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Melasma assessment of quality of life among Iraqi women during 2023

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Abstract

Background: Melasma is an acquired pigmentary disorder that has a negative impact on various domains of patient's quality of life. Measurement of quality of life can help in enhancing patients care and outcomes.

Objectives: To assess the impact on the quality of life in Iraqi women with Melasma and to find if there is any association between quality of life and certain study variable.

Patients and Methods: A cross-sectional study was conducted among convenient sample of 100 Melasma women patients, attending the dermatology clinic, Al-Yarmook Teaching hospital. Data was collected using The Melasma Quality of Life Scale (MELASQOL). The data analyzed using Statistical Package for Social Sciences (SPSS) version 27. Chi-square test was used for categorical data and Kruskal-Wallis test for non-parametric comparison of mean.

Results: In this study, women with secondary school education (22%), housewives (29%) and resides in urban area (23%) tends to have good quality of life. Moreover, Melasma patients who didn't take OCP (35%) and exposed to sun for leisure (29%) tends to have good quality of life. No statistically significant difference was detected between patients' quality of life with duration of sun exposure, age of onset of Melasma and duration of disease.

Conclusions: Education, occupation, residency, OCP use, and sun exposure had a significant impact on patients' quality of life.

Keywords: Melasma, Quality of life, MELASQOL

Introduction

Melasma is a common skin disorder that causes symmetrical macules and areas of hyperpigmentation on the face. The name "Melasma" is derived from the Greek word "melas" which means "black." It is a kind of hypermelanosis that is widely acquired and is characterized by uneven brown patches that appear in a mask-like pattern on the forehead, cheeks, and chin. Melasma can affect anybody, although Asian, Hispanic, and Afro-American women are the most typically affected [1]. The prevalence of melasma varies between 1% and 50% depending on the population. The prevalence of melasma in Brazil was reported to be 10% up to 23.6% in men and 29.9% up to 34% in women. In USA the prevalence was reported to range from 14.5% to 20.5% [2]. In Asia, Indian studies reported a prevalence of 41%, while in Iran the prevalence was 39.5%. In Middle East, a prevalence of 3% was reported in Saudi Arabia, similarly, a prevalence of 1.5% was noted in Ethiopia. Till now there is no reports about the prevalence of melasma in Iraq [3].

Exposure to UV radiation, genetic predisposition, pregnancy, and the use of oral contraceptives have all been associated to the development of melasma. Thyroid problems are also highlighted as a potential risk factor for melasma. Furthermore, women of reproductive age are the most afflicted by melasma, indicating that sexual hormones play an important part in the disease's etiology [4]. UV light has been shown in clinical and laboratory studies to trigger and exacerbate the melasma in affected patients. UV light is thought to induce reactive oxygen species (ROS) by activating inducible nitric oxide and promoting melanogenesis [5]. Family history is also known to be an important risk factor for developing melasma, strengthening the hypothesis of a genetic predisposition to the condition. It was reported that 55–64% of patients have a positive family history. Genes implicated in this process involve pigmentary, inflammatory, hormonal, and possibly vascular responses [6].

As evidenced by the increasing occurrence with pregnancy, oral contraceptive usage, and other hormonal medications, hormonal effects play a substantial role in the etiology of melasma. An immunohistochemical examination of the epidermis and dermis of afflicted and unaffected neighboring skin revealed that the progesterone receptor was substantially more expressed in the epidermis of affected skin [7].

Thyroid disorders were reported to be presented with various dermatological manifestations. These included melasma, vitiligo, idiopathic Hirsutism, bullous diseases and premenstrual acne. This was explained as disturbances in thyroid hormones directly affect melanogenesis and consequently enhances hyper or hypo pigmentation [8]. When there are disfiguring facial lesions, the overall emotional well-being of an individual can be significantly affected, contributing to a decrease in social functioning, productivity at work or school and lowered self-esteem. All of these factors negatively affect patients' quality of life (QoL) [9].

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. Individuals' roles could be paid employment, schooling, housework or self-care [10]. Quality of life assessment is critical in dermatology, a specialty in which disorders may not pose a direct threat to life but have a substantial influence on the patient's physical appearance and mental condition [11]. Melasma is the commonest pigmentary skin diseases, and it usually affects visible areas of the affected patients most commonly the face. Therefore, melasma exerts a huge burden on the psychological wellbeing and hence quality of life of affected patients. To the best of our knowledge, no previous studies were conducted to assess to the impact on the quality of life in women with melasma in Iraq.

Objectives of the study

1. To assess the impact on the quality of life in Iraqi women with melasma.
2. To find if there is any association between quality of life and certain study variable.

Patients and Methods

Study design and duration: A cross-sectional study was carried out during period of six months from of 1st to January to 30th of June 2023.

Study setting and sample size

The study included convenient sample size of 100 melasma women patients, attending the dermatology clinic Al-Yarmook Teaching hospital.

Inclusion criteria

Iraqi female melasma patients aged 15-49 years who agreed to participate were enrolled in the study.

Exclusion criteria

Iraqi female melasma patients (< 15 and > 49 years old) who refused to participate in the current study.

Data collection methods: Information was obtained by direct interview between the researcher and participants

after clearing the objectives of the research and assuring confidentiality of the acquired information. The data had been collected by The Melasma Quality Of Life Scale (MELASQOL) [12] (Appendix 1) and the questionnaire was composed of the following:

- **Socio-demographic characteristics:** Age, Marital status, Education, Occupation, Residency
- **Clinical characteristics:** skin type, causes of melasma, History of OCP use, Drug history, Family history of melasma, History of thyroid disorder, Type of sun exposure, Use of cosmetics, Use of sunscreen products, Frequency of affected sites, Duration of sun exposure, Age of onset of melasma, Duration of melasma.

Assessment of effect of melasma on quality of life

This was done using MelasQoL Questionnaire involving 10 items. Scoring:

Each point was answered on scale from 1- 7 as follows:

1. Not bothered at all.
2. Not bothered most of time.
3. Not bothered or sometimes bothered.
4. No feeling either way
5. Sometimes bothered.
6. Bothered most of the time.
7. Constantly bothered

Then the score was summed for each patient to obtain a final score, the higher the score the greater the effect of melasma on quality of life.

Pilot study

A pilot study was implemented in the selected hospital involving 5 patients (who were excluded from the study sample) before starting data collection to:

- Test the clarity and applicability of the study to test the time needed for filling the questionnaire.
- Address the difficulties that may be faced during the study, and to determine the reliability of questionnaire.

Ethical considerations: Was obtained from:

- The Scientific committee of the board of family medicine
- The Scientific committee of Al-Kindy College / University of Baghdad
- The Scientific committee of the research and developing center / ministry of health / Iraq
- Al Kharkh health directorate/ Al-Yarmook teaching hospital/Dermatology consultation clinic.
- Verbal consent was taken from all patients who participated after explaining the study aim

Statistical Analysis

Data was analyzed using SPSS (Statistical Package for Social Science) version 27 (IBM, Illinois, USA).

Descriptive data

Data was represented in the form of number and percentage (tables / figures).

Inferential statistics

Chi-square test: Was used to examine the relationship between two qualitative variables. P-value level of significance < 0.05 is considered significant and Kruskal-Wallis test for non-parametric comparison of mean.

Results

Socio-demographic characteristics: The current study included 100 melasma female patients. Sixty patients were aged 40 - 49 years while 33 patients were aged 30-39 years.

Most of patients were married (90 patients) and housewife (89 patients). Fort patients had primary education, 34 had secondary and 16 were illiterate. Majority of patients were living in urban areas (64 patients) (Table 1).

Table 1: Distribution of patients according to socio-demographic characteristics

Variables		Number (100)	100%
Age	Less than 30 years	7	7
	30-39 years	33	33
	40-49 years	60	60
Marital status	Single	3	3
	Married	90	90
	Divorced	3	3
	Widow	4	4
Education	Illiterate	16	16
	Primary	40	40
	Secondary	34	34
	High education	10	10
Occupation	Employee	11	11
	Housewife	89	89
Residency	Urban	64	64
	Rural	34	34

Clinical characteristics

Regarding clinical characteristics of included patients, 56 had intermediate skin type while 30 had colored skin type and 14 had fair skin. Forty-five patients reported having melasma during pregnancy while 34 patients didn't report any cause. History of OCP use was positive in 18 patients. Most of patients didn't receive any treatment for melasma (92 patients). Family history of melasma was positive in 27 patients while past history of thyroid disease was positive in

14 patients. Of the included patients, 19 report use of cosmetics, 16 report use of sunscreen, 84 report exposure for sun for leisure with mean duration of sun exposure 2.5 ± 1.9 hours/day. Mean age of onset was 31.67 ± 7.4 years with mean duration 8.35 ± 6.85 years. Most affected site was cheeks (99 patients), followed by forehead (73 patients), around lips (58 patients) then nose (38 patients) (Table 2, Fig 1, 2).

Table 2: Distribution of clinical characteristics among patients

Variables		No. (100)	100%
Skin type	Fair	14	14
	Intermediate	56	56
	Colored	30	30
Causes of melasma	Pregnancy	45	45
	OCP use	1	1
	Stress	18	18
	Other cause	2	2
	No cause	34	34
History of OCP use	Present	18	18
	Absent	82	82
Drug history	Anti-depressant	3	3
	Cortisone	5	5
	None	92	92
Family history of melasma	Present	27	27
	Absent	73	73
Thyroid disease history	Present	14	14
	Absent	86	86
Type of sun exposure	At work	16	16
	For leisure	84	84
Cosmetic use	Present	19	19
	Absent	81	81
Sunscreen use	Present	16	16
	Absent	84	84
Frequency of affected sites	Cheeks	99	99
	Forehead	73	73
	Nose	38	38
	Around lips	58	58
Duration of sun exposure (hours/day)	Mean \pm SD		2.5 ± 1.9
	Range		1 - 9
Age of onset of melasma (years)	Mean \pm SD		31.67 ± 7.4
	Range		15 - 48
Duration of melasma (yr)	Mean \pm SD		8.35 ± 6.85
	Range		1 - 25

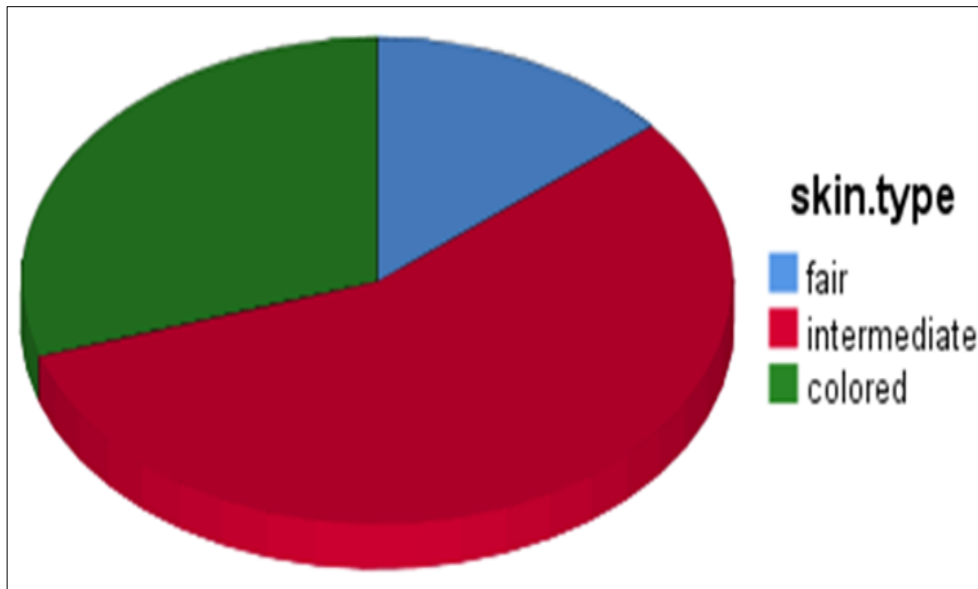


Fig 1: Distribution of studied sample according to skin type

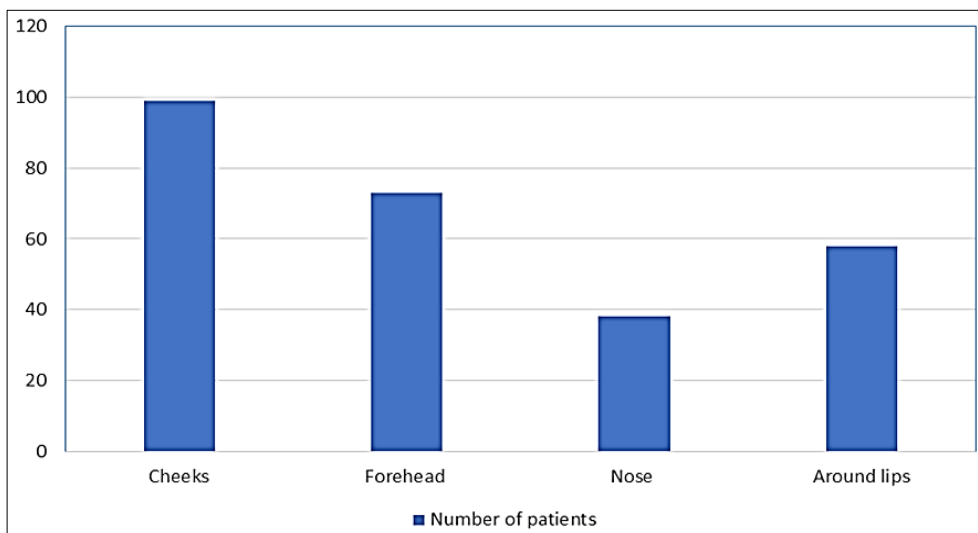


Fig 2: Distribution of studied sample according to site of melasma

Table 3: Assessment of quality of life among melasma patients

	1	2	3	4	5	6	7
The appearance of the skin condition	-	1	5	3	29	36	26
Frustration about the skin condition	-	5	9	6	21	37	22
Embarrassment about the skin condition	-	1	9	11	28	27	24
Feeling depressed about the skin condition	4	5	10	23	28	19	11
The effects of the skin condition on interactions with other people	4	10	9	18	23	23	13
The effects of the skin condition on their desire to be with people	5	11	7	20	22	21	14
The skin condition makes it hard to show affection	3	14	6	33	19	12	13
Skin discoloration makes them feel unattractive to others	2	6	13	19	28	21	11
Skin discoloration makes them feel less vital or productive	23	9	3	48	16	1	-
Skin discoloration affects their sense of freedom	24	10	4	50	11	-	1

1 not bothered at all, 2 not bothered most of time, 3 not bothered or sometimes bothered, 4 no feeling either way, 5 sometimes bothered, 6 bothered most of the time, 7 constantly bothered.

Melasma effect on quality of life and socio-demographic data: Study of association between melasma effect on quality of life and socio-demographic data revealed good quality of life in patients who were housewives and patients

residing in urban areas. Moreover, patients with secondary education tend to have fair quality of life compared to other patients (Table 4).

Table 4: Association between melasma effect on QOL and socio-demographic data

Variables		Quality of life			P value
		Poor	Fair	Good	
Age	< 30 years	3	2	2	0.316 (NS)
	30 – 39 years	4	18	11	
	40 – 49 years	17	27	16	
Marital status	Single	1	2	0	0.440 (NS)
	Married	21	43	26	
	Divorced	0	2	1	
	Widow	2	0	2	
Education	Illiterate	3	8	5	0.002 (S)
	Primary	11	14	15	
	Secondary	3	22	9	
	High	7	3	0	
Occupation	Employee	6	5	0	0.015 (S)
	Housewife	18	42	29	
Residency	Urban	11	30	23	0.041 (S)
	Rural	13	17	6	

Melasma effect on quality of life and clinical characteristics: Study of association between melasma effect on quality of life and clinical characteristics revealed

good quality of life in patients who didn't use OCP and in patients who exposed to sun for leisure (Table 5).

Table 5: Association between melasma effect on OOL and clinical characteristics

Variables		Quality of life			P value
		Poor	Fair	Good	
Skin type	Fair	5	4	5	0.352 (NS)
	Intermediate	13	25	18	
	Colored	6	18	6	
Cause of melasma	Pregnancy	13	20	12	0.685 (NS)
	OCP use	0	0	1	
	Stress	4	9	2	
	Other cause	0	2	0	
	No cause	7	16	11	
History of OCP use	Present	0	12	6	0.027 (S)
	Absent	24	35	23	
Drug history of melasma	Anti-depressant	1	1	1	0.207 (NS)
	Cortisone	3	0	2	
	None	20	46	26	
Family history of melasma	Present	7	11	9	0.739 (NS)
	Absent	17	36	20	
Thyroid disease history	Present	4	7	3	0.781 (NS)
	Absent	20	40	26	
Type of sun exposure	At work	8	8	0	0.004 (S)
	For leisure	16	39	29	
Cosmetic use	Present	7	10	2	0.104 (NS)
	Absent	17	37	27	
Sunscreen use	Present	6	7	3	0.336 (NS)
	Absent	18	40	26	
Frequency of affected sites	Cheeks	23	47	29	0.350 (NS)
	Forehead	19	31	23	
	Nose	7	17	14	
	Around lips	14	25	19	

Using Chi-square test, NS: non-significant, S: Significant

Comparison of patients' quality of life with duration of sun exposure, age of onset of melasma and duration of disease

revealed no statistically significant difference (Table 6).

Table 6: Comparison of patients' quality of life with duration of sun exposure, age of onset of melasma and duration of disease

Variables	Quality of life			P value
	Poor	Fair	Good	
Duration of sun exposure	2.95±2.2	2.65±2.1	1.89±1.1	0.644 (NS)
Age of onset of melasma	30.92±8.5	32.3±7.5	31.3±6.4	0.565 (NS)
Duration of disease	9.46±8.2	7.57±6.3	8.69±6.5	0.216 (NS)

Using Kruskal-Wallis test, NS: non-significant, S: Significant

Discussion

Melasma is a chronic hyper-pigmentary disorder characterized by brown, black macules over sun-exposed areas like cheeks, upper lips, nose and chin ^[13], it is a known to cause a great psychological impact and a significant negative effect on a patient's quality of life ^[14]. The current study aimed to assess the impact on the quality of life in Iraqi women with melasma and to find if there is any association between quality of life and certain study variable.

Association of quality of life of malasmic patient and Socio demographic characteristics

Age: In the current study, there was no significant association between patients' age and quality of life. Older patients showed better quality of life but without statistical significance. These results are similar to results reported by another study who evaluated and compared the quality of life in patients suffering from melasma in Nepal. Older patients showed better quality of life but without statistical significance. Similar results were anticipated as younger people are usually more concerned with their appearance compared to older people ^[15].

Marital status

Marital status had no significant effect on patients' quality of life in this study. Similar results were reported as they assessed the quality of life in Pakistani melasma patients. No significant difference in quality of life among married and single melasma patients. This can be explained through the minor effect of melasma due to the nature of the population in Iraq who already have relevant black colored skin, also we must consider small number of included patients in both studies (100 patients in our study and 126 patients) ^[16].

Education: There was fair quality of life in patients with secondary education compared to patients with high education, this was similar to results reported by Aryal *et al.* The authors explored the correlation between various factors and the quality of life in melasma patients in Nepal. They reported statistically significant negative correlation between education and quality of life ^[17]. However, different results were also obtained and reported no-significant association between patients' education and quality of life. In the current study, results showed that the higher education the patients have, the poorer the quality of their life. Highly educated patients are more aware of the importance of their appearance and keener on being in a good shape thus and pigmentary skin condition as melasma greatly affects their quality of life ^[16].

Occupation: There was good quality of life in patients who are housewives. In Nepal, similar results were reported during the study of demographic features of female patients with melasma, assessed quality of life in Melasma patients and its correlation with clinical severity. The authors reported that the majority of patients were housewives, which is similar to results. The authors reported that causes only a moderate reduction in quality of life. When we consider that our study and this study share a common feature that the majority of patients are housewives, we could explain how these patients had higher quality of life. Housewives had less contact with others and therefore are

less prone to social stigmatization due to their melasma lesions, that why they showed good quality of life ^[18].

Residence

There was good quality of life in patients residing in urban areas. This result is unique to the current study and there was no mention of similar result in the literature. However, we could explain this finding as patients living in rural areas are usually more socialized with others compared to urban areas, this is associated with more focus on their appearance leading to poor quality of life.

Association of quality of life of malasmic patient and clinical characteristics

Skin type: The current study revealed no significant association between patients' skin type and quality of life. Pollo *et al.* explored clinical and socio-demographic aspects that influences quality of life in melasma patients in Brazil ^[19]. Similar to our study, the authors reported no significant association between patients' skin type and quality of life. This indicates that the effect of melasma on quality of life is consistent and independent upon skin phototype.

Cause of melisma

Cause of melasma had no significant association with patients' quality of life. This was agreed by another study that reported that after sun exposure, pregnancy was the most frequent trigger of melasma, followed by stress, use of cosmetics ^[17]. However, effect of melasma on quality of life was consistent and homogenous regardless the cause or trigger which is in agreement with our results.

OCP use

There was good quality of life in patients who didn't use OCP. In agreement with our results, previous study evaluated the effects of melasma in quality of life in Nepal. The authors reported higher association with OCP use and melasma effect on quality of life which came with agreement with our results. OCP use is one the most important triggers of melasma, therefore patients who are on OCP medications are more prone to melasma and hence more prone to melasma effect on quality of life ^[20].

Drug history

There was no significant association between quality of life and drug history of melasma. This was anticipated as the majority of included patients (92%) denied intake of any drugs that could precipitate melasma.

History of thyroid disease

The current study revealed no significant association between quality of life and history of thyroid disease. In Turkey, the demographic features of 71 female patients with melasma and how melasma affects quality of life were assessed ^[21]. They reported similar results as our study as only 11.3% of patients reported history of Thyroid disease compared to 14% in the current study. There is no evidence that history of Thyroid disease could affect quality of life in melasma patients. Despite the fact that melasma was reported to be associated with hyper and hypo-thyroid conditions, there is still much debate rather thyroid disease could affect melasma severity and hence patients' quality of life. Studies involving larger number of patients are needed to conclude this association.

Family history of Melasma

The current study revealed no significant association between quality of life and family history of melasma. Despite that 27% of included patients had positive family history of melasma, there was no evident effect on quality of life. Etiology of melasma was linked to genetic predisposition and hence positive family history is considered a risk factor for having melasma^[4], however no link was demonstrated between inheritance of melasma and the degree of severity of the disease. Thus, no solid proof can be established linking positive family history of melasma and quality of life.

Exposure to sun

Included patients showed that there was good quality of life in those who exposed to sun for leisure. Despite that it was proved that exposure to sun is the most important trigger to melasma^[22], patients who exposed to sun for leisure are anticipating they will have hyperpigmentation or what is called 'tan', so they will have no problem in getting melasma or other hyper pigmentary skin conditions compared to patients who exposed to sun at work.

Use of cosmetics

No significant association between quality of life and use of cosmetics was detected. This was surprising as it was anticipated that patients who use cosmetics would be more prone to melasma. A recent study tried to find the role of cosmetics in melasma patients and reported that in 88.2% of patients, cosmetics is an important allergen to cause melasma^[23, 24]. Small number of patients using cosmetics in our study (19%) could explain this discrepancy.

Duration of sun exposure and sunscreen use

Enrolled patients in our study showed no significant association between their quality of life and either of duration of sun exposure or sunscreen use. This was contradicting to results showed previously in a study of the role of broad-spectrum sunscreen in improvement of melasma severity and hence patients' quality of life in India. The authors demonstrated that there was both an objective and subjective improvement in melasma after 12 weeks of sunscreen and showing that use of sunscreens significantly improved quality of life of melasma patients^[25]. This also agrees with a recent article insisting on the role of sun exposure in melasma development^[26, 27]. A possible explanation of our results is that minority of patients used sunscreen (16%).

Frequency of affected site

In the current study, there was no significant association between quality of life and frequency of affected site. This was consistent with results of another study in Pakistan. The authors studied the clinical correlation between quality of life and clinical severity of melasma in female patients in Pakistan. They concluded that regardless the site affected by melasma, the effect of disease on patients' quality of life is universal with no significant difference^[28].

Age of onset or duration of Melasma

The current study revealed that there was no significant association between quality of life and age of onset or duration of melasma. This was agreed by the results reported by Pollo *et al.*^[19] who assessed the effect of

melasma on self-esteem in the Greek population. Similar to our results, the authors in both studies denied the presence of significant effect of age of onset and duration of melasma on patients' quality of life. This indicates that either patient is affected melasma at young or older age and whenever the duration of melasma, there is no significant effect on patients' quality of life^[29, 30].

Conclusions

In the current study, women with secondary school education, housewives and resides in urban area tends to have good quality of life. Moreover, melasma patients who didn't take OCP and exposed to sun for leisure tends to have good quality of life.

The current study also showed that there was no significant association between quality of life and patients' age, marital status, skin type, cause of melasma, treatment history, family history, thyroid history, use of cosmetics, sunscreen or frequency of affected sites.

Recommendations

- Physicians and dermatologists should consider patient education of risk factors and triggers of melasma.
- Psychological support to melasma patients to improve their quality of life.
- Conducting health education session at primary health care level to increase the public awareness of melasma.

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