

Translation and Validation of the Serbian Version of the Skindex-29 Instrument for Measuring Impact of Skin Disease on Quality of Life

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ABSTRACT The Skindex-29 instrument, which is intended for measuring the influence of skin diseases on quality of life, was developed and validated in several languages. However, a Serbian translation of the instrument is not available. The aim of this study was to translate the Skindex-29 from English to Serbian, to make necessary cultural adaptations, and to test its psychometric properties in a sample of outpatients with various skin diseases. The Skindex-29 was translated and adapted according to internationally accepted guidelines and then tested on a sample of Serbian outpatients with various skin diseases. Internal consistency was checked through calculation of Cronbach's alpha and Interclass Correlation Coefficient for the instrument's domains. The criterion validity of the translation was tested by correlating scores of domains with scores on the Serbian version of Dermatological Life Quality Index (DLQI). Validity of the construct was tested through comparison of the domains scores in groups of patients with different skin diseases. Fifty-three patients (18.6%) suffered from acne vulgaris, 48 (16.8%) from verrucae vulgares, 40 (14.0%) from psoriasis, 34 (11.9%) from an undetermined type of mild dermatitis, 20 (7.0%) from venous ulcers, 19 (6.7%) from eczema, and 71 (24.9%) from other skin diseases. The Serbian translation of Skindex-29 showed good internal consistency: Cronbach's alpha for Emotional, Symptoms, and Functioning domains was 0.885, 0.752, and 0.901, respectively. Validity of the instrument in all aspects (criterion, content, and construct validity) was satisfactory, yet the Symptoms domain could not discriminate well between more and less severe skin diseases. The Serbian translation of Skindex-29 appears to be a reliable and valid specific instrument for measuring the adverse influence of skin diseases on quality of life.

KEY WORDS: skin diseases, questionnaire, quality of life, Skindex-29

INTRODUCTION

Measuring quality of life in patients with skin diseases is important in clinical practice for the evaluation of disease progression and treatment effects (1-5). One of the instruments for measuring quality of life in patients with skin disease is Skindex-29, developed by Chren and associates from the original 61-

item questionnaire (6). The questions (items) of this instrument ask a patient how often (Never, Rarely, Sometimes, Often, All the time) during the previous four weeks he or she had felt the effect which is described. The responses are scored 0, 25, 50, 75, and 100, respectively. Skindex-29 has three domains: the

Emotional domain (10 items: 3, 6, 9, 12, 13, 15, 21, 23, 26, and 28), the Symptoms domain (7 items: 1, 7, 10, 16, 19, 24, 27), and the Functioning domain (12 items: 2, 4, 5, 8, 11, 14, 17, 20, 22, 25, 29, 30). The results are reported for each of the domains separately, as the average of a patient's responses to the questions which are within a domain (7,8). Currently, there are no available Serbian translations with trans-cultural adaptations of Skindex-29 instrument, so researchers and clinicians in Serbia cannot use it.

The aim of our study was to translate Skindex-29 from English to Serbian, to make necessary cultural adaptations, and to test its psychometric properties in a sample of outpatients with various skin diseases.

PATIENTS AND METHODS

Patients

The study included outpatients of the Dermatology Clinic at the Clinical Center in Kragujevac, Serbia, who consecutively visited dermatology specialists from February to June 2016 with various complaints. The following patients were excluded from the study: patients with malignant skin tumors, those younger than 18 years of age, pregnant women, patients with cognitive disorders, patients with moderate or severe heart, liver, or kidney failure, those with chronic pain syndromes, and patients with substance abuse.

The study was approved by the Ethics Committee of the Kragujevac Clinical Center. The study procedures were in accordance with the 1975 Helsinki Declaration as revised in 1983.

Methods

Translation and adaptation of the original Skindex-29

Permission for translation and adaptation of Skindex-29 was obtained from the Mapi Research Institute, Lyon, France, which holds rights to the questionnaire

that was made by Professor Mary-Margaret Chren, University of California, San Francisco, USA. The translation and adaptation of the Skindex-29 was done according to ISPOR guidelines (9). The original scale was first translated to Serbian by two independent translators, J. J. from the Faculty of Philology, University of Kragujevac, and A. S., Faculty of Philology, University of Belgrade, Serbia. They translated the scale independently of each other, and the translations were then harmonized to one Serbian version at the meeting of the study investigators with the translators. The harmonized Serbian version was then translated back to English by Z. F., a native English speaker. When translating back to English, he was not aware of the original English version of the Skindex-29. The back-translation to English was then compared with the original English version, and the final Serbian version of the Skindex-29 was agreed on. It was then tested on 10 dermatology patients (at the Clinical Center in Kragujevac, Serbia) for clarity and comprehension. A few minor changes were made to the pilot version, and then final Serbian version of the Skindex-29 was copied and prepared for psychometric testing.

Data recording

The patients completed the Serbian version of Skindex-29 and the Serbian version of the Dermatological Life Quality Index (DLQI) at the Clinical Center, after their encounter with the dermatology specialists who administered the questionnaires. Permission for use of the Serbian version of DLQI was obtained from Professor A.Y. Finlay and Dr G.K. Khan, Department of Dermatology, School of Medicine, Cardiff University, United Kingdom. After completing the questionnaires, the patients returned them to the physicians. The dermatologists wrote down the demographic and clinical characteristics of the patients during the encounter, using a purpose-built checklist. Then next encounter with the patients was set for two weeks, when they were once again given the questionnaire to test for temporal stability.

Table 1. Internal consistency of the Skindex-29 domains (Cronbach's alpha values and Intraclass correlation coefficients)

	Emotional domain (items 3, 6, 9, 12, 13, 15, 21, 23, 26, and 28)		Symptoms domain (items 1, 7, 10, 16, 19, 24, 27),		Functioning domain (items 2, 4, 5, 8, 11, 14, 17, 20, 22, 25, 29, 30)	
	Cronbach's alpha	Intraclass correlation coefficient	Cronbach's alpha	Intraclass correlation coefficient	Cronbach's alpha	Intraclass correlation coefficient
First rating	0.885	0.435*	0.752	0.303*	0.901	0.432*
Second rating	0.898	0.468*	0.789	0.348*	0.922	0.498*

* significant at $P < 0.001$

Table 2. Testing criterion validity: the correlations between ratings in the domain scores of the instrument and ratings on the Dermatological Life Quality Index (DLQI)

Score	DLQI, 1 st rating	DLQI, 2 nd rating
Emotional domain of Skindex-29, 1 st rating	0.581*	0.374*
Symptoms domain of Skindex-29, 1 st rating	0.501*	0.223*
Functioning domain of Skindex-29, 1 st rating	0.554*	0.399*
Emotional domain of Skindex-29, 2 nd rating	0.336*	0.481*
Symptoms domain of Skindex-29, 2 nd rating	0.206*	0.258*
Functioning domain of Skindex-29, 2 nd rating	0.329*	0.412*

* all values of Spearman's correlation coefficients in the table are significant ($P < 0.001$).

Statistics

The reliability of the Skindex-29 questionnaire was tested by measuring the internal consistency of the domains through calculation of Cronbach's alpha. Content validity of the translation was assessed by the three-member committee composed of one professor of dermatology, one lecturer in dermatology, and one dermatology specialist. Criterion validity of the Serbian version of Skindex-29 was tested by correlation of its domain scores with the DLQI score (calculating Spearman's rank correlation). Construct validity of the translation was tested by comparison of domain scores in patients with different dermatological diseases by means of the Mann-Whitney U test.

All calculations in this study were performed using SPSS software, version 18. The level of significance was set to $P < 0.05$.

RESULTS

Completing the questionnaires

In total, 301 patients completed the questionnaires at the first encounter, and 285 (94.7%) of them completed the same questionnaires again at the second encounter with the dermatology specialist. The average duration of questionnaire completion was less than 10 minutes, and the patients did not com-

plain about any difficulties. All patients answered to each of the questions in the questionnaires. Therefore, the answers of all 285 patients were included in the statistical calculations of reliability and validity.

Patient characteristics

There were 200 women (70.2%) and 85 men (29.8%) in our study, all of Caucasian origin. The mean age was 42, 46 ± 20 (mean \pm Standard Deviation), 43 years. Among our patients, 53 (18.6%) suffered from acne vulgaris, 48 (16.8%) from verrucae vulgaris, 40 (14.0%) from psoriasis, 34 (11.9%) from an undetermined type of mild dermatitis, 20 (7.0%) from venous ulcers, 19 (6.7%) from eczema, and 71 (24.9%) from other skin diseases (acne rosacea, urticaria, keratosis, tinea corporis or pedis, scabies, etc.). Average duration of the skin condition was 86.4 ± 129.9 months (range 1-540).

Reliability

The Serbian version of Skindex-29 showed satisfactory internal consistency in all three domains since Cronbach's alpha was above 0.7 and the intraclass correlation coefficient was significant in all three domains (Table 1). However, the Symptoms domain was the least consistent. The translated Skindex-29 questionnaire showed excellent temporal stability (test-

Table 3. Mean values of domain scores in the translation of Skindex-29 to Serbian according to the main skin disease types

Skin disease	Emotional domain (items 3, 6, 9, 12, 13, 15, 21, 23, 26 and 28)	Symptoms domain (items 1, 7, 10, 16, 19, 24, 27),	Functioning domain (items 2, 4, 5, 8, 11, 14, 17, 20, 22, 25, 29, 30)
Acne vulgaris (n=53)	36.4 \pm 19.2	30.1 \pm 18.4	15.7 \pm 18.2
Psoriasis (n=40)	43.4 \pm 23.7	27.1 \pm 20.8	19.0 \pm 21.3
Verrucae vulgaris (n=48)	10.3 \pm 8.9	24.6 \pm 14.0	4.7 \pm 6.3
Undetermined type of mild dermatitis (n=34)	12.3 \pm 13.2	26.5 \pm 11.6	8.8 \pm 8.1
Kruskal-Wallis test	$\chi^2=85.534$, $P < 0.001$	$\chi^2=3.707$, $P=0.295$	$\chi^2=20.241$, $P < 0.001$

retest reliability), since values of both Cronbach's alpha and intraclass correlation coefficient slightly increased in the second rating (Table 1).

Validity

Content validity. Content validity of the translation was assessed by the three-member committee through comparison of the translation to Serbian with the original Skindex-29. The committee suggested several small changes to the translation, which were accepted and implemented by the investigators.

Criterion validity. The scores on all three domains of Skindex-29 from both ratings correlated significantly and positively with the DLQI scores in both ratings (Table 2). This result was expected, since both Skindex-29 and DLQI rate the extent of impairment of quality of life by skin diseases. However, the correlation coefficients were the lowest when scores in the Symptoms domain were correlated with the DLQI scores.

Construct validity. The impact of skin diseases on quality of life according to the translated Skindex-29 questionnaire was compared among several diagnostic groups (acne vulgaris, verrucae vulgares, psoriasis, and undetermined type of mild dermatitis). Mean values of Skindex-29 domains and their standard deviations are shown in Table 3. As expected, the patients with more severe skin diseases, such as acnae vulgaris and psoriasis, scored significantly higher in the emotional and functioning domains. However, this was not the case in the symptoms domain (Table 3).

DISCUSSION

The Serbian translation of Skindex-29 showed excellent internal consistency in the Emotional and Functioning domains, while the Symptoms domain performed satisfactorily. The validity of the instrument in all aspects was satisfactory, yet the Symptoms domain could not discriminate well between more and less severe skin diseases.

When compared to the original English version (6-8), the Serbian translation of Skindex-29 is non-inferior in Emotional and Functioning domains, while the internal consistency and discriminative validity of Symptoms domain were lower. This could be explained by cultural differences in coping with pain, since all items in the Symptoms domain refer to painful experiences with affected skin. Studies investigating quality of life in other painful conditions, such as lower back pain, showed both national and individ-

ual differences in coping and interpretation of pain, which were reflected with increased variability in rating of quality of life instruments (10,11).

Translations of Skindex-29 to other languages showed similar reliability as the translation to Serbian, and interestingly, the Symptoms domain showed the lowest internal consistency as in our study. In the Spanish and Turkish version of the Skindex-29, Cronbach's alpha was 0.7 and 0.76 for the Symptoms domain, respectively (12,13). The Symptoms domain also showed only moderate internal consistency in the Brazilian Portuguese version (14) (Cronbach's alpha 0.702), while it was much higher in the Chinese version, like in the original version (0.85) of Skindex-29 (15).

Poor capacity of the Symptoms domain to discriminate between more and less severe skin diseases was also noted in the translation of the Skindex-29 questionnaire to the Polish language (16). In contrast, the translation to the German language discriminated well between mild and moderate to severe diseases within the Symptoms domain, while the Emotional domain lacked discriminative capacity (17). This could be explained by differences in factorial structure of the domains, since certain questions in the translations which were originally in the Symptoms domain were re-allocated to the Emotional domain and vice-versa.

The main limitation of this study was the small proportion of patients with very severe skin conditions in the study sample, which precluded gathering a complete picture about the performance of the Serbian translation. This limitation was caused by choice of patients who participated in the study (they were all outpatients), since their skin conditions were mostly mild or moderate.

CONCLUSION

The Serbian translation of Skindex-29 appears to be a reliable and valid specific instrument for measuring adverse influence of skin diseases on quality of life. Further studies are necessary to confirm the usefulness of this instrument in Serbian patients suffering from more severe forms of skin diseases.

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