

Spoken Language Outcome Monitoring in Children who are deaf/Hard-of-Hearing: A Critical Appraisal of Norm-referenced Tests

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BACKGROUND

Routine spoken language outcome monitoring is recommended in Early Hearing Detection & Intervention (EHDI) Programs to¹:

- Monitor individual children's progress towards developmentally appropriate spoken language
- Evaluate EHDI programs at the program-level
- Support comparisons of program outcomes between EHDI programs

There is currently limited evidence documenting which tools are the most psychometrically appropriate for these purposes.

METHOD

- 16 norm-referenced tests were included for psychometric appraisal based on a previous scoping review²
- These tests were evaluated across 5 domains of the *Consensus Based Standards for the Selection of Health Status Measurement Instruments (COSMIN) Checklist*³
- Tests were assigned a rating in each domain of + (acceptable), - (unacceptable) or ? (missing information)

RESULTS

- 8/16 tests met acceptable criteria in 4/5 domains
- Most tests (12/16) met acceptable criteria for reliability
- Validity information was missing from most tests (15/16) with information about internal structure missing the most often (14/16)



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RESULTS Cont.

	Internal Consistency	Reliability	Content Validity	Hypothesis Testing	Structure
PLS	+	+	+	+	?
CELF	+/-	+	+	+	+
CASL	+	+	+	+	?
GFTA	+	+	+	+	?
KLPA	+	+	+	+	?
DEAP	+	+/-	+	+/-	?
MBCDI	+/-	+	+	+	?
PPVT	+	+	+	+	?
SKI-HI	+	+/-	?	+	?
PLAI	?	+/-	?	+/-	+
OWLS	?	+/-	?	?	?
Vineland	+	+/-	?	+	?
Mullen	?	+/-	?	+	?
EOWPVT	+	+	+	-	?
TACL	+	?	?	+	?
Arizona	+	+	+	?	?

DISCUSSION

- The evaluated tests included omnibus tests of spoken language and domain specific tests (e.g., articulation, vocabulary)
 - Within each category of test, there was at least one test that was acceptable in 4/5 COSMIN domains
- Acceptable tests varied in their administration properties (e.g., inclusion of growth scale values, domains assessed, age range)
- Some psychometric properties (i.e., elements of validity) are consistently missing in spoken language assessments

REFERENCES

1. Muse, C., Harrison, J., Yoshinaga-Itano, C., Grimes, A., Brookhouser, P. E., Epstein, S., ... Martin, B. (2013). Supplement to the JCIH 2007 position statement: principles and guidelines for early intervention after confirmation that a child is deaf or hard of hearing. *Pediatrics*, 131(4), e1324-49. doi.org/10.1542/peds.2013-0008
2. Daub, O., Oram Cardy, J. (2017). *Spoken language outcome monitoring in children who are deaf/hard-of-hearing: A scoping review of assessment tools*. Poster presented at the Symposium for Research on Child Language Disorders.
3. Terwee, C. B. (2011). *Protocol for systematic reviews of measurement properties*. In Knowledge Center Measurement Instruments. Department of Epidemiology and Biostatistics, EMGO Institute for Health and Care Research, Amsterdam: The Netherlands.

We identified 8 norm-referenced tests as most psychometrically appropriate for use with children who are deaf/hard-of-hearing.

This offers Early Hearing Detection & Intervention programs and SLPs the flexibility to chose tools most appropriate to their unique clinical context.