

Guidelines for translation and cross-cultural adaptation of non-technical skills rating instruments

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Background: Although non-technical skills reflect social and cognitive skills, no guidelines are available for the translation and cross-cultural adaptation of non-technical skills rating instruments (NTSRIs). **Objectives** (1) To review the existing literature on translation guidelines and (2) to establish translation and cross-cultural adaptation guidelines for non-technical skills rating instruments.

Methods: The authors carried out a comprehensive systematic online database search of Embase, PubMed and the Cochrane Database of Systematic Reviews. Firstly, the authors used the keywords non-technical skills in combination with translation, evaluation methods, cross-cultural adaptation, guidelines, translation guidelines, and assessment. Secondly, the authors used the keywords translation, cross-cultural adaptation to find review articles on the translation and cross-cultural adaptation of rating scales. Thirdly, two independent reviewers conducted a systematic review of the reference lists of suitable articles. Finally, the authors then synthesized the results into translation and cross-cultural adaptation guidelines for NTSRIs.

Results: Together the searches found 29 distinct guidelines. The authors synthesized the most widely used guidelines. The proposed guidelines for the translation and cross-cultural adaptation of the NTSRIs consist of two forward-translations by two independent translators who are native-speakers of the language of the target population, a synthesis of these two versions, and a back-translation by at least one translator fluent in the language of the original instrument and familiar with the culture of the target language. Thereafter, a back-translation panel reviews the back-translation, and a multi-disciplinary committee reviews the overall process. This latter group then harmonizes the produced version with other cross-culturally adapted versions of the scales. The pre-final version then undergoes pilot-testing, including cognitive debriefing, with at least five evaluators. Finally, the committee reviews the outcomes and has the final version proofread.

Conclusions: This study produced structured guidelines for the translation and cross-cultural adaptation of the non-technical skills rating instruments, thereby filling a methodological gap. However, the application of these NTSRIs translation guidelines now requires feasibility studies.