

BASIC INVESTIGATION

Validation of a melasma quality of life questionnaire for the Turkish language: The MelasQoL-TR study

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Abstract

Objectives: In this study, the objective was to evaluate the validity and reliability of the Turkish version of the melasma quality of life questionnaire (MelasQoL-Tr) for melasma patients. **Methods:** The study included 114 melasma patients. The melasma area and severity index (MASI), MelasQoL-Tr and the Turkish short version of the QoL assessment instrument from the World Health Organization (WHOQOL-BREF) were used to assess melasma severity and QoL at baseline. The reliability and validity of MelasQoL-Tr were computed. **Results:** The mean age of the patients in the study was 31.8 ± 7.3 years. The internal consistency of the scale (Cronbach's alpha coefficient) was 0.88. The MelasQoL-Tr score was 29.9 ± 14.6 (range 10–66). The total WHOQOL-BREF score was 54.8 ± 9.8 . The comparison of MelasQoL-Tr and WHOQOL-BREF questionnaires showed an inverse significant correlation on total scores, which indicated a sufficient convergent validity. According to the subscale of WHOQOL-BREF, the inverse correlation was most significant between the MelasQoL-Tr score and psychological domain and less significant between the MelasQoL-Tr score and environmental domain. The MelasQoL-Tr score and MASI were significantly correlated. **Conclusion:** The Turkish version of the MelasQoL was valid and reliable for evaluating the quality of life of Turkish melasma patients.

Key words: Melasma, quality of life, questionnaires, Turkish version, validation

Introduction

Melasma is a common relatively symmetric hyperpigmentation characterized by brown or gray-brown macules and patches on sun-exposed facial areas (1,2). It is more common in women and especially prevalent in darker complected patients. The major etiologic factors in the pathogenesis of melasma include genetic influences, exposure to UV radiation, and female sex hormones.

The measurement of quality of life (QoL) is increasingly becoming part of the overall assessment of a patient's health, both in the clinical and the research setting, as it provides a more complete picture of the health of the patient (3–5). The melasma quality

of life scale (MelasQoL) is a new QoL questionnaire developed and validated by Balkrishnan in 2003 (6). It consists of 10 questions, scored from 1 to 7, with higher indexes indicating worse QoL.

The melasma area and severity index (MASI) score is an index used to quantify the severity of melasma and changes during therapy (2). The index was modified by Kimbrough-Green et al. in 1994 (7). The MASI calculates using the area involved (A, 0–6), darkness of pigment (D, 0–4) and homogeneity (H, 0–4). The MASI range is 0–48.

In 1994, the World Health Organization (WHO) developed an instrument for assessing individuals' perception and feelings of their daily life, the WHOQOL-100, a questionnaire consisting of 100 items (8).

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Four years later, same group developed the WHOQOL-BREF, an abbreviated version of the WHOQOL-100 quality of life assessment, with similar internal validity (9). This instrument has been validated in Turkish (10). It is a 26-item self-reporting instrument which assesses four domains assumed to represent the QoL construct: physical domain, psychological domain, social relations domain and environment domain; plus two facets for assessing overall QoL and general health. Each item uses a five-point rating scale; the higher the item score, the better one's QoL on the specific domain covered by the item (11,12).

The aim of this study was to test the reliability and validity of the Turkish version of the MelasQoL (MelasQoL-Tr), which is a widely used QoL scale in other countries (13,14).

Materials and methods

MelasQoL

The MelasQoL is a 10-item melasma-specific QoL scale that was developed originally in English (6). Each item is scored on a 7-point Likert-type scale from 1 (not bothered at all) to 7 (bothered all the time), with a higher score indicating a worse QoL. The methodology of this study consists of four consecutive sections: translation, pretesting, field testing and statistical analysis.

Translation process

1. MelasQoL translation permission was obtained from the developer of the original scale (Dr R. B. Balkrishnan).
2. Three forward translations into Turkish were carried out by three bilingual native Turkish individuals. One of the translators was familiar with medical English and the other two held postgraduate degrees from the United States of America. The translators reached a consensus on a unique translation before proceeding.
3. The consensus version was back translated into English by a bilingual person whose English was advanced.
4. The author of the original MelasQoL scale reviewed the back translation. None of the Turkish text needed any modification at this point.

Pretesting of the intermediate Turkish version

The purpose of pretesting was to obtain data on the acceptability, appropriateness, and comprehensibility of the instrument. Pretesting was done with 20 randomly selected female patients with melasma. The research team reviewed and corrected the items reported to be

incomprehensible or lacking content. Following this phase, the scale was printed and used in the present study.

Field testing

The final version of the MelasQoL-Tr scale was administered to 114 patients with melasma attending the dermatology outpatient clinics of Mustafa Kemal University School of Medicine. The English and Turkish language versions of the MelasQoL are presented in Tables I and II. The Turkish version of the WHOQOL-BREF generic tool was also applied subsequently to the same patients for the purpose of demonstrating convergent validity. Additionally, visual inspection of the face was performed to determine the MASI score.

The study was approved by the ethics committee. All patients were informed about the research and only consenting adults were enrolled in the study. Inclusion criteria included female sex, presence of melasma, age 18 and older, and use of an effective non-hormonal contraceptive method. Because men and patients younger than 18 years rarely develop melasma, they were not included in this study. Exclusion criteria included pregnancy or pregnancy in the last 6 months, menopause and history of bilateral oophorectomy, other dermatological disorders that could interfere with the evaluation of melasma lesions, use of photosensitizing drugs, estrogen and/or progesterone preparation in the last 6 months, and use of depigmenting agents in the last 30 days.

Statistical analysis

Data were analysed using the SPSS for Windows version 11.0 (Statistical Package for Social Sciences,

Table I. English-language melasma quality-of-life scale.

On a scale of 1 (not bothered at all) to 7 (bothered all the time), you are asked to rate the following:

1. The appearance of your skin condition
2. Frustration about your skin condition
3. Embarrassment about your skin condition
4. Feeling depressed about your skin condition
5. The effects of your skin condition on your interaction with other people (e.g. interaction with family, friends, close relationships)
6. The effects of your skin condition on your desire to be with people
7. Your skin condition making it hard to show affection
8. Skin discoloration making you feel unattractive to others
9. Skin discoloration making you feel less vital or productive
10. Skin discoloration affecting your sense of freedom

The melasma quality-of-life scale is scored from 10 to 70; a higher score indicates a greater burden of disease.

Table II. Turkish-language melasma quality-of-life scale.

Skalada, hissettiğinizi en iyi ifade eden 1 (hiçbir zaman)'den 7 (her zaman)'ye kadar olan yanıtlardan birini işaretleyiniz.	
1.	Cildinizin görünümünden dolayı rahatsız mısınız?
2.	Cildinizin durumundan dolayı endişelendiniz mi?
3.	Cildinizin durumundan dolayı utandınız mı?
4.	Cilt durumunuzdan dolayı kendinizi hüzünlü ve kederli hissettiniz mi?
5.	Cilt durumunuz aileniz, arkadaş ve komşularınızla olan sosyal ilişkilerinizi etkiledi mi?
6.	Cilt durumunuz insanlarla birlikte olma isteğinizi etkiledi mi?
7.	Cilt durumunuz insanlara ilgi göstermenizi engelledi mi?
8.	Cildinizdeki renk değişikliğinden dolayı kendinizi daha az çekici hissettiniz mi?
9.	Cildinizdeki renk değişikliğinden dolayı kendinizi daha az hayat dolu ve üretken hissettiniz mi?
10.	Cildinizdeki renk değişikliği özgürlük duygunuzu etkiledi mi?

Türkçe melasma yaam kalitesi 10 ile 70 arasında skorlanır. Yüksek skor melasma-ilişkili yaşam kalitesinin düştüğünü göstermektedir.

Chicago, IL, USA). In the evaluation of the data, in addition to the descriptive statistics (mean, standard deviation), one-way ANOVA was used in the comparison of quantitative data means of more than two groups. Correlation analyses between the parameters were conducted with Spearman's correlation analysis. The internal consistency of the scale was calculated with the Cronbach's alpha method. The level of significance was determined to be $p \leq 0.05$.

Results

Demographic characteristics of the study population are presented in Table III.

A total of 114 female patients with a mean age (\pm SD) of 31.8 ± 7.3 years were evaluated in the study. The distribution of patients across the age groups was as follows: 18–30 years (45.6%), 31–40 years (45.6%) and ≥ 41 years (8.8%). The majority of the patients was married (78.1%) and suffered from no other medical conditions apart from melasma (86%). According to education level, 12.3% patients were uneducated, 60.5% were primary school graduates, 19.3% were high school graduates, and a small number attended university (7.9%).

The MelasQoL-Tr score was 29.9 ± 14.6 (range 10–66). There was no statistical difference between education level and MelasQoL-Tr score ($f = 0.26$, $p < 0.05$). No correlation was found between age and MelasQoL-Tr score ($r = -0.10$, $p < 0.05$). There was also no difference found in score by variations in other demographic factors ($p < 0.05$).

Table III. Demographic characteristics of the study population ($n = 114$).

	Number	%
Age		
18–30	52	45.6
31–40	52	45.6
≥ 41	10	8.8
Marital status		
Single	17	14.9
Married	89	78.1
Divorced	4	3.5
Widowed	1	0.4
Other	3	2.7
Education level		
Uneducated	14	12.3
Primary school	69	60.5
Secondary school	22	19.3
University grade	9	7.9
Medical comorbidities		
None	98	86
One or more	16	14

In evaluating the reliability of MelasQoL-Tr, an internal consistency analysis was conducted and the Cronbach's alpha coefficient score was 0.88.

The total WHOQOL-BREF score was a mean \pm SD of 54.8 ± 9.8 points. The values for individual domains were (mean \pm SD) 14.2 ± 2.7 for the physical domain, 13.0 ± 2.7 for the psychological domain, 14.9 ± 3.3 for the social relation domain, and 12.6 ± 2.7 for the environment domain.

We found that the impact of disease in relation to the appearance of the skin (71% were bothered most or all of the time), frustration (41.1%), feeling of not being attractive to others (31.6%) and restricted sense of freedom (5.3%).

The comparison of the MelasQoL-Tr and WHOQOL-BREF questionnaires showed an inverse significant correlation on total scores (Spearman correlation coefficient, -0.40 , $p = 0.000$), which indicated a sufficient convergent validity. According to the subscale of WHOQOL-BREF, the inverse correlation was most significant between the MelasQoL-Tr score and psychological domain ($r = -0.48$, $p < 0.001$) and less significant between the MelasQoL-Tr score and environmental domain ($r = -0.28$, $p = 0.003$) (Table IV).

The MelasQoL-Tr score and MASI were significantly correlated ($r = 0.35$, $p < 0.001$).

Data from the 114 patients were analyzed with factor analysis with a rotational method of varimax, and three factors were extracted: Factor 1 (questions 3,

Table IV. Spearman's correlation analysis between MelasQoL and WHOQOL-BREF scores.

		Physical domain	Psychological domain	Social relation domain	Environment domain	WHOQoL-BREF score	MelasQoL score
Physical domain	Correlation coefficient	1000	0.620**	0.665**	0.569**	0.832**	-0.336**
	Sig. (2-tailed)	-	0.000	0.000	0.000	0.000	0.000
	<i>n</i>	114	114	114	114	114	114
Psychological domain	Correlation coefficient	0.620**	1000	0.663**	0.660**	0.853**	-0.481**
	Sig. (2-tailed)	0.000	-	0.000	0.000	0.000	0.000
	<i>n</i>	114	114	114	114	114	114
Social relation	Correlation coefficient	0.665**	0.663**	1000	0.570**	0.879**	-0.299**
	Sig. (2-tailed)	0.000	0.000	-	0.000	0.000	0.000
	<i>n</i>	114	114	114	114	114	114
Environment domain	Correlation coefficient	0.569**	0.660**	0.570**	1000	0.803**	-0.278**
	Sig. (2-tailed)	0.000	0.000	0.000	-	0.000	0.000
	<i>n</i>	114	114	114	114	114	114
WHOQoL-BREF score	Correlation coefficient	0.832**	0.853**	0.879**	0.803**	1000	-0.403**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	-	0.000
	<i>n</i>	114	114	114	114	114	114
MelasQoL score	Correlation coefficient	-0.336**	-0.481**	-0.299**	-0.278**	-0.403**	1000
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	-
	<i>n</i>	114	114	114	114	114	114

**Correlation is significant at the 0.01 level (2-tailed).

4, 5, 6, 7); Factor 2 (questions 8, 9, 10); and Factor 3 (questions 1 and 2).

The mean time spent completing the questionnaire was 9.9 ± 5.9 (range: 5–40 min). Twenty-three patients (20.2%) needed help to answer the questions.

Discussion

Melasma is distressing to patients due to its location, appearance and accompanying disfiguring lesions. Clinical evaluation alone is not sufficient to describe the feelings experienced by the patient. Questionnaires are useful to understand better the feelings of the patient, and the influence of the disease on different aspects of life.

MelasQoL, a new melasma-specific health-related QoL instrument, was developed by Balkrishnan et al. in 2003 (6). Unlike other generic dermatological scales, such as the Skindex-16 (15) and DLQI (16), the MelasQoL scale has more focus on the emotional and psychosocial impact of the condition. MelasQoL was shown to have equivalent, if not better discriminatory power than Skindex-16 and a high internal consistency (0.95).

During the translation process, the Turkish translation was slightly modified to clarify the ambiguity in the meaning. Not using the test-retest method in reliability assessments and lack of skin types of patients are two limitations of this study.

Melasma has a greater impact on the psychosocial rather than the physical aspects of a patient's life. These explain the reason why our study showed that psychological health was most affected by melasma. Unlike other studies, we did not find a relationship between education level and the severity of melasma (13). In this study, a correlation has been shown between the severity of melasma and the QoL of patients. It confirms the importance of melasma in altering the QoL of the patients. This result clearly illustrates that appropriate treatment is fundamental to improving the QoL of melasma patients.

In conclusion, we have developed a semantically equivalent translation of MelasQoL in the Turkish language. We found that the Turkish version of MelasQoL is a valid and reliable QoL measure for Turkish patients with melasma. The present analyses have gone some way towards providing clinicians with an understanding of the meaning of the QoL

score in melasma patients. We believe that these findings allow us to have a better knowledge of the needs of patients, and provide useful data to help us improve our strategy of treatment.

Declaration of interest: There is no conflict of interest in this study. The authors alone are responsible for the content and writing of the paper.

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