Unique Protocol ID: SE 312/2021

Brief Title: Adaptation of Pediatric Speech Audiometry Tests Into Other Languages

Official Title: Methodological Guide for the Adaptation of Pediatric Speech Audiometry Tests Into Other Languages

25 August 2025

Study protocol

Objectives: To evaluate auditory function in children, speech audiometry is widely used in routine clinical settings across many countries. However, appropriate test materials are not available in several languages to date. Adapting a speech audiometry test to another language poses a significant challenge. The objective of this study was to offer a comprehensive framework for the adaptation of speech audiometric tests into other languages. To date, this is the first universal protocol of its kind that systematically considers linguistic, phonological, and audiological aspects.

Design: The present paper is a methodological study for instrument translation; it provides a protocol and an example for the adaptation and standardization of the Mainzer Audiometric Test for Children (MATCH) to another language.

Methods: The adaptation process is divided into six phases: identifying test items and validating picture recognizability among children; ensuring linguistic conformity by comparing the phoneme distribution of the test vocabulary to spontaneous speech reference data; recording the speech material in a sound-treated environment following International Organization for Standardization (ISO) standards; equalizing the intelligibility of the recorded items through speech recognition testing in adults; standardizing the test on a cohort of normal-hearing children aged 3–6 years, stratified by age; finally, the diagnostic validity of the adapted test is evaluated by comparing speech recognition thresholds to pure-tone audiometry results in a clinical sample. Additionally, to determine sensitivity, specificity, and optimal cutoff points for detecting hearing loss, ROC analysis is used.

Figure of study protocol. The figure demonstrates the six phases of the test adaptation process.