

Translation protocol for the Spider Questionnaire.

This protocol has been informed by the American Associate of Orthopedic Surgeons translation guidelines. Permission must be gained from the creators of the Spider before translating, contact details can be found in the footnote of this document. This protocol encourages cross-cultural adaptation and validation to ensure the questionnaire retains its strong psychometric properties. This questionnaire has been validated in people with HSD/hEDS aged 13 to 65.

Stage 1: Forward-backward translation and cross cultural adaptation

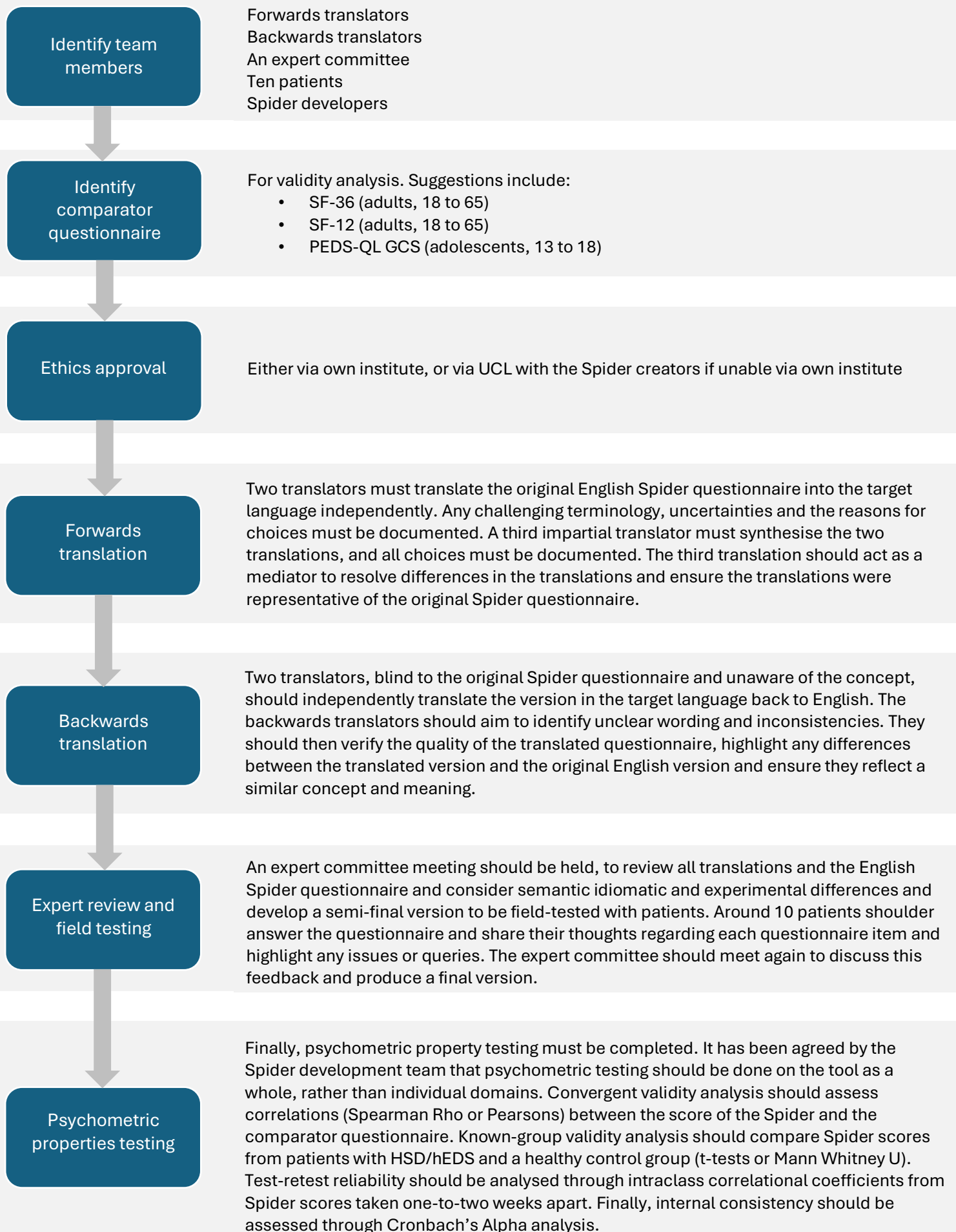
Team required:

- Two independent translators with the target language as their mother tongue, and fluent in English to conduct the first translation
 - o One must have knowledge regarding the questionnaire concept and aim to translate the questionnaire as similarly to the original as possible.
 - o One must not be informed about the concept of the questionnaire and aim to translate the questionnaire to be understood by the general population
- A third impartial translator with the target language as the mother tongue and fluent in English to help synthesise the two independent translations. This third translator must aim to mediate differences and ensure the translated questionnaire appropriately mirrors the English version.
- Two backwards translators with the target language as the mother tongue and fluent in English. They must be blind to the original version and not informed of the concept of the questionnaire.
- An expert committee for final review
 - o A language professional
 - o A health professional
 - o A methodologist
 - o Forward translation team
 - o Backwards translation team
- Ten patients for field testing

Stage 2: Psychometric properties testing

- Validity
 - o Convergent validity
 - o Known-group validity
- Reliability
 - o Test-retest reliability
 - o Internal consistency

Protocol flow chart:



Forward translation guidance

Each translator must consider:

- Equivalence
- Accessibility
- Acceptability of wording
- Preferred terminology
- Cultural appropriateness
- Usefulness for target population

Outcome: A written report summarising difficulties, choices made and remaining uncertainties.

Synthesis: After the review of the third translator, a consensus on a preliminary initial translation should be produced considering any ambiguities or discrepancies.

Expert committee guidance

Each member must consider:

- Similarity of the items regarding:
 - o Wording
 - o Sentence structure
 - o Meaning
 - o Relevance
- Semantic equivalence
 - o Do the words mean the same thing?
 - o Are there multiple meanings of any items?
 - o Are there grammatical difficulties in the translation?
- Idiomatic equivalence
 - o Is there any colloquialisms or idioms that have not translated appropriately?
 - o Is there an equivalent expression that is more appropriate?
- Experiential equivalence
 - o Are the items relevant in the target populations daily life?
- Conceptual equivalence
 - o Does the concept exist to the same degree in the source and target cultures?

Field testing guidance

Around 10 patients from the target population should test the semi-final questionnaire.

They should consider:

- Are the instructions, questions and response options clear and understandable?
- Does the questionnaire make sense in relation to the concept being measured?

Psychometric properties testing

Methodology for analysis can be found in the Spider validation papers in the resources. Between 1 and 5 participants per item should be used, with larger numbers encouraged.

Resources:

The Spider Questionnaire download: www.thespidertool.com

The Spider validation papers: <https://www.thespidertool.com/resources-and-links>

References:

Alsiri N, Alhadhoud M, Alhumaid A, Palmer S. Arabic translation, cultural adaptation, and validation of the Bristol Impact of Hypermobility questionnaire. *J Patient Rep Outcomes*. 2023 Jun 27;7(1):59. doi: 10.1186/s41687-023-00604-9. PMID: 37368177; PMCID: PMC10299962.

Alhadhoud M, Alsiri N, Alsaffar M, Glazebrook M. Cross-cultural adaptation and validation of an Arabic version of the American Orthopedics Foot and Ankle Score (AOFAS). *Foot Ankle Surg*. 2020;26(8):876-882. doi:10.1016/j.fas.2019.11.001

Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)*. 2000;25(24):3186-3191. doi:10.1097/00007632-200012150-00014

Ewer E, Kazkaz H, Ninis N, Rowe P, De Pauw R, Tang E, et al. (2024) The Spider; a multisystemic symptom impact tool for people with hypermobility related disorders. Initial validation in adolescents. *The Journal of Pediatrics: Clinical Practice*.200098. doi: <https://doi.org/10.1016/j.jpdc.2024.200098>.

Ewer ER, De Pauw, R., Kazkaz, H. et al. (2024) The Spider: a visual, multisystemic symptom impact questionnaire for people with hypermobility-related disorders—validation in adults. *Clin Rheumatol* doi: <https://doi.org/10.1007/s10067-024-07071-7>.

Mohammed TA, Omar. ABC of good practice for the translation and culutral adaptation of self-report measures. https://faculty.ksu.edu.sa/sites/default/files/7-abc_of_good_practice_for_the_translation_and_culutral_adaptation_of_self-report_measures.pdf