented cosmetics as one of the important factors in etiopathogenesis of melasma [16].

Majority of the patients (84%) suffering from melasma in our study were married. This is in contrast to study conducted by Balkrishnan R *et al* [13] and Ali R *et al* [17] in which married group of patients were 64% and 69% respectively. This could be due to the fact that in our setup 20-30 years is the peak age group for getting married and this might compel patients to report and seek advice about their disease. Our being a tertiary care centre majority of the patients (66%) who presented with melasma had availed some or other kind of treatment as compared to patients who came for the first time to seek treatment for melasma. This is in concordance with the study conducted by Dominguez AR *et al*. [5] in which 57% of patients were previously treated for melasma.

Clinically melasma can be classified into centrofacial, malar and mandibular types. The present study showed predominantly a centrofacial pattern with a total of 69% cases. However, studies from Singapore and South India conducted by Goh CL *et al* [19]. and Thappa DM [20] respectively observed that the malar distribution was more common. This variation of results might be due to environmental or regional differences. In our study we found a significant positive correlation between MELASQoL and the MASI score ( $r=0.351$ ;  $p=0.000$ ). This may suggest that patients with severe degree of melasma were more likely to have poorer quality of life. This was similar to the studies conducted by Abou-Taleb AE *et al* [21]. Who also found a significant correlation between MELASQoL scale and MASI score. However, Freitag FM *et al* [12]. and Dominguez *et al* [18]. in their studies did not find a positive correlation between quality of life and melasma severity, corroborating the idea that clinical severity is not the sole criteria used by patients to assess the impairment caused by their skin condition. The difference in the results could be explained by the cultural difference, mild melasma, and small lesions can be neglected by the patients. In addition, our patients skin phototype was mostly type IV and V where QoL is mostly affected if the melasma is severe and obvious.

Melasma had a significant negative impact on quality of life. In present study majority of the patients were bothered about their appearance, frustrated, and embarrassed about their skin condition in decreasing order of frequency with a mean value of  $4.72\pm 1.84$ ,  $4.14\pm 1.88$ ,  $3.86\pm 2.0$  respectively for each question. Moreover patients hardly felt any reduced sense of importance or productivity due to melasma ( $2.02\pm 1.09$ ). This is in concordance with various studies conducted on quality of

life using MELASQoL [18, 22, 20, 10] DLQI is another QoL scale which is used in dermatology to assess how much of the skin condition has affected patients life over the last week. The present study also revealed that patients suffering from more severe disease had a higher mean DLQI score ( $p=0.304$ ;  $p=0.002$ ) and hence, more impaired QoL. This suggests that increasing severity of melasma directly affects the quality of life of patients due to melasma. This is supported by the studies of Ali R *et al* [17] which also showed a direct correlation between DLQI score and severity of melasma. Melasma mainly resulted in embarrassment ( $2.01\pm 0.84$ ) followed by interference in day to day activities like going out for shopping ( $1.88\pm 0.88$ ) and social or leisure activities ( $1.54\pm 0.98$ ). Melasma hardly resulted in any sexual difficulties and participation in sports indicating that melasma mainly affects the feelings and social activities of the patients. No significant differences were found between the male and female patients. These results were in concordance with the studies conducted by Ali R *et al* [17] and Leeyaphan C *et al*. [9] In the present study, we also found that, patients who had availed some or other kind of treatment for melasma showed a significant worse quality of life related to melasma when compared to patients who had availed no treatment ( $p=0.048$ ). This was consistent with the findings of Balkrishnan *et al* [13] and Dominguez AR *et al* [18]. The reason for this could be attributed to the fact that the patients who had availed treatment for melasma are more worried about their skin condition as compared to patients who had not availed any sort of treatment, thereby, leading to increased MELASQoL score. There were no differences found in scores by variations in other demographic factors.

## Conclusion

Melasma is primarily a cosmetic disorder that commonly affects women of reproductive age group. It is one of the most common pigmentary disorders that we come across in our clinical setting. It usually affects the face therefore it has a significant effect on patient's quality of life and has significant psychological and emotional effect on individuals life. The study also suggested that melasma significantly affect patient's quality of life. The patients with increased severity of disease were found to have a poorer quality of life as compared to patients with a less severe disease. Both MELASQoL and DLQI scores are useful tools to assess the QOL of patients and they should be given a due consideration before deciding the treatment plan for patients.

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