

## Melasma: Measure of the Impact on Quality of Life Using the French Version of MELASQOL after Cross-cultural Adaptation

Laurent Misery<sup>1,2</sup>, Anne-Marie Schmitt<sup>3</sup>, Sami Boussetta<sup>4</sup>, Nora Rahhali<sup>4</sup> and Charles Taieb<sup>4</sup>

<sup>1</sup>CHU Brest, Service de Dermatologie, <sup>2</sup>Université de Brest, Faculté de Médecine et des Sciences de la Santé, FR-29609 Brest, Brest, <sup>3</sup>Institut de Recherche Pierre Fabre, Toulouse and <sup>4</sup>Département de Santé Publique, Pierre Fabre, Boulogne, France. E-mail: laurent.misery@chu-brest.fr  
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Melasma has significant emotional and psychological effects. These repercussions can be measured using general measures of skin disease. SKINDEX-16 was used in a pilot study (1) to show a significant impact on health-related quality of life (HRQoL) and a correlation with disease severity measured by MASI (Melasma Area Severity Index) (2).

A melasma-specific scale, the Melasma Quality of Life Scale (MELASQOL) (1) is highly correlated with the discoloration questionnaire. The discriminatory abilities of MELASQOL were found to be superior to those of SKINDEX-16 and Dermatology Life Quality Index (DLQI) for melasma. The three life domains most adversely affected by melasma (social life, recreation/leisure, and emotional well-being) have been highlighted by MELASQOL. We constructed a French version of MELASQOL (MELASQOL-F) following thorough cross-cultural adaptation, then used it to evaluate the impact of melasma in French outpatients with melasma.

### MATERIAL AND METHODS

Cross-cultural adaptation was performed using previously established guidelines (3–6). This involved 5 stages: forward translation, review by expert committee, backward translation, test/retest, comparison with other quality of life scales (DLQI and SF-12), and psychometric validation.

Two translators produced independent French-language translations of the English-language MELASQOL questionnaire (electronic appendices: <http://adv.medicaljournals.se/article/abstract/10.2340.00015555-0837/app1-2>), which were reviewed by a committee of experts who developed a unique French-language translation and modified some items to make them more pertinent and exploitable. Some changes were made. For example, “melasma” was substituted for “skin condition” because the latter term might be interpreted as meaning another skin disease. Another problem was the meaning of the verb “to feel”, which is difficult to translate into French: it was decided to ask a question about “*ressenti*” but not “*sentiment*” or “*avis*” in French (all these words can be translated as “feeling” in English). “Discoloration” was translated as “*hyperpigmentation*” rather than “*décoloration*”. Finally, all questions were well understood by the women interviewed.

A back-translation (from French to English) was then performed to verify that the original questionnaire could be reinstated without any major modification and without alteration of the original ideas and items.

Pre-testing using a probe technique was carried out with 30 female patients with melasma. To determine whether each question was correctly understood, patients were asked to justify their answers and explain what the questions meant in their own words. A question was deemed unreadable if more than one patient had difficulty reading it or misunderstood its

semantic definition. To assess reproducibility, the questionnaire was applied a second time 10 days later.

French versions of a general questionnaire (Short-Form 12 scale (SF-12)) and a dermatological questionnaire (DLQI) were applied to patients at the same time.

A report of the psychometric revision, which resumed all stages, was made. Finally, some remaining problematic items were discussed after the pilot study and revised using the comments gathered at all stages.

The final version of the MELASQOL-F and the final HRQoL questionnaires used to validate the translated MELASQOL are given as supplementary data (electronic appendices: <http://adv.medicaljournals.se/article/abstract/10.2340.00015555-XXXX/app1-2>). Validation was deemed important because questionnaires may have unknown reliability or sensitivity when administered in a new culture (4).

Psychometric validation allowed excellent internal consistency ( $\alpha_{\text{Cronbach}}=0.95$ ) and a very good reproducibility (intra-coefficient correlation=0.88) to be achieved. The MELASQOL-F score was 19.8 [14.5; 25.0], and 18.6 [12.8; 24.4] 10 days later. The MELASQOL-F score correlated significantly with the DLQI score ( $R_{\text{Spearman}}=0.62$  at day 0 and 0.85 at day 10;  $p<0.001$ ). MELASQOL-F was not significantly correlated with physical composite of SF-12 but was correlated with mental composite ( $R_{\text{Spearman}}=-0.52$ ;  $p=0.016$ ).

The study was approved by our institutional review board. Patients were women with melasma who were older than 18 years, and were recruited in an academic department of dermatology and in a private clinical research centre. Exclusion criteria were: male sex, age under 18 years, inability to read and understand French language, pregnancy, or pregnancy in the last 6 months (because pregnancy often causes transient melasma). Outpatients who qualified for the study were asked to provide consent to participate in the study.

Demographic information, socio-professional category, and data about time with melasma were collected. Body mass index (BMI) was measured. The HRQoL psychosocial domains rated as highly affected by melasma were also explored using the SF-12, DLQI and Prévention Cardio-Vasculaire en Médecine du TRAvail (PCV-Metra).

The SF-12 (7, 8), the short version of the SF-36, is a generic instrument used as a population health measure. Two scores can be calculated based on 12 questions: a physical composite score (PCS-12) and a mental composite score (MCS-12). There is no global score. We used the French version of SF-12, which has been evaluated previously (9). The DLQI is a health-related quality of life scale specific for dermatological disorders (10, 11). Self-perceived stress was evaluated with the PCV-Metra (12).

### RESULTS

Twenty-eight women participated in the study. The proportion of women under the age of 45 years was 60.7%, and over 45 years 39.3%. Almost one-half (48.2%) had had melasma for 5 years or less and 29.6% for 10 years

or more. Only 18.5% were being treated for melasma, but the proportion being treated was higher among those who had had melasma for longer: 60% of those undergoing treatment had had melasma for more than 10 years.

Both the MELASQOL-F and the HRQoL validation questionnaire were internally reliable. Construct validity was confirmed by demonstrating a high correlation between the MELASQOL-F scale and HRQoL psychosocial domains previously shown to be affected by melasma. HRQoL domains showed statistically significant correlations with the MELASQOL-F questionnaire. The interviewed patients also identified many of these HRQoL domains as significantly affected by melasma, especially family relationships and social life.

Mean MELASQOL-F score was 20.9 (range 15.9–25.9). Women over 45 years of age had a higher score than those under 45 years of age (24.6 vs. 18.5). The MELASQOL-F score was 14.8 when time with melasma was less than 5 years, 28.7 from 6 to 10 years, and 23.6 when melasma was present for more than 10 years. When melasma was treated, MELASQOL was higher (32.8 vs. 17.7). High BMI or an associated disease did not modify MELASQOL-F score. MELASQOL-F score was 23.0 when MCS-12 was <50, vs. 14.7 when MCS-12 was >50 ( $p < 0.2$ ). MELASQOL-F scores were significantly correlated with DLQI (corr=0.64) and PCV-Metra (corr=0.23) scores.

## DISCUSSION

MELASQOL has been shown to have discriminatory power and high consistency; social life, recreation and leisure, and emotional well-being are the most affected domains of quality of life (1). MELASQOL was constructed in English (1), and cross-cultural adaptations were then made in Spanish (3), Brazilian Portuguese (13) and Turkish (14). We used the same methodology to construct the French version.

The absence of modification of MELASQOL-F score in association with high BMI or an associated disease is a supplementary argument in favour of the specificity of MELASQOL-F. The correlations with alterations of mental quality of life (assessed by MCS-12), general dermatological quality of life (assessed by DLQI) and self-perceived stress (assessed by PCV-Metra) show that MELASQOL-F is as reliable as other scales. Our cross-cultural adaptation allowed excellent internal consistency and very good reproducibility.

Although the low number of patients is a limitation of this study, the MELASQOL-F score was found to be higher in women over 45 years of age and in women who had had melasma for longer, suggesting that the condition is not better accepted by women with time. On the contrary, the presence of melasma appears to be less and less tolerated with time. When melasma was treated, MELASQOL was higher, probably because treatment is

prescribed when melasma is more severe or when quality of life is more altered. It is also possible that melasma experienced for a longer period of time is more severe, as shown by Dominguez et al. (3), but the MASI score does not coincide with alterations in MELASQOL (1).

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