Original article

J Nepal Health Res Counc 2022 Apr-Jun;20(55): 316-20

DOI:

Quality of life in Nepalese Patients with Melasma: An Observational Cross-Sectional Study at a Tertiary Center

Sushil Paudel[1], Indu Acharya Poudel[2], Priti Upadhyay[1] Manish Kumar Shah[1] Shruti Pokharel[1] Rabindra Sharma[1]

[1]Department of Dermatology, Civil Service Hospital, Kathmandu, Nepal, [2]Civil Service Hospital, Kathmandu, Nepal.

ABSTRACT

Background: Melasma is an acquired pigmentation disorder of the sun exposed parts of the body, particularly face. It is a significant cosmetic concern for the young adults, which is the most frequently affected age-group. Finding the level of impairment in quality of life in melasma patients and correlating with the severity.

Methods: All consenting patients with melasma visiting our out-patient from December 2020 to June 2021 were enrolled. Clinical evaluation was done by the same single reviewer in all cases using modified Melasma Area and Severity Index. Dermatology Life Quality Index (Nepali version) was asked to complete to the patient. Data were collected and analyzed. Frequency and mean were calculated for all variables, comparison of means by Mann-Whitney U test and correlation analyses by Spearman's correlation test were performed.

Results: Females were 82.5%(99) of total cases. Among these 70.8%(85) were married, 68.3%(82) had family history of melasma and 65%(78) had centro-facial phenotype. Mean Dermatology Life Quality Index score was 10.25±0.54. Mean score of females was higher than that of males. The daily activities sub-domain was the worst affected with 50.67% of impairment. Females suffered significantly more than males in symptom and feeling sub-domain. Modified Melasma Area and Severity Index was significantly higher in males (7.12±.56 Vs. 5.66±.28). The severity and duration of melasma did not correlate to the quality of life.

Conclusions: Melasma had a moderately negative impact in the quality of life of the patients. Females suffered more due to melasma. The clinical severity of melasma did not correlate with the quality of life impairment. Thus, psychological assessment to all the melasma patients seem to be an important aspect of management.

Keywords: DLQI; melisma; mMASI; Nepal; quality of life

INTRODUCTION

Melasma is a chronic acquired pigmentary disorder characterized by irregular hyperpigmented macules distributed over the sun exposed areas of the skin particularly over the face of women with darker skin types.[1,2] Hormonal factors, sun exposure and genetic factors are thought to play role in the pathogenesis of this disease.[3-5]

The worldwide prevalence of melasma is thought to be 1%.[2] Community prevalence in South East Asia has been found as high as 40% in females.[6] A community based study found point prevalence of melasma to be 6.8% in rural Nepal[7] and that in a hospital 3.7%.[8]

Melasma causes profound negative impact on the emotional well-being and social life.[9-11] Considering the paucity of data on how much the melasma affects the lives of Nepalese people we conducted a questionnaire based study using Dermatology Life Quality Index (DLQI)[12]and its correlation with clinical severity of melasma using modified Melasma Area and Severity Index (mMASI) score.[13]

METHODS

This was an observational prospective cross-sectional study conducted at the out-patient of department (OPD) of Dermatology, Civil Service Hospital Kathmandu. All patients with melasma who consented to fill the DLQI (Nepali) questionnaire were included in this study. Patients less than18 years of age, non-consenting, pregnant and under psychiatric medications were

Correspondence: Dr Sushil Paudel, Department of Dermatology, Civil Service Hospital, Kathmandu, Nepal. Email: paudelsushil@gmail.com, Phone:+9779841552227.

excluded. The enrolment was done from December 2020 to June 2021 after the ethical review committee approved the proposal.

The demographic data was collected in a self-designed form. All clinical assessment were done by the single investigator (SP) throughout the study period. The severity was assessed using mMASI as proposed by Pandya et al.[13] This is the modification of the original Melasma Area and Severity Index (MASI) proposed by Kimbrough-Green et al.[14] This modification, after removing the homogeneity assessment from the original MASI, helped assess the patients in less time without the loss of its validity. The scoring is as follows:*mMASI= 0.3A(f) × D(f) +0.3A(rm) × D(rm) +0.3A(lm)× D(lm) + 0.1A(c) × D(c)*

Where, A =area, D =darkness, f=forehead, rm =right malar, lm =left malar and c =chin. The darkness was scored as 0=absent, 1 =slight, 2 = mild, 3 = marked and 4 =severe. Scoring of the area of involvement was as follows: 0 (absent), 1 (<10%), 2 (10-29%), 3 (30-49%), 4 (50-69%), 5 (70-89%) and 6 (90-100%). The total score ranges from 0 to 24.

The quality of life was assessed using the Nepali version of DLQI. The DLQI is an easy set of 10 direct questions initially introduced by Finlay et al[12] and widely used in different skin diseases to assess the quality of life.[15] Each question has four possible responses, each response given a value, the minimum score for each question being 0 and the maximum 3, the total score of the questionnaire can range from 0 to 30, with higher score signifying higher quality of life (QoL) impairment. These questions are grouped to represent six sub-domains of life, symptoms and feelings (questions 1 and 2), daily activities (questions 3 and 4), leisure (questions 5 and 6), school and work (question7), personal relationships (questions 8 and 9) and treatment (question 10). The sub-domains are expressed in percentage of impairment. The banding of score makes it easier to interpret the severity. The banding is as follow:

Table 1. Banding of the DLQI score.

DLQI bands	Scores	QoL Effect
Band 0	0 -1	No effect on patient's life
Band 1	2 - 5	Small effect on patient's life
Band 3	6 - 10	Moderate effect on patient's life
Band 4	11 - 20	Very large effect on patient's life
Band 5	21 - 30	Extremely large effect on patient's life

QoL - Quality of Life

The data were analyzed to calculate the frequencies and percentages of categorical variables. Mann Whitney U test was applied to compare the means of the continuous variables. The correlation analyses were performed with Spearman's correlation tests between the continuous variables. For all two sided tests α was set at 5%. All statistical analyses were performed with Statistical Package for Social Sciences (SPSS) v. 25.

RESULTS

In total, 120 patients were included in this study. Females out-numbered males by 4.7:1 ratio, married out-numbered unmarried by 2.4:1, those with a positive family history outnumbered those without family history by 2.2:1 and those with a centro-facial melasma outnumbered those with mixed and peripheral types by 1.8:1 ratio. The mean age of the study population was 32.73 years, the mean duration of melasma was 39.1 months, the mean mMASI score was 5.94 and the mean DLQI score was 10.25. (Table 2)

Table 2. Demography of the study population.

Characteristics of the patients		Number (percent) [total=120]	Range	Mean ±Std Error
Sex	Male	21 (17.5)		
	Female	99 (82.5)		
Marital status	Married	85(70.8)		
	Unmarried	35(29.2)		
Education	College	89(74.2)		
Below college	31(25.8)			
Occupation	Works at home	40(33.3)		
	Works outside home	80(66.7)		
Family history of melasma	Yes	82(68.3)		
	No	38(31.7)		
Clinical type	Centro-facial	78(65)		
	Peripheral	2(1.7)		
	Mixed	40(33.3)		
Age (years)	<30	57(47.5)		
	>30	63(52.5)		
Duration (months)	<12	46(38.3)		
	>12	74(61.7)		
Age (years)			19-58	32.73 ±0.70
Duration (months)			1-180	39.1 ±3.29

mMASI	0.9-22.8	5.92 ±0.26
DLQI score	1-25	10.25 ±0.54

The most severe impairment was seen in the sub-domain of daily activities with 50.67%, followed by symptoms and feelings and leisure. The least affected sub-domain was work and school with 11% impairment. (Table 3)

Table 3. Percentage impairment in different sub-domains of DLQI.

Sub-domain (Full marks)	Mean±Sdt. Error	% Impairment
Symptoms and feelings (6)	2.65±0.14	44.17
Daily activities (6)	3.04±0.17	50.67
Leisure (6)	2.38±0.15	39.67
Work and school (3)	.33±0.06	11
Personal relationships (6)	1.07±0.11	17.83
Treatment (3)	.79±0.08	26.33

The level of QoL impairment was comparable between the sexes, except in the symptoms and feeling subdomain, where females were significantly more affected than males. The mean DLQI score was higher in females than males but the difference was not statistically significant, however, the mean mMASI score was significantly higher in males compared to females. (Table 4)

Table 4. Sex-wise comparison of the mean scores of DLQI and its sub-domains and mMASI.

DLQI sub-domain	Male	Female	Mann-Whitney U test p-value
Symptoms and feelings	1.95±.32	2.80±.15	.018
Daily activities	2.57±.41	3.14±.19	.216
Leisure	2.48±.40	2.35±.17	.768
Work and school	.33±.10	.32±.07	.320
Personal relationships	.95±.33	1.09±.11	.284
Treatment	.52±.16	.85.09	.161
Total DLQI score	8.81±1.44	10.56±.58	.172
mMASI score	7.12±.56	5.66±.28	.004

There was no correlation between the DLQI score and categorical variables like marital status, education, occupation, presence of family history and clinical phenotype of melasma. Similarly there was no correlation between the DLQI score and the mMASI score of the patients ($r_{s=}$ -.103, p=.265), age of the patients ($r_{s=}$ -.111, p=.228), or the duration of the disease ($r_{s=}$ -.032, p=.733). But mMASI scores positively correlated with the age ($r_{s=}$.218, p=.017) and the duration of the disease ($r_{s=}$.282, p=.002).

DISCUSSION

Melasma primarily affects females. The studies around the world have found that the females comprise 80-90% of the melasma patients.[16,17] Most of the people suffering from melasma are around 30 years of age. In this study the mean age was 32.73±0.70 which was similar to other studies.[17-19] The family history of melasma in the first degree relatives was 68.2% in this study which was higher than seen in India[17,20] and in Brazil[21], but lower than another global study[19] where 97% of first degree relatives had melasma. This variation points out that genetic influence along with multiple other factors influence the melasma prevalence. The clinical pattern of centro-facial distribution was predominant phenotype in this study as in other studies.[16] We found that 33.3% had mixed type of melasma and only 1.7% had melasma confined to mandibular area.

The mean DLQI score of 10.25 signified a moderate impairment in QoL. The daily activities sub-domain was the most affected part in melasma patients with 50.67% impairment, followed by symptoms and feelings (44.17%) and leisure (39.67%) sub-domain. Work and school was the least affected domain with just 11% impairment followed by personal relationships and treatment domains. The daily activities sub-domain was significantly more impaired in females than in males. The mean DLQI scores in an another study from Nepal[22] was comparable to that of this study as it was to the study from Indian city of Rajasthan[20] but lower than that reported from Pakistan.[23] The Indian study[20] found that the symptoms and feelings subdomain had greatest impairment followed by the treatment sub-domain while Pakistani study[23] found daily activities subdomain affected the most. It seems that the most negative impact is caused on the non-physical part of subdomain 1 and 2.

The mean mMASI score of 5.92, which is a one-fourth of maximum score, was found in our study population which was higher than found in a similar study from North India[17] (mMASI=4.9) and Pokhara[22] (MASI=6.6) but lower than another Indian study[24] (MASI=20). But the clinical scores vary considerably based on region, study population and most of all, the clinician's judgment and thus difficult to compare. The mMASI score of males was significantly higher than that of females in this study.

This could be due to longer outdoor activities by males and lesser care to skin.

The Health Related Quality of Life tools may not correlate with the disease severity of melasma.[25] The DLQI score did not significantly correlate to the mMASI score, longer duration of the disease or the age of the patient in this present study. The importance of assessing the QoL in all melasma patients is emphasized more due to this finding, which is reinforced with negative correlation coefficients between these attributes. The patients with low mMASI score on clinician's assessment may be having huge psychological impact and may need better counselling and aggressive treatment. Similarly age of the patient and the duration of the disease may not reflect the underlying psychological turmoil in cases of melasma and they need a separate QoL assessment. Similar non-significant correlation of DLQI to disease severity and duration was also seen in study by Morgaonkar et al[20] and Ikino et al.[21] However, a Pakistani study[23] observed positive correlation between DLQI and MASI score.

Modified MASI score, however, increased with the increasing age of the patient and the increasing duration of the disease in our study. This could be due to the cumulative photo damage, medications or other ailments that might accompany increasing age.

CONCLUSIONS

The melasma caused moderate effect in the lives of the Nepalese patients. Males had severer pigmentation but females had higher impairment in quality of life. There was no correlation between the severity of pigmentation and the Quality of life. Every patient should be evaluated for psychological effect of melasma before the initiation of treatment, which will help physician tailor treatment individually.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

REFERENCES

1. Grimes PE. Melasma: Etiologic and Therapeutic Considerations. Arch Dermatol. 1995;131(12):1453–7. [DOI]
2. Ogbechie-Godec OA, Elbuluk N. Melasma: an Up-to-Date Comprehensive Review. Dermatol Ther . 2017;7(3):305–18. [DOI]
3. Muzaffar F, Hussain I, Haroon TS. Physiologic skin changes during pregnancy: A study of 140 cases. Int J Dermatol. 1998;37(6):429–31. [DOI]
4. Resnik S, Collumb J. Melasma Induced by Oral Contraceptive Drugs. J Am Med Assoc. 1967;199(9):601–5.[Article]
5. Kwon SH, Hwang YJ, Lee SK, Park KC. Heterogeneous pathology of Melasma and its clinical implications. Int J Mol Sci. 2016;17(6). [DOI]
6. Sivayathorn A. Melasma in Orientals. Clin Drug Investig. 1995;10(2):34–40. [DOI]
7. Walker SL, Shah M, Hubbard VG, Pradhan HM, Ghimire M. Skin disease is common in rural Nepal : results of a point prevalence study. Br J Dermatol. 2008;334–8.[DOI]
8. Paudel S, Rabindra S, Dahal SC, Paudel I. Epidemiological Profile of Skin Diseases in a Tertiary Hospital of Kathmandu: An Annual Census. Nepal Journal Dermatology, Venereology & Leprology. 2021;19(1):14–9.[DOI]
9. Kagha K, Fabi S, Goldman MP. Melasma's Impact on Quality of Life. J Drugs Dermatol. 2020;19(2):184–7. [DOI]
10. Balkrishnan R, McMichael AJ, Camacho FT, Saltzberg F, Housman TS, Grummer S, et al. Development and validation of a health-related quality of life instrument for women with melasma. Br J Dermatol. 2003;149(3):572–7. [DOI]
11. Dominguez AR, Balkrishnan R, Ellzey AR, Pandya AG. Melasma in Latina patients: Cross-cultural adaptation and validation of a quality-of-life questionnaire in Spanish language. J Am Acad Dermatol. 2006;55(1):59–66. [DOI]
12. Finlay A, Khan G. Dermatology Life Quality Index (DLQI)—a simple practical measure for routine clinical use. Clin Exp Dermatol. 1994;19(3):210–6. [DOI]
13. Pandya AG, Hynan LS, Bhore R, Riley FC, Guevara IL, Grimes P, et al. Reliability assessment and validation of the Melasma Area and Severity Index (MASI) and a new modified MASI scoring method. J Am Acad Dermatol. 2011;64(1):78-83.e2. [DOI]
14. Kimbrough-Green CK, Griffiths CE, Finkel LJ HT, Bulengo-Ransby SM EC. Topical retinoic acid for melasma in black patients: a vehicle-controlled clinical trial. Arch Dermatol. 1994;130:727–33.[Article]
15. Basra MKA, Fenech R, Gatt RM, Salek MS, Finlay AY. The Dermatology Life Quality Index 1994-2007: A comprehensive review of validation data and clinical results. Br J Dermatol. 2008;159(5):997–1035.[DOI]
16. Handel AC, Miot LDB, Miot HA. Melasma: A clinical and epidemiological review. An Bras Dermatol. 2014;89(5):771–82. [DOI]
17. Arora P, Meena N, Sharma P, Raihan M. Impact of melasma on quality of life in Indian patients. Pigment Int.

2017;4(2):92.[Article]

18. Uyanikoglu H, Aksoy M. Quality of life in patients with melasma in Turkish women. Dermatology Reports. 2017;9(2):46–9. [DOI]

19. Ortonne J, Arellano I, Berneburg M, Cestari T, Chan H, Grimes P, et al. A global survey of the role of ultraviolet radiation and hormonal influences in the development of melasma. J Eur Acad Dermatol Venereol. 2009;23(11):1254–62. [DOI]

20. Morgaonkar M, Gupta S, Vijay A, Jain S, Sharma M, Agarwal S. Melasma: Its impact on quality of life. Pigment Int. 2017;4(1):39.[Article]

21. Ikino JK, Nunes DH, da Silva VPM, Sens MM, Fröde TS. Melasma and assessment of the quality of life in Brazilian women. An Bras Dermatol. 2015;90(2):196–200.[DOI]

22. Pudasaini P, Neupane S. An Observational Study to Evaluate Quality of Life in Patients with Melasma in A Tertiary Level Hospital of Pokhara. Nepal Journal of Dermatology, Venereology & Leprology. 2021;19(1):37–41. [DOI]

23. Ali R, Aman S, Nadeem M, Kazmi AH. Quality of life in patients of melasma. J Pakistan Assoc Dermatologists. 2013;23(2):143–8.[PDF]

24. Sarkar R, Garg S, Dominguez A, Balkrishnan R, Jain RK, Pandya A. Development and validation of a Hindi language health-related quality of life questionnaire for melasma in Indian patients. Indian J Dermatol Venereol Leprol. 2016;82(1):16–22.[DOI]

25. Sheth VM, Pandya AG. Melasma: A comprehensive update: Part i. J Am Acad Dermatol. 2011;65(4):689–97. [DOI]