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A Persian Translation and Cross-cultural Adaptation of the Nordic Occupational Skin Questionnaire

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ABSTRACT

Introduction: Work related dermatitis is one of the most prevalent diseases, which its economic and social effects on the employee and the society is remarkable. The Nordic Occupational Skin Questionnaire (NOSQ-2002) is known as a comprehensive and standardized tools for screening the occupational skin diseases.The main purpose of this study was to translate and cross-culturally adapt the NOSQ-2002/ SHORT into Persian.

Methods: A survey cultural translation carried out during 2018 in Mashhad, Iran. The NOSQ2002-/SHORT adaptation process consists of the forward translation and reconciliation, back translation and an expert panel assessment. The content validity ratio (CVR) and content validity index (CVI) were calculated according the to Lawshe formula. The Persian version of the questionnaire was tested in 30 workers attended the training courses for health ID card confirmation as a pilot study and were confirmed by physical examination. Base on the participants' opinion, the ambiguous questions were modified by the expert panel.

Results: All the 15 questions had a CVR of 0.6 and higher. The overall content validity index of the questionnaire was equal to 0.80. Some obscure words not good understood by the pilot study participants were revised. The results of the questionnaire declaration was matched with the physical examination for each worker.

Conclusion: The Persian version of the NOSQ2002-/SHORT questionnaire is now available for researchers for assessment hand eczema in the workplace. Further research is suggested to evaluate the validity of the Persian version of NOSQ2002.

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Introduction

Occupational contact dermatitis is described as the inflammation of the skin, which is caused or worsened by an occupational exposure and is divided into two groups: iritant contact dermatitis (ICD) and allergic contact dermatitis (ACD).

Contact dermatitis account for 15% to 20% of all reported work-related diseases (1). Work-related exposure to chemical, physical, biological agents can develop a wide variety of occupational skin diseases (OSD) including irritant

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contact dermatitis, allergic contact dermatitis, skin cancers, infections and injuries. Irritant contact dermatitis and allergic contact dermatitis are the most prevalent of occupational skin diseases which mostly affect hands and result in decreasing the efficacy of workers activities and compromising the occupational safety (2,3).

Furthermore, the occupational skin diseases are also known as a cost consuming issues (2). Many studies suggest different symptom-based and self – reported questionnaires as one of the time and cost consuming screening test for hand dermatitis on work related skin problems (4,5).

According to our search, there is no validated Persian occupational dermatitis questionnaire for Iranian researchers. Nordic Occupational Skin Questionnaire (NOSQ-2002) is known as the best available standardized questionnaire tool using in epidemiological studies about work-related skin disease in dermatology literature (6,7).

There are two different version of the NOSQ-2002 including the short questionnaire (NOSQ-2002/SHORT) and the long version (NOSQ-2002/LONG) in various languages such as English, Danish, Swedish, Finnish, Icelandic, Norwegian, German (8), Turkish (9) and Spanish (10) which are available in www.nrcwe.dk/NOSQ.The short version is a 15 item questionnaire usually known as a screening test for the occupational skin diseases on hand and forearm (6). The main purpose of this study was to translate and intercultural compatibility the NOSQ-2002/SHORT into Persian for contact dermatitis.

Materials and Method

A cross-sectional study carried out during 2018 in Mashhad, Iran. The ethical codes of research was IR.MUMS.fm.REC.1394.446. The NOSQ-2002 questionnaire has been compiled in English and has 15 questions about demographic features, job task and eczema symptoms on hands, wrists and forearms in various times (current involvement, within the past 3 months, between 3-12 months ago and before that).

Two methods are used to assess hand eczema in the questionnaire: a self-report (self-diagnosis) of hand dermatoses or eczema ('Have you had…?') or a diagnosis based on a symptom list (symptom-based diagnosis). The items have selection switch or the yes/no answers. The results are reported as description. The NOSQ-2002 short form can be used to monitor hand dermatitis, for example, after preventive interventions in work setting or changes in job exposure or processes. In addition, it can be a good manual for researchers to assess the hand eczema and work exposure (7).

Translation and cross-cultural adaptation

Figure-1 shows the sequence of translational and the cross-cultural adaptation process. After asking for permission from the original questionnaire authors, the English version of NOSQ-2002/SHORT was translated by two independent native Persian individuals who are perfectly familiar with medical English and English instructions. The two first drafts were precisely reviewed by the third bilingual experts for consensus.

After the synthesis of translated version, a bilingual occupational medicine specialist joined the study group to assess whether the draft is able to inform the needed and necessary data. In this step, the synthesized version was back-translated by the other two independent translators, whose mother tongue was English and was fluent in Persian and she/he had no information about the questionnaire.

The face validity of the instrument was assessed by the expert panel. After the synthesis of translated version, an expert committee consisting of 10 experts in dermatology, epidemiology, and occupational medicine joined the study and translation group to assess whether the draft is able to inform the needed and necessary data. Also every expert has to score each question of test ranging from 1 to 3 with "not necessary, useful but not essential, essential" respectively. The content validity ratio (CVR) and content validity index (CVI) were also calculated based on C. H. Lawshe's famous quantitative content validity methods which vastly has been used by methodologist and scientist (11,12).

Lawshe suggested that the transformation would be valuable if the level of agreement among panel members was greater than 50%. CVR values range between −1 (perfect disagreement) and +1 (perfect agreement). A CVR values above zero indicates that more than half of panel members believe an item as essential(13). Content validity ratio (CVR) was calculated by the following formula: CVR= (Ne - N/2)/ (N/2).

In this formula, the Ne is a number of "essential" and N is the total number of experts involving in expert panel. Then the value of CVR should be compared to Lawshe table to figure out whether the acceptable level is reached . A CVR higher than 0.6 is of worth in our study (14).

Content validity index (CVI) of the instrument is the quantified value presenting the main points of the panel of experts on item relevancy, clarity, and simplicity. It is a 4-point scale labeling with 1=not relevant, 2=somewhat relevant, 3=quite relevant, 4=highly relevant) and can be computed for each item (I-CVI) or the overall scale (S-CVI) (12,15-16).

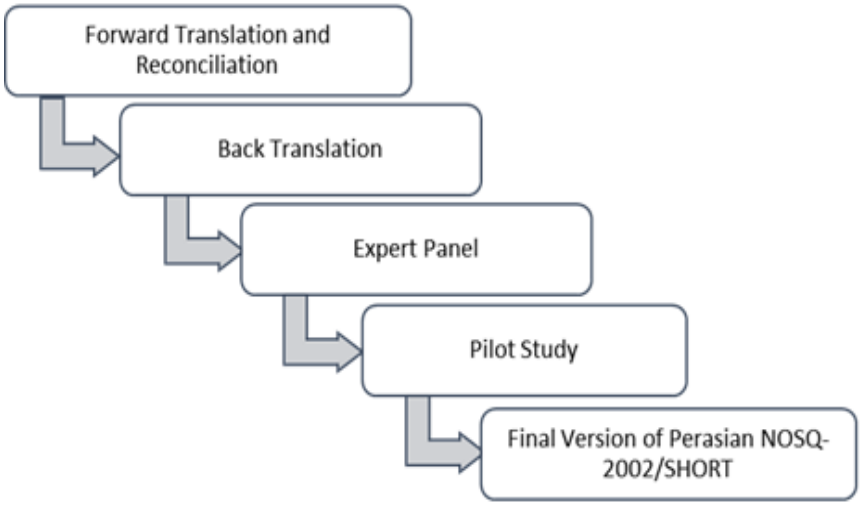

Figure 1: schematic outline of the process of translating and cross-culturally adapting the NOSQ-2002/SHORT from English to Persian

II. Pilot study - Characteristics of participants and subjects

Considering the prevalence of contact dermatitis reported (9-34%) (17-22), a sample of 30 participants were selected. The inclusion criteria defined as having an Iranian nationality and ability to read and write in Persian language, and working in current job for at least one year. the exclusion criteria were suffering some chronic diseases such as diabetes, rheumatologic diseases and take the immune-compromising medications. The study population was the workers attended the health training courses for job ID card confirmation. First, all subjects provided informed consent and the aim and the content of the last Persian version of NOSQ-2002/SHORT were clearly explained to the subjects. Then they completed the translated questionnaire. All participants were allowed to ask about the difficulty to understand the meaning of each item.The complaints reported by the participants were matched by physical examination performed by the researcher in place.

All confusing or not unintelligible items were detected to be modified in the final expert consultation session.The short summary of the details of the process is shown in Figure1.

Results

As the cultural adaptation, of the 15 questions in the Persian version of the NOSQ-2002/SHORT, 14 questions were almost understandable. A translation error was observed which the back translated item was not equivalent to the original version (the item G8). It was corrected with translators' comments. There was a disagreement on the item G2 (your major activity at work) referred to the opinion of pilot study group. Moreover, the word "eczema" was somewhat confusing and ambiguous which changed to skin sensitivity for better clarification. Table 1 showed the modification of NOSQ-2002/SHORT in translated version.

Table1: the modification of NOSQ-2002/SHORT in translated version

	New Related Questions	Primary Questions
G1	Department	Department; (if you have different part in your workplace)
D1	Have you ever had hand skin sensitivity?	Have you ever had hand eczema?
D2	Have you ever had skin sensitivity on your wrists or forearms	Have you ever had eczema on your wrists or forearms
D5	When did you last have skin sensitivity on your hands, wrists or forearms?	When did you last have eczema on your hands, wrists or forearms?
F1	Have you noticed that contact with certain materials, chemicals or anything else In your work makes your eczema worse?	Have you noticed that contact with certainmaterials, chemicals or anything else In your work makes your skin sensitivity worse?

F2	Have you noticed that contact with certain materials, chemicals or anything else Outside of your work makes your eczema worse?	Have you noticed that contact with certain materials, chemicals or anything else Outside of your work makes your skin sensitivity worse?
F4	Does your eczema improve when you are away from your normal work? (for example weekends or longer periods)	Does your skin sensitivity improve when you are away from your normal work? (for example weekends or longer periods)

Table2: The content validity ratio (CVR) of items

FIRST QUESTIONNAIRE	CVR
G1. Workplace: _____	1
Department:	0.6
G2. Are you **a man /a woman**	0.6
G3. Year of birth:	0.6
G5. What is your present occupation? _____ **Since when? ____ (year)**	1
G6. What is your major activity at work? _____ **Since when? ____ (year)**	1
G7. How many hours per week do you work in your main job (on average)? ____ (hours/week)	1
G8. Do you perform any other paid work regularly? **No 1** **Yes 2 What kind of work? _____** **How many hours per week (on average)? _____ (hours/week)**	0.6
D1. Have you ever had hand eczema? **No 1** **yes 2**	1
D2. Have you ever had eczema on your wrists or forearms (excluding fronts of elbows)? **no 1 (if you also answered "no" to question D1 move to question A1)**	1
D5. When did you last have eczema on your hands, wrists or forearms?	0.6
F1. Have you noticed that contact with certain materials, chemicals or anything else in your work makes your eczema worse?	0.8
F2. Have you noticed that contact with certain materials, chemicals or anything else outside your work makes your eczema worse? ()	0.8
F4. Does your eczema improve when you are away from your normal work (For example weekends or longer periods)?	0.8
A1. Have you ever had an itchy rash that has been coming and going for at least 6 months, and at some time has affected skin creases?	0.6

General characteristics and Descriptive Analysis:

The mean age of the workers was 33.77±7.93 (16-50) years. Among the sample, 70% (N=21) were men and 30% (N= 9) were women. It was found that six of these workers worked as bakers and 5 individuals worked as kindergarten trainers. 3 of them were hairdressers and 2 individuals were the chef. The comprehensive data about the Occupations were shown in table 3. The mean numbers of working hours per day and per week were 7.8 ± 6.31 h and 62.12±23.48 h, respectively. According to the participant' comments the statement "your major activity at work" was confusing and Indistinguishable from the previous question (your present occupation). The authors suggested the Persian word

exactly meaning the English word "task" in order to conveying the concept of the word "job activity". The dermatological examination revealed that 3 workers (10%) had hand eczema and one person (3.3%) had wrist eczema which was completely matched with the result of questionnaires analysis (>90%).

Table 3: Occupation type of the Iranian participants

Occupation	Number (%)
1.Hotel maid	3 (10)
2.Bakers	6 (20)
3.Fast food sellers	1 (3.3)
4.Fruit sellers	1 (3.3)
5.Hairdresser	3 (10)
6.Chef	2 (6.7)
7.Drivers	2 (6.7)
8.Kindergarten trainers	5 (16.7)
9.Grocers	4 (13.3)
10.Hospital cleaners	2 (6.7)
11.Motorcycle mechanics	1 (3.3)
12.Total	30 (100)

Discussion

The present study aimed to provide a valid Persian questionnaire for researching in the occupational health domain. For this purpose, the Nordic Occupational Skin Questionnaire was selected due to its wide acceptability worldwide. NOSQ-2002 developed by a group of Nordic occupational dermatology researchers to survey work-related dermatosis. NOSQ-2002/SHORT uses self-report unlike the long version which has a section on symptoms (23). The translation process of the questionnaire showed that the forward and backward translation drafts are matched with each other and with the original version.

The main expert comments was on the item G6 (the major activity at work) and the word "hand eczema". Our results were in accordance with Giménez-Arnau and Girbig and their colleagues that followed the same steps to obtain the Spanish/ Catalan and German version of the questionnaire respectively. They also had some confusing items to be modified according the native authors 'comments (8,10). Aktas and colleges translated the NOSQ-2002 into Turkish.

After problematic items' modification, a consensus was reached with the original version of the NOSQ-2002. The final Turkish version of the questionnaire was tested in 40 randomly selected young hairdressers, Jewelers and car mechanics. In the mentioned study, the variety of occupations was less and due to the occupational exposure, the frequency of occupational dermatitis was higher. (9) CVR calculated for each question is acceptable. (≥0.6 for all the questions.) The face validity of the instrument was evaluated by the expert panel and after some corrections, CVI of the questionnaire was equal to 0.87 meaning the relevance, clarity, and simplicity of the instrument is good.

Based on the pilot testing, the translated questionnaire was informative enough with no debatable item and covering the cultural context. The questionnaire results were compared with the results of physical examination for each participants which was totally matched in cases.

Our study has some limitations as well. We just did the translation and cross-cultural adaptation of NOSQ-2002/SHORT. The NOSQ-2002/LONG is an extensive tool covering the more detailed and specific information including, demographics and occupational history, the history of atopic symptoms, skin symptoms and test, self-reported contact urticarial, exacerbating factors, general health and etc.

In addition, the Persian version of NOSQ-2002/SHORT is exclusive to the hand dermatitis. It is actually restricted to the screening of hand eczema and it does not support cancer or the diagnosis of the diseases. For this reason, the indication of its use should be considered. The pilot study sample was small and the frequency of hand eczema was low (3 patients). Moreover, we did not have appropriate access to participants to carry out a retest evaluation. Future studies in larger populations will allow retesting. The validity of the questionnaire will be tested among a larger sample of Iranian workers in future studies.

There were some strengths in the current study. We had the chance to have a good translator team with a good experience in validating the English questionnaires to Persian version. The expert team included dermatologist, occupational medicine specialists and methodologists to guarantee the comprehensive viewpoints.

Conclusion

The Persian version of the NOSQ-2002/SHORT questionnaire is now available for researchers for assessment hand eczema in the workplace. Further research is suggested to evaluate the validity of the Persian version of NOSQ-2002.

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Conflicts of interest

There is no conflicts of interest in the present study.

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