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Translation and standardisation into Greek of the standardised general Nordic questionnaire for the musculoskeletal symptoms

Maria Antonopoulou, Charlotte Ekdahl, Markos Sgantzos, Nikos Antonakis, Christos Lionis

Musculoskeletal disorders represent a common reason for the general population to seek care from the health services.^{1,2} Standardised questionnaires are among the widely accepted methods for collection and analysis of relevant data. The standardised questionnaires for the analysis of musculoskeletal symptoms (Nordic Musculoskeletal Questionnaires, NMQs),³ the general form and the specific low back and neck/shoulder questionnaires, have been extensively used as a screening instrument in epidemiological studies across Europe and all over the world.^{4,5} The lack of specific questionnaires that are validated in the Greek language was the main reason for this study of translation and validation of the general NMQ into Greek.

Apart from a few demographic questions and questions relevant to workload, the general NMQ comprises 27 items exploring the presence of musculoskeletal symptoms during the last year in the nine different parts into which the body is divided. Two more questions addressing the degree of debilitation during the last year and the presence of symptoms during the last week are included, grading the severity of the reported symptoms. NMQs are mostly used in primary care studies, especially applied to various occupational

groups,⁶ investigating associations between musculoskeletal disorders and working conditions.⁷

The translation procedure of NMQ into Greek followed the 'Minimal translation criteria' introduced by the Trust's Scientific Advisory Committee in 1997, (SAC).⁸ First, permission for the translation of the source Swedish language was secured. Two bilingual Greek translators were engaged in the forward translation. Backward translation was achieved by using two Swedish bilinguals. The cultural adaptation was tested in a group of five Greek patients with musculoskeletal disorders. Four women and one man (mean age 40 years) filled in the questionnaire individually and completed a debriefing report. This report comprised several questions asking about the general impression when completing the NMQ and specific questions referring to each separated item of the NMQ. Moreover, they were asked to propose possible rewording for the unclear items.

Reproducibility (test-retest reliability) of the derived version was assessed by the administration of the questionnaire at baseline and again two weeks later in a group of 50 patients, aged 20 to 75 years, who were consecutive visitors and permanent inhabitants of the catchment area of one primary health centre. Participants provided their written consent prior to implementation of the study. Kappa measure of reliability⁹ was estimated as very good (Kappa >0.81, $p>0.001$) for almost all items, with the exception of the results from the test-retest of two questions addressing neck or elbow pain in the previous seven days, which were rather good (Kappa being 0.64, $p>0.001$) (table 1).

Criterion validity was measured by comparing the answers to the questionnaire with data obtained from the

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Table 1. Kappa value for questions on musculoskeletal symptoms.

Questions	Test-re-test agreement 'Kappa'	Approximate standard error	Confidence interval (95%)
14. Neck	1.00	0.00	1.00 - 1.00
15. Neck	1.00	0.00	1.00 - 1.00
16. Neck	0.64	0.23	0.18 - 1.09
17. Shoulders	1.00	0.00	1.00 - 1.00
18. Shoulders	1.00	0.00	1.00 - 1.00
19. Shoulders	1.00	0.00	1.00 - 1.00
20. Elbows	0.87	0.09	0.70 - 1.04
21. Elbows	1.00	0.000	1.00 - 1.00
22. Elbows	0.64	0.19	0.26 - 1.00
23. Wrists/hands	0.95	0.05	0.86 - 1.04
24. Wrists/hands	1.00	0.00	1.00 - 1.00
25. Wrists/hands	1.00	0.00	1.00 - 1.00
26. Upper back	1.00	0.00	1.00 - 1.00
27. Upper back	1.00	0.00	1.00 - 1.00
28. Upper back	1.00	0.00	1.00 - 1.00
29. Low back	0.95	0.04	0.90 - 1.03
30. Low back	1.00	0.00	1.00 - 1.00
31. Low back	0.83	0.11	0.61 - 1.04
32. Hips/thighs	0.82	0.10	0.62 - 1.01
33. Hip/thighs	0.90	0.10	0.80 - 1.00
34. Hip/thighs	0.90	0.10	0.80 - 1.00
35. Knees	0.95	0.05	0.90 - 1.04
36. Knees	1.00	0.00	1.00 - 1.00
37. Knees	0.83	0.11	0.61 - 1.04
38. Ankles/Feet	0.85	0.15	0.56 - 1.14
39. Ankles/Feet	1.00	0.00	1.00 - 1.00
40. Ankles/Feet	1.00	0.00	1.00 - 1.00

medical files of those 50 patients over the previous 12-month period. The electronic medical records were used as gold standard, since no other questionnaires have been validated in Greek. In 29 subjects all the musculoskeletal symptoms detected by the NMQ were also present in their medical records, which means a complete agreement of 58%. Internal consistency (i.e. the correlation among the items of the instrument) was assessed using Cronbach's alpha coefficient and it was found to be high (0.94, 95% CI 0.91-0.96), suggesting that all items were appropriate for detecting musculoskeletal symptoms in the nine parts of the human body in a consistent and accurate manner.

The essential message of this article is that, with some qualifications, the NMQ can be successfully transferred to the Greek setting, increasing the research capacity available in this country. ■

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