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CONTACT DERMATITIS

Principles and methodology for translation and cross-cultural adaptation of the Nordic Occupational Skin Questionnaire (NOSQ-2002) to Spanish and Catalan

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Background: Occupational skin diseases are among the most frequent work-related diseases in industrialized countries. The Nordic Occupational Skin Questionnaire (NOSQ-2002), developed in English, is a useful tool for screening of occupational skin diseases.

Objectives: To culturally adapt the NOSQ-2002 to Spanish and Catalan and to assess the clarity, comprehension, cultural relevance and appropriateness of the translated versions.

Methods: The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) principles of good practice for the translation and cultural adaptation of patient-reported outcomes were followed.

Results: After translation into the target language, a first consensus version of the questionnaire was evaluated in multiple cognitive debriefing interviews. The expert panel introduced some modifications in 39 (68%) and 27 (47%) items in the Spanish and Catalan version, respectively (e.g. addition of examples and definitions, reformulation of instructions and use of direct question format). This version was back translated and submitted to the original authors, who suggested a further seven and two modifications in the Spanish and Catalan versions, respectively. A second set of cognitive interviews were performed. A consensus version of both questionnaires was obtained after final modifications based on comments by the patients.

Conclusions: The final versions of the Spanish and Catalan NOSQ-2002 questionnaires are now available at www.NRCWE.dk/NOSQ.

Key words: cognitive interviews; cross-cultural adaptation; dermatitis; eczema; hand eczema; NOSQ-2002; occupational; questionnaires; translation; urticaria.

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Occupational dermatoses are frequent in industrialized countries, and in some studies represent the most prevalent work-related diseases. There are few epidemiological tools available which have been specifically designed to screen for, study and record occupational dermatoses (1–8). Practical differences between self-report questionnaires and diagnosis-based symptom lists make it difficult to compare the results between different studies and countries.

In order to harmonize the study methods between countries and to provide a standardized tool to allow the comparison of results, the Nordic Occupational Skin Questionnaire Group developed 'the Nordic Occupational Skin Questionnaire' (NOSQ-2002). The NOSQ-2002 questionnaire was created from

existing, well-used questionnaires, i.e. *Finnish Tuohilampi Questionnaire, Copenhagen Allergy Study 1990 and 1998, Danish Work Environment Cohort Study* (*DWECS*) and the Swedish studies by B. Meding and collaborators. It has some advantages with respect to other available questionnaires, because it includes questions on exposure and occupational urticaria. The questionnaire was first published by the working group in 2002 in English, since it is currently one of the most widely spoken languages (9, 10).

Two versions of the questionnaire were developed. The short version (NOSQ−2000/SHORT) is aimed at screening and monitoring occupational hand and forearm skin diseases. The long version, NOSQ−2000/LONG, is more extensive and assesses hand and forearm eczema and urticaria as occupational skin diseases. It also permits the study of risk factors. Both versions of the NOSQ-2002 are available in English, Danish, Swedish, Finnish, Icelandic and Norwegian. The questionnaires can de downloaded at www.nrcwe.dk/NOSQ. Commercial use of the questionnaire is prohibited.

The Nordic Occupational Skin Questionnaire Group encourages translations and cross-cultural adaptations to additional languages to use worldwide in order to unify criteria and to use a standardized questionnaire that permits comparisons between countries.

The aim of this study was to cross-culturally adapt the long version of the NOSQ-2002 questionnaire into Spanish and Catalan. Castilian, or Spanish (castellano o español), is an Indo-European, Romance language spoken by 322−400 million people worldwide as a native language, mainly in Spain and South America. It is the second-most widely spoken language by native speakers (after Mandarin Chinese) in the world. Catalan is another Romance language spoken by approximately 10 million people in Andorra, eastern Spain, the south of France and Sardinia.

The methodology used in this study could help in further translations and cross-cultural adaptations of the NOSQ questionnaire to other languages. Permission for the adaptation was granted by the original authors.

Materials and Methods

The NOSQ questionnaire

The NOSQ-2002 project includes two questionnaires (*NOSQ-2002/SHORT* and *NOSQ-2002/LONG*). Both versions can be used in the general population. *NOSQ-2002/SHORT* is a simple four page questionnaire for research on occupational dermatoses, which is useful, for example, in Health Surveillance Prevention Services. It can be used to track hand and forearm eczema at workplaces and consists of 13 questions in 4 categories. The long version of the questionnaire (*NOSQ-2002/LONG*) consists of 57 questions grouped into 10 dimensions. It can be adapted to use in specific populations, including specific professional groups such as medical staff, cleaners, slaughterhouses workers and others (11–13) (Table 1).

Table 1. The long version of the questionnaire (*NOSQ-2002/LONG*) consists of 57 questions grouped into 10 dimensions

G. Demographics and occupational history (General)
A. History of atopic symptoms (Atopy)
D. Self-reported hand or forearm eczema (Dermatitis)
F. Exacerbating factors (Factors)
C. Consequences and life impact of dermatoses (Consequences)
U. Self-reported contact urticaria on hands or forearms (Urticaria)
S. Skin symptoms (Symptoms)
T. Skin tests (Tests)
E. Exposures (Exposure)
H. General health (Health)

Principles of translation and cross-cultural adaptation

The cross-cultural adaptation and translation of the Nordic Occupational Skin Questionnaire (NOSQ-2002) from English to Spanish and Catalan were carried out in accordance with the guidelines reported in the literature (14–16) and, in particular, following the guidelines of the *International Society for Pharmacoeconomics and Outcomes* (ISPOR) (15).

The forward and backward translation methods, which are widely used for cross-cultural adaptations, were used to adapt the questionnaire. This included initial forward translations into the target languages (Spanish and Catalan) by native speakers of Spanish and Catalan who were fluent in English; review and systematic discussion of results at various stages in the adaptation process by the research group, with the aim of producing a series of consensus versions; two sets of cognitive interviews with dermatitis patients and healthy subjects to test the understanding, acceptability and relevance of the translated versions; back translation of an advanced version of the translated questionnaire into English and review by the original questionnaire developers. The details of the process are shown in Fig. 1. Forward translators aimed to produce a version that was conceptually, but not necessarily literally, equivalent to the original and also aimed to ensure that the translation was produced in easily understood, colloquial language. One forward translation into Spanish as well as into Catalan was produced.

The study review group was responsible for overseeing and co-ordinating the adaptation process as

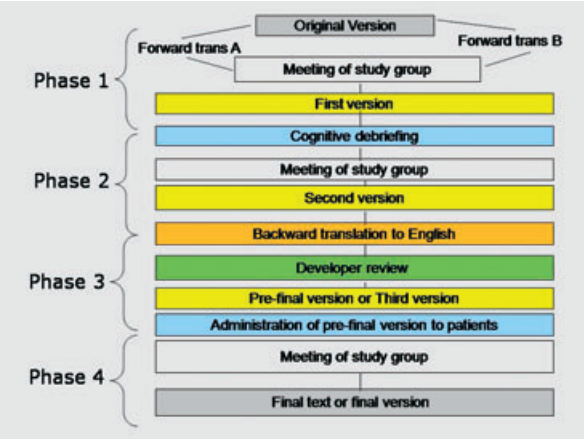

Fig. 1. Schematic outline of the cross-cultural adaptation process of the Nordic Occupational Skin Questionnaire (NOSQ-2002) from English to Spanish and Catalan.

well as for producing the different consensus versions and the final version. Participants were chosen for their knowledge and experience of dermatological problems, and for their experience in producing cross-cultural adaptations of patient-reported outcome measures. Consensus versions were developed at three meetings of the review group held during the adaptation process.

Cognitive interviews

Cognitive interviews were performed to determine eczema and urticaria patients' understanding of words and phrases used in different consensus versions, to determine the acceptability of that wording as well as the ease of completion of the questionnaire and to improve questionnaire content and structure if necessary (17–19). The interviews were carried out by a trained interviewer who, after a detailed explanation of the questionnaire's characteristics and the aim of the study, obtained patients' informed consent to participate. To be included, patients had to be suffering from a relevant dermatological condition (eczema, atopic dermatitis, or urticaria) at the time of the interview. A pool of healthy subjects was also interviewed. In the first round of interviews, a total of 24 patients and healthy subjects with diverse socio-demographic characteristics were included for each language. These numbers were considered sufficient to achieve a reasonable level of saturation regarding the points covered in the interview (17–21).

The semi-structured interviews were carried out by following a script and using a probing method (20, 21). In the first stage of the interview, respondents completed the translated questionnaire on their own. They were then asked what they had understood by each part of the questionnaire (instructions, questions and response options) and why they had given a particular answer. Throughout the interviews, respondents' comments regarding the questionnaire were recorded, expressions of common use were registered and understanding difficulties identified. All respondents (patients and healthy subjects) were interviewed in the Department of Dermatology, Hospital del Mar, IMAS (Barcelona, Spain). Each interview lasted between 20 and 45 min, depending on the participants. Comments were later assessed by the working group.

Back translations

The back translations into English of the second consensus version of the Spanish and Catalan questionnaires were performed by professional translators who were native speakers of English with a high level of fluency in the respective target languages. The back translations were reviewed by the original developers of the questionnaire, and their comments were taken into account in preparing a third version of the questionnaires. This third version was tested in a further series of cognitive interviews with an additional 20 patients (10 in Spanish and 10 in Catalan) with eczema or urticaria. The methodological approach used in the first interviews was employed again here.

Study review group meetings

All qualitative changes to the questionnaire were discussed by the study review group who were also responsible for producing the definitive versions after taking into account all comments by patients and comments from the original developers.

Results

Patients suffering from a relevant dermatological condition (eczema, atopic dermatitis, or urticaria) and healthy volunteers were included in the study. 48 patients with diverse socio-demographic characteristics were interviewed (24 in Spanish and 24 in Catalan) in a first round of interviews. The characteristics of the respondents for the Spanish version are shown in Table 2. A further 20 patients at a later stage (10 in each language) were interviewed after the backward translations and comments from the developers.

Questions that did not require further modifications during the translation-adaptation process were considered as questions in which a literal translation was sufficient and were called *equivalent questions*.

Table 2. Demographic and clinical characteristics of the Spanish patients interviewed in the first round of cognitive debriefing interviews

Patient number	Skin disease	Age	Sex	Educational level
1	Eczema	61	Female	Primary school
2	Eczema	26	Male	Primary school
3	Eczema	50	Male	Primary school
4	Urticaria	33	Female	Primary school
5	Urticaria	19	Female	Secondary or high school
6	Eczema	34	Female	Primary school
7	Eczema	43	Female	Secondary or high school
8	Eczema	75	Female	Primary school
9	Healthy	64	Male	Secondary or high school
10	Eczema	50	Female	Secondary or high school
11	Eczema	58	Male	Primary school
12	Healthy	31	Female	Secondary or high school
13	Atopic dermatitis	36	Female	University
14	Atopic dermatitis	35	Male	University
15	Healthy	43	Female	Primary school
16	Healthy	33	Female	University
17	Healthy	51	Female	Secondary or high school
18	Healthy	34	Male	Primary school
19	Healthy	30	Female	University
20	Healthy	49	Female	Secondary or high school
21	Healthy	52	Female	Secondary or high school
22	Healthy	59	Male	Primary school
23	Healthy	45	Male	Primary school
24	Healthy	37	Male	University

In the Spanish version, there were 18 equivalent questions out of 57 items making-up the NOSQ-2002 questionnaire, whereas 30 questions out of 57 were considered equivalent in the Catalan version.

In the Spanish version, 39 questions (68%) required modification at some point in the adaptation process. This second group of questions was considered to require cultural adaptation, and they were classified into six categories (Table 3a) according to the modifications to be made. Of the 39 modifications, three questions needed two changes (F1, U1 and D9) and two questions required three changes (U5 and E7). In the Catalan version, 27 items required modifications (47%) (Table 3b), of which three (U1, U5 and F2) required two types of changes.

In almost all cases, modifications were made not because of difficulties in translating the original, but with the intention of facilitating responses to the questionnaire. For example, more structured response options were used in 5 items, to replace open answers and facilitate data collection; definitions and additional information were included in 13 items to enhance understanding; alternative descriptors or synonyms were included in 18 items, and modified or new instructions were included in 7 items.

Table 3. Modifications to items of the NOSQ-2002 during the adaptation process into Spanish (a) and Catalan (b)

	ITEMS
(a) Spanish-modified questions	
New answer categories	G1, G4, G7, T2 and E7
Definitions included	A2, A3, A4, D1 and D2
Inclusion of informative explanation	D10, D12, F1, F2, U5, U9, E3 and E5
Inclusion of words or synonyms	G6, A1, D3, D4, D7, D9, C2, C3, U1, U2, U3, U4, U5, U6, U7, U8, S1 and S2
New indications included	Before D8 and D9
	After U5
	Inside U1, E1, E6 and E7
New order of answer categories	F1, C1 and E7
(b) Catalan-modified questions	
New answer categories	G1, G4, G7 and T2
Definitions included	A2, A3, A4 and D1
Inclusion of informative explanation	C3, F1, F2 and E5
Inclusion of words or synonyms	D3, U1, U2, U3, U4, U5, U6, U7, U8, S1, S2 and A1
New indications included	After U5, D2 and F2
	Inside U1 and E1
New order of answer categories	T3

After the back translation, the original authors suggested that of the 39 modifications made to the Spanish version, 7 changes (in 5 items) meant that items were not culturally equivalent (12.8%). For example, a phrase had been deleted from the general instructions for using the questionnaire ('Answer all questions inside the frame' and 'If the answer is "no", proceed to the next frame') which the developers felt should be retained. In question T2, the modified response options were considered to limit the range of possible responses and were therefore changed back to the original open question. In one item (C2), a translation error was detected which meant the item was not equivalent to the original from a semantic point of view. In the Catalan version, the original authors suggested two modifications: the first referred to the instructions and the second to question C2.

After the second cognitive interviews, the only relevant suggestion was to change question T1 in the Spanish version. The item deals with the methods of diagnosis, being named first, followed by a detailed description. During the cognitive interviews, it was suggested to invert the order, since the explanation is usually better understood than the diagnostic method

as such. Apart from that item, patients had very few problems in responding to the questionnaire, and it was considered relevant, appropriate and easy to understand.

Further examples of the types of translation difficulties encountered in the adaptation of the Nordic Occupational Skin Questionnaire into Spanish are shown in Table 4.

Discussion

By applying an exhaustive procedure, it was possible to produce Spanish and Catalan versions of the NOSQ-2002 questionnaire which are likely to be highly comparable to the original English version. The method used – including some variations – has already been used in Spain and in Europe to adapt several instruments that are useful in epidemiological and clinical research studies as well as in clinical practice or public health monitoring (14–21).

It is important to follow recommended procedures in the cross-cultural adaptation of this type of questionnaire, as inappropriate translations, or difficulties in adapting instruments from one cultural context to another, can lead to unreliable or difficult to interpret results when the new language version is used (22). By following such procedures, we believe it has been possible to obtain a culturally appropriate version of the NOSQ questionnaire which will be useful in international comparative studies and to carry out valid multi-centre studies involving different countries.

However, this is only the first step in the process of producing a valid Spanish version of the instrument; the next stage of that process should involve rigorous testing of the Spanish version's measurement properties of reliability and validity as well as its sensitivity and specificity (23–25). The measurement properties of the short version of the NOSQ in Spanish will be tested in fieldwork which will allow us to examine the instrument's test–retest reliability by comparing responses from the same, clinically stable respondents on two occasions separated by an interval of 10–15 days. Sensitivity and specificity will be tested by comparing responses on the NOSQ short form with the data from a retrospective review of clinical records of patients in large dermatological practice and with the results of a clinical examination of a sample of domestic cleaning workers assessed prospectively. Additional questions will be employed to examine the questionnaire's convergent and divergent validity.

Adaptation of the NOSQ-2002 questionnaire is facilitated to some extent by the fact that the researchers who created the instrument offer the tool in English and in professional language to be translated, using colloquial terms, into any language. The simple wording of most of the questions, as well as the fact that the questionnaire does not use colloquial expressions in the original English version, makes cultural adaptation easier. The major modifications decided stemmed more from a desire to improve ease of use of the questionnaire than from difficulties in translating or interpreting the content of the original. Nevertheless, some of the items did prove challenging to adapt into Spanish. It is important to note that some of the changes introduced to enhance understanding and ease of completion and use of the questionnaire (both by patients and users) may influence responses. It will therefore be important to compare results obtained with the English, Spanish and Catalan versions in comparable samples and settings.

One of the strengths of the study was the fact that two sets of cognitive debriefing interviews were performed at different stages in the adaptation process. This is a deviation from the procedure which is usually recommended/followed, in which only one round of cognitive interviews is carried out, but we believe it strengthens the process because it allowed us to check on the relevance of modifications made at different points in the adaptation process. The number of patients finally included was also higher than the number usually recommended, which is a further strength of the study. We also included patients and healthy subjects, as the questionnaire may be completed by respondents from either of these groups in fieldwork. In general, the cognitive debriefing interviews confirmed that the understanding of the questionnaire was good in general terms in both patients and healthy subjects. However, some modifications were suggested to improve the clarity of language and to include more colloquial expressions, which in form of definitions or including more familiar synonyms made the understanding of the questions easier.

In terms of interpreting the original version in English, it was helpful to have advice and input from the original authors throughout the process, although it is interesting to note that after the back translation of the second consensus version in Spanish and Catalan, the original authors made very few suggestions for additional changes. This is likely to be due at least in part to the rigorous and systematic process followed up to that point.

During the cultural adaptations of the questionnaire into Spanish and Catalan languages, we observed some differences despite the fact that both languages have a Romance origin. Both languages are commonly used in Spain, and both translations were officially required. The Spanish version may also serve as a template for the production of versions in other Spanish-speaking countries, such as the South and Central American countries. The

Table 4. Types of translation difficulties in the adaptation of the Nordic Occupational Skin Questionnaire into Spanish

Original items	Type of translation difficulties	Pilot testing and expert panel changes	Backward translation	Final decision review	Spanish version
G7 How many hours per week do you work in your main job (on average)	Minor difficulty: item needed to be categorized	Categorized questions are easier to answer and to analyse statistically	G7 How many hours per week do you work in your current main job (on average) Less than 20 hr/week 21–30 hr/week 31–40 hr/week More than 40 hr/week	After backward translation revision, items were maintained and categorized	G7 ¿Cuántas horas por semana trabaja Usted en su actual y principal trabajo? menos de 20 horas/semana de 21–30 horas/semana de 31–40 horas/semana más de 40 horas/semana
D1 Have you ever had hand eczema?	Moderate difficulty: people identified the word eczema as a disease but they needed a clarification of the clinical signs and the symptoms of the disease	A description of the main clinical eczema signs and symptoms were included as explanation in this question	D1 Have you ever had eczema on your hands? (eczema is understood as red patches, vesicles, blisters, splits, or cracks which itch or hurt) No Yes	After backward translation revision, the clinical disease description was maintained	D1 ¿Ha tenido alguna vez eczema en las manos? (por eczema se entiende alguno de estos signos en las manos: manchas rojas, ampollas o bolitas de agua, fisuras o grietas que pican o duelen) No Si
C2 How has your eczema affected your life in the past 12 months? (one answer in each line) No effect Slight effect Moderate effect Large effect Not relevant	Moderate difficulty: people identified the word eczema as a disease but it was difficult to identify the level of severity to which their life was affected	A reminder of the disease about which we were talking was included. A new categorization was created focusing on the interference on daily activity.	C2 How has eczema affected your life in the last 12 months? (one reply on each line) Not at all Effects a little Effects quite a lot Effects a lot Not relevant	After backward translation, the original authors suggested to maintain the original score of severity. We could maintain the reminder about which disease we were talking about	C2 Cuando tiene eczema en las manos, muñecas o antebrazo ¿le ha afectado o influido en su vida durante los últimos 12 meses? (una respuesta en cada línea) Nada Afectación Leve Afectación Moderado Afectación Grave No hago esta actividad
T3. Was the allergy/were the allergies diagnosed with . . . (mark any that are applicable) Patch-test (tests are normally taped onto the upper back and removed after 1–2 days)	Great difficulty: people had no knowledge of diagnostic procedures	A short explanation of the diagnostic procedure was useful and it was included	T3. How did they diagnose your allergy? (mark the appropriate) Epicutaneous (patches on the back which are taken off after a few days)	After second cognitive debriefing, the procedure description was placed before the name of the procedure, as is was easier to understand.	T3. ¿Cómo le diagnosticaron la alergia? Con parches en la espalda, que lo retiran al cabo de unos días (Epicutánea) . . .

translation and cultural adaptation to other Latin languages as French, Italian, Portuguese, or Galician would need their own cultural adaptations.

The NOSQ-2002 is interesting for health surveillance in the workplaces, with regard to eczema on hands and forearms as well as contact urticaria. Preventive interventions such as change of chemical products, improvement of working processes, or use of personal protection devices such as adequate gloves would be easily assessed. It is estimated that if their use were to be promotion by prevention services (both in-house and external), the number of health examinations to detect hand dermatoses and contact urticaria could be reduced, thus reducing health surveillance costs. The number of examinations of people reporting them would be reduced. This questionnaire is considered a good research tool for dermatologists, epidemiologists, public health specialists and occupational medicine specialists as well as an auxiliary tool for family doctors.

Although the short and the long versions of the NOSQ-2002 questionnaire are now available in Spanish and Catalan languages and can be accessed at www.nrcwe.dk/NOSQ, a validation at least of the short version is essential before the instrument is used in clinical or epidemiological studies. The principles and methods used to adapt the English version of the long NOSQ-2002 questionnaire can be useful for further transcultural adaptation to other languages.

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References

1. Meding B, Barregård L. Validity of self-reports of hand eczema. *Contact Dermatitis* 2001: 45: 99–103.
2. Carstensen O, Rasmussen K, Pontén A, Gruvberger B, Isaksson M, Bruze M. The validity of a questionnaire-based epidemiological study of occupational dermatosis. *Contact Dermatitis* 2006: 55: 295–300.
3. Svensson Å, Lindberg M, Meding B, Sundberg K, Stenberg B. Self-reported hand eczema: symptom-based reports do not increase the validity of diagnosis. *Br J Dermatol* 2002: 147: 281–284.
4. Smit H A, Burdorf A, Coenraads P J. Prevalence of hand dermatitis in different occupations. *Int J Epidemiol* 1993: 22: 288–293.
5. Cvetkovski R S, Zachariae R, Jensen H, Olsen J, Johansen J D, Agner T. Quality of life and depression in a population of occupational hand eczema patients. *Contact Dermatitis* 2006: 54: 106–111.
6. Flyvholm M-A, Mygind K, Sell L, Jensen A, Jepsen K F. A randomised controlled intervention study on prevention of work related skin problems among gut cleaners in swine slaughterhouses. *Occup Environ Med* 2005: 62: 642–649.
7. Vermeulen R, Kromhout H, Bruynzeel D P, de Boer E M. Ascertainment of hand dermatitis using a symptom-based questionnaire; applicability in an industrial population. *Contact Dermatitis* 2000: 42: 202–206.
8. Smit H A, Coenraads P J, Lavrijsen A P M, Nater J P. Evaluation of a self-administered questionnaire on hand dermatitis. *Contact Dermatitis* 1992: 26: 11–16.
9. Flyvholm M-A, Susitaival P, Meding B, Kanerva L, Lindberg M, Svensson A, Olafsson J H. Nordic Occupational Skin Questionnaire–NOSQ-2002. Nordic questionnaire for surveying work-related skin diseases on hands and forearms and relevant exposures. TemaNord, Copenhagen, Nordic Council of Ministers, 2002: 518: 1–186.
10. Susitaival P, Flyvholm M-A, Meding B, Kanerva L, Lindberg M, Svensson A, Olafsson J H. Nordic Occupational Skin Questionnaire (NOSQ-2002): a new tool for surveying occupational skin diseases and exposure. *Contact Dermatitis* 2003: 49: 70–76.
11. Mygind K, Sell L, Flyvholm M-A, Jepsen K F. High-fat petrolatum-based moisturizers and prevention of work-related skin problems in wet-work occupations. *Contact Dermatitis* 2006: 54: 35–41.
12. Sell L, Flyvholm M-A, Lindhard G, Mygind K. Implementation of an occupational skin disease prevention programme in Danish cheese dairies. *Contact Dermatitis* 2005: 53: 155–161.
13. Flyvholm M-A, Bach B, Rose M, Jepsen K F. Self-reported hand eczema in a hospital population. *Contact Dermatitis* 2007: 57: 110–115.
14. Eremenco S L, Cella D, Arnold B J. A comprehensive method for the translation and cross-cultural validation of health status questionnaires. *Eval Health Prof* 2005: 28: 212–232.
15. Wild D, Grove A, Martin M, Eremenco S, McElroy S, Verjee-Lorenz A, Erikson P. ISPOR task force for translation and cultural adaptation. Principles of good practice for the translation and cultural adaptation process for patient-reported outcomes (PRO) measures: report of the ISPOR task force for translation and cultural adaptation. *Value Health* 2005: 8: 94–104.
16. Bjorner J B, Kreiner S, Ware J E, Damsgaard M T, Bech P. Differential item functioning in Danish translation of the SF–36. *J Clin Epidemiol* 1998: 51: 1189–1202.
17. Alonso J, Antó J M. Instrumentos de medida de calidad de vida relacionada con la salud: características generales y proceso de adaptación trancultural. *Quad CAPS* 1990: 14: 16–24.
18. Beaton D E, Bombardier C, Gruillemin F, Ferraz M B. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine* 2000: 25: 3186–3191.
19. Rajmil L, Serra-Sutton V, Estrada M D, Fernandez De Sanmamed M J, Guillamón I, Riley A, Alonso J. Adaptación de la versión del perfil de Salud Infantil (Cross-cultural adaptation of the Spanish version of the Child health and Illness Profile, Child Edition (CHIP-CE). *Ann Pediatr (Barcelona)* 2004: 60: 522–529.
20. Conrad F, Blair J, Tracy E. Verbal reports are data!. A theoretical approach to cognitive interviews, 2003. Available at: http://www.fcsm.gov/99papers/conrad1.pdf (last accessed 3 June 2009).
21. Willis G B. Cognitive interviewing and questionnaire design: a training manual. Cognitive Methods Staff, National Center for Health Statistics, Working Paper Series No. 7, Hyattsville, MD, Department of Health and Human Services, Centers for Disease Control and Prevention, 1994.
22. Deyo R A. Pitfalls in measuring the health status of Mexican Americans: comparative validity of the English and Spanish sickness impact profile. *Am J Public Health* 1984: 74: 569–573.

23. Scientific Advisory Committee of the Medical Outcomes Trust. Assessing health status and quality-of-life instruments: attributes and review criteria. *Qual Life Res* 2002: 11: 193–205.
24. Hays R D, Anderson R, Revicki D. Psychometric considerations in evaluating health-related quality of life measures. *Qual Life Res* 1993: 2: 441–449.
25. Stenberg B, Lindberg M, Meding B, Svensson A. Is the question 'Have you had childhood eczema?' useful for assessing childhood atopic eczema in adult population surveys? *Contact Dermatitis* 2006: 54: 334–337.

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