Cross-cultural Adaptation of Health Assessment Instruments

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Cross-cultural adaptation of instruments is necessary when the new target population differs from the original in which the assessment tool is used regarding culture or cultural background, country, and language. There are some guidelines that must be targeted in order to conserve the sensibility of the assessment tool in the original culture (Geisinger, 1994). The steps that must be followed, if relevant to the specific assessment tool, are (Beaton, Bombardier, Guillemin, & Ferraz, 1998; Guillemin, Bombardier, & Beaton, 1993): Translation; synthesis of the translations; back-translation; committee review; pre-testing.

The *first stage* of a cross-cultural adaptation must be the production of several translations by, at least, two independent translators. This leads to the detection of errors and divergent interpretations of ambiguous items in the original tool. The translators must be fluent in both languages (with the target language as their mother tongue), knowledgeable of the two cultures, and experts in the content measured by the instrument (Beaton et al., 1998). One of the translators should be aware of the concepts of the questionnaire being translated, aiming for equivalence in a more clinical perspective; the other translator should not be sensitive nor be informed of the concepts (Beaton et al., 1998).

In a *second stage* the two translators synthesise the results of the translations, producing one common translation (Beaton et al., 1998).

It is then necessary to back-translate the assessment tool (*third stage*), which means translating back from the final language into the source language, producing as many back-translations as translations, based on the synthesised translation (Geisinger, 1994; Hutchinson, Bentzen, & König-Zahn, 1997). The back-translators should be fluent in the idiom (source language as their mother tongue) and colloquial forms of the source language, totally blind to the original version and, preferably, a person that does not have an a priori knowledge of the intent and concepts underlying the assessment tool, to minimise bias and interpretations (Geisinger, 1994).

In the *fourth stage* an expert committee compares the source and the final version. Memberships in the committee must be multidisciplinary, i.e., professionals from different areas such as methodologists, health professionals, language professionals and translators (Beaton et al., 1998; Geisinger, 1994). The objective of the committee is the production of a pre-final version for field testing, based on translations and back-translations obtained. The discrepancies should be solved using a decentring technique

that considers the source and the final version as equally important, and its best conducted with the authors (Guillemin et al., 1993). The committee needs to guarantee that the tool is fully comprehensible, and that introduction to the assessment tool and instructions to the completion of the questionnaire are cautiously translated regarding the replicability of the measure. Semantic (i.e., equivalence in the meaning of words), idiomatic (i.e., equivalence in idioms and colloquialisms), experiential (i.e., equivalence in the target cultural context) and conceptual (i.e., equivalence of the concept and the experiences of the target culture) equivalences must be considered and guarantee (Beaton et al., 1998; Guillemin et al., 1993). The expert committee should make sure (general recommendation for questionnaires) that the final questionnaire is understood by the equivalent of a 12-years-old (Beaton et al., 1998).

The *fifth stage* consist of a cognitive debriefing, that tests alternative wording, understandability and interpretation of the translation (Wild et al., 2005). The assessment tool or questionnaire must be administered to a small sample of individuals (i.e., between 5 to 8 native speakers of the translated language, similar to the target population) and, after that, people are interviewed in order to establish the level of comprehensibility of the instructions and the final items, the cognitive equivalence of the translation, to test translation alternatives and to find out which items are inappropriate or confusing (Wild et al., 2005). The translation should be revised taking into account the answers obtained.

Thereafter, the assessment tool can be administered to a representative sample of the population (Geisinger, 1994; Guillemin et al., 1993; Wild et al., 2005). Internal consistency and test-retest reliability should be included in the stage of instrument adaptation process (Geisinger, 1994). The use of norms from the original instrument is not appropriate and standardisation of the scores should be performed (Geisinger, 1994). During validation research, it was necessary to develop a manual for the users of the assessment tool to ensure its appropriate use; it is also necessary to develope training programs in order to inform how to administer, use and interpret scores. Throughout this process, it is important to collect reactions from users regarding future revisions (Geisinger, 1994).

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Guillemin, F., Bombardier, C., & Beaton, D. E. (1993). Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. Journal of Clinical Epidemiology 46(12), 1417-1432.

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Wild, D., Grove, A., Martin, M., Eremenco, S., McElroy, S.,Verjee-Lorenz, A., & Erikson, P. (2005). 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 in Health 8(2), 94-104.

Expert committee meeting

Composition: The minimum composition comprises methodologists, health professionals, language professionals and translators (forward and back translators).

Role: The expert committee's role is to consolidate all the versions of the questionnaire and develop that would be considered the pre-final version of the questionnaire (Beaton, Bombardier, Guillemin, & Ferraz, 1998). The committee must ensure that the introduction to the tool and the instructions for filling in the questionnaire are carefully translated, in order to preserve the replicability of the measure. The committee can modify or eliminate irrelevant, inadequate and ambiguous items and generate substitutes better fitting the cultural target situation (while maintaining the general concept of the deleted items). The committee must ensure that the translation is fully comprehensible to a majority of people (using a language which can be understood by a 10-12 year old children).

Material: original questionnaire, translation 1 (T1), translation 2 (T2), synthesis of the 2 translations (T12), back-translation 1 (BT1), back-translation 2 (BT2).

Equivalence: semantic, idiomatic, experiential or content and conceptual.

Report of discrepancies and their resolution

Issue (specify item)	Resolution

Equivalence	Definition	How to assess
Content Or **Experiential equivalence** (Guillemin, Bombardier, & Beaton, 1993)	The situation evoked in the source version should fit the target culture context (Guillemin et al., 1993). It is established when each item of the questionnaire *describes a phenomenon relevant to both cultures* (Hutchinson, Bentzen, & König-Zahn, 1997), e.g., items regarding specific social, leisure or illness behaviours may not be relevant in some cultures. In such cases these items must either be discarded or substituted with equivalent items relevant to the target culture.	Review of the appropriateness of the instruments' content to the target culture by a panel comprising members with knowledge of both cultures.
Semantic	Concerned with retaining the meaning of each items after translation into the language of the target culture. Emphasis on the *equivalence of meaning* than a direct literal translation.	The minimum requirement is that the instrument has undergone *forward-backward* translation with a clear description of the process and method of evaluation. More formal quality control: *Multiple forward-backward* translations in combination with bilingual panel reviews.
Conceptual	Refers to the validity of the concept in both cultures. "Does the same notion, idea, experience, etc explored by an item in the source language exist in the target language?"	The minimum requirement is that the concepts measured by adapted instruments have been examined for their validity in both cultures, together with a description of procedures applied.
Idiomatic	Equivalent expressions must be found if the source questionnaire has idiomatic expressions or colloquialisms.	Search for idiomatic expressions or colloquialisms.