

# Localization of Activities and Equivalence of Movements in Clinical Outcomes Assessments

Mary C. Gawlicki, MBA; Çolpan Angun, BA; Barbara A. Brandt, MA; Shawn McKown, MA; Carolyn Schulz, BA; Matthew Talbert, MA

— Corporate Translations, Inc. East Hartford, CT, USA —

## OBJECTIVE

Clinical Outcomes Assessments (COAs) frequently include questions to assess subjects' ability when performing specific activities. Familiar sports, games, and self-care activities allow the subject to give a better assessment of their quality of life. When activities are not applicable to the target country, adaptation or substitution is necessary during translation. Recommendations for achieving equivalent activities in translation are explored in this research.

## BACKGROUND

Additional consideration beyond translation may be required for patient questionnaires that assess culturally-specific activities of daily living. If such questionnaires are intended for use in a country other than that of the source language, more discussion is needed during translation development to ensure that activities are adapted for the target country while maintaining conceptual equivalence [1]. Questionnaires may be general in nature but can include questions asking about the patient's ability to perform physically demanding activities. These activities, however, might be worded in such a way that they are more relevant to North America and Western Europe. Adaptation is often required for use in the Middle East, Asia, Africa and, occasionally, Eastern Europe. During translation, linguists must find similar and culturally appropriate alternatives that subjects will understand, while also considering the movements and exertion required of the activity. Failure to do so can impede data pooling across languages in multinational trials.

Issues with adaptation have been observed in previous translations carried out by Corporate Translations. The Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) contains motions such as "getting on and off a toilet" or "getting in and out of a bathtub." In China, these activities were adapted as "crouch and stand to use the toilet or seated toilet" and "getting in and out of a wash basin or shower room" respectively [2].

An initial review of the source text to be translated might allow one to anticipate translatability issues. This method was used to confirm cultural acceptability of items such as "using a zipper" and "using a potty" (a device used to train a child to use a toilet). During cognitive debriefing of the Vineland-II Adaptive Behavior Scales [3], a series of probes were used to determine cultural appropriateness of the translated scales. The probes in this circumstance confirmed the translated motions to be acceptable for the target country, but adaptation of the proper terminology for "potty" and the applicable corresponding motions was necessary.

Cognitive debriefing proved to be a useful tool for adaptation of motions of the Shortness of Breath with Daily Activities Questionnaire (SOBDA). Howard *et. al.* formed a series of drawings with stick figures to demonstrate the motions that were being asked about in their questionnaire. The drawings were presented to the subject during cognitive debriefing, to confirm the equivalence of the translated motion [4].

As observed during the translation of the motions in this study, it was found that a tendency exists to select the most recognizable activity without consideration of the exertion involved. As an example, *cricket* is not an appropriate alternative to *golf*, as *cricket* requires running while *golf* does not. In addition, we have observed that developers might, in some cases, elect to remove the specific activity from the question altogether during translation, thereby hindering data pooling and risking problems with missing data.

## METHODS

The following activities were analyzed for this study, as they appeared in physical assessment questionnaires:

- Light sports, which are culturally or geographically specific:
  - Golf
  - Bocce Ball
  - Bowling
- Shoveling snow
- Getting in and out of a bathtub
- Getting on and off a toilet

These examples recently appeared in patient questionnaires slated for translation and linguistic validation by Corporate Translations. The resulting translations and ensuing discussions of these activities were analyzed. In addition, linguists of Middle Eastern, Asian, African and Eastern European languages were given a questionnaire with a list of these activities. The nature of the activity and its intensity were described. Based upon the description, they were asked to offer an activity or physical motion of equivalence.

The questionnaire was voluntary and not all linguists who were contacted responded. Linguists for the following languages (30) responded to the questionnaire and provided feedback:

Arabic-Egypt	Arabic-Israel	Bengali-India	Bulgarian-Bulgaria	Cebuano-Philippines
Chinese (simplified)-China	Chinese (Traditional)-Hong Kong	Estonian-Estonia	Gujarati-India	Hebrew-Israel
Hindi-India	Japan-Japanese	Kannada-India	Korean-South Korea	Latvian-Latvia
Lithuanian-Lithuania	Malayalam-India	Malay-Malaysia	Marathi-India	Serbian-Serbia
Sesotho-South Africa	Tagalog-Philippines	Tamil-India	Telugu-India	Thai-Thailand
Turkish-Turkey	Ukrainian-Ukraine	Urdu-India	Xhosa-South Africa	Zulu-South Africa

The following tables display the most interesting alternatives that manifested themselves for specific languages. In some cases, further discussion was necessary during translation in order to find an activity that was both culturally applicable and equal in exertion.



## RESULTS

Language	Resolution
Bulgarian-Bulgaria Latvian-Latvia Ukrainian-Ukraine	In several Eastern European countries, there is no sport or game equivalent to <i>golf</i> , <i>bocce</i> or <i>bowling</i> . However, a common activity of equal exertion is <i>gathering mushrooms</i> . This activity requires easy walking and light exertion and bending similar to these light sports, but will be recognizable to Eastern Europeans.
Gujarati-India Hindi-India Kannada-India Telugu-India	For India, the originally selected equivalent for all light sports examples was <i>cricket</i> . <i>Cricket</i> , however, requires running and more intense physical activity. It was agreed that a game distinctive to India, <i>gilli danda</i> , would be the best alternative, as the game involves light exertion and walking. Telugu speakers refer to this same game as <i>billam godu</i> .
Malay-Malaysia	For Malaysia, the original suggestion was to use <i>darts</i> as an alternative. This was deemed to require less exertion than <i>golf</i> , <i>bowling</i> or <i>bocce ball</i> , as <i>darts</i> requires very little walking. After further discussion, it was determined that a Malaysian game called <i>snooker</i> would be appropriate. This game is very similar to <i>billiards</i> in the US, as there is more walking than <i>darts</i> .
Sesotho-South Africa Xhosa-South Africa	South African linguists offered the game <i>marbles</i> . Unlike the US version of <i>marbles</i> , the South African version of this game is played from a standing position and requires light walking.
Thai-Thailand	In Thailand, a game called <i>pétanque</i> has motions and exertion very similar to <i>bocce ball</i> , and is commonly known in the country. <i>Pétanque</i> can be used as an alternative to all the light sport examples.

Language	Resolution
Thai-Thailand	The best alternative to <i>shoveling snow</i> , as provided by the Thai linguist, was <i>shoveling dried grass</i> .
Arabic-Egypt Arabic-Israel Hebrew-Israel	For Middle Eastern countries participating in the study, <i>shoveling sand</i> or <i>shoveling mud</i> was offered as a viable alternative.
Chinese-Hong Kong	The climate and urban nature of the city-state of Hong Kong created difficulties in finding an alternative. As a result, the best solution according to the linguists was <i>washing one's car by hand</i> .
Turkish-Turkey	Although snow can occur in Turkey, residents are unlikely to shovel snow, as the general population tends to live in apartment style buildings and may not have a personal outdoor space for which they would be responsible. Therefore the best possible solution found was <i>carrying groceries into your home</i> .

Language	Resolution
Gujarati-India Hindi-India Kannada-India Tamil-India Urdu-India	The best alternative generated for these languages was <i>getting on and off of a short stool</i> . Although the stepping over motion is lost, the major motion here is getting up from a seated position on the ground, which is captured in the alternative.
Marathi-India	The Marathi linguist offered a different alternative, <i>getting up from a seated position on the ground</i> . This is applicable in India, as many people sit on the floor to carry out various activities such as cleaning grains or vegetables or meditating.

Language	Resolution
Japanese-Japanese	In Japan, both ground and regular toilets are common enough that subjects would recognize the difference; the revision to <i>Western toilet</i> resolved the issue.
Gujarati-India Hindi-India Kannada-India Tamil-India Urdu-India Marathi-India Telugu-India	In India, where ground toilets are dominant, the best alternative provided was <i>sitting down and getting up from a chair</i> .

## DISCUSSION

As part of this study, the issue of *getting in and out of a bathtub* proved only to be difficult for languages of India. Previous research indicates that this was a difficult item for China, as well as those who live in rural areas use a wooden wash basin as opposed to a *bathtub*. Therefore, the Chinese word for *wooden basin* was added to supplement *bathtub*. However, in our study, the Asian linguists participating in this study claimed that item was acceptable in their country. Getting on and off a toilet proved to be a less difficult issue than anticipated, and once again was only an issue for languages of India. Eastern European linguists reported the least amount of difficulty with the items analyzed in this study. As observed, their only issue was with the light sports, for which alternatives were found with little difficulty. It was hypothesized that some of the observed items would be an issue for South African languages. With the exception of the light sports, the majority of items were adapted without difficulty.

## CONCLUSIONS

Using relatable activities or movements, such as *golfing*, *bowling* or *shoveling snow*, will allow the patient to more accurately assess their quality of life, but may require adaptation during translation. Replacing a source activity without consideration of the movement and exertion required could negatively impact international data pooling. For example, one cannot pool data on British subjects' ability to play *golf* with Indian subjects' ability to play *cricket*, as *cricket* requires greater exertion than *golf*. Simply removing these items during the translation process will cause a study to have missing data, and is not a recommended solution. Adapting such localized activities is achievable when considering both the motion involved and the exertion required in the source activity, as well as selecting an activity that is culturally appropriate to the target country and recognizable to respondents.

## REFERENCES

1. Acquadro, Catherine, Katrin Conway, Asha Hareendran, and Neil Aaronson. "Literature Review of Methods to Translate Health-Related Quality of Life Questionnaires for Use in Multinational Clinical Trials." *Value in Health* 11.3 (2008): 509-21.
2. Bellamy N. WOMAC Osteoarthritis Index User Guide. Version V. Brisbane, Australia 2002.
3. Sparrow, Sara S, Domenic V. Cinchetti and David Bala. *Vineland-11 Adaptive Behavior Scale*. New York, NY, 2005.
4. Howard, Kellee, Pamela Berry, Jennifer Petrillo, Ingela Wiklund, Laurie Roberts, Michael Watkins, Courtney Crim, and Teresa Wilcox. "Development of the Shortness of Breath with Daily Activities Questionnaire (SOBDA)." *Value in Health* 6.18 (2012): 1042-050.