

Assessing Morphosyntactic Development of Preschool Children who are DHH using the CELF-P



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I. Introduction

Best practices (JCIH, 2007; Houston & Caraway, 2010) outline that children with HL are assessed using standardized assessments normed on age-matched hearing peers

The Clinical Evaluation of Language Fundamentals-Preschool, 2nd Edition [CELF-P2 (Wiig, Secord, & Semel, 2004)] is a commonly used assessment because it evaluates multiple domains of language.

However, the Core Language score is often the only score used when determining eligibility for speech-language services

PURPOSE

To examine trends of the morphosyntactic development of preschool children who are DHH using the CELF-P2 standardized test.

RESEARCH QUESTIONS

1. Does the CELF Core Language Score accurately reflect morphosyntactic performance?
2. Are there trends in the morphosyntactic errors made by preschool children who are DHH?

Figure 1. The CELF-P2 provides composite scores across language domains

II. Methods

PARTICIPANTS

- 47 children with HL between ages 3 and 6 years of age
- All children attended an oral preschool program
- CELF-P2 tests administered by licensed Speech-Language Pathologist

PROCEDURE

An item analysis was completed for both the Sentence Structure and Word Structure subtests

Each item was coded as correct/incorrect/not administered

III. Results

Question 1:

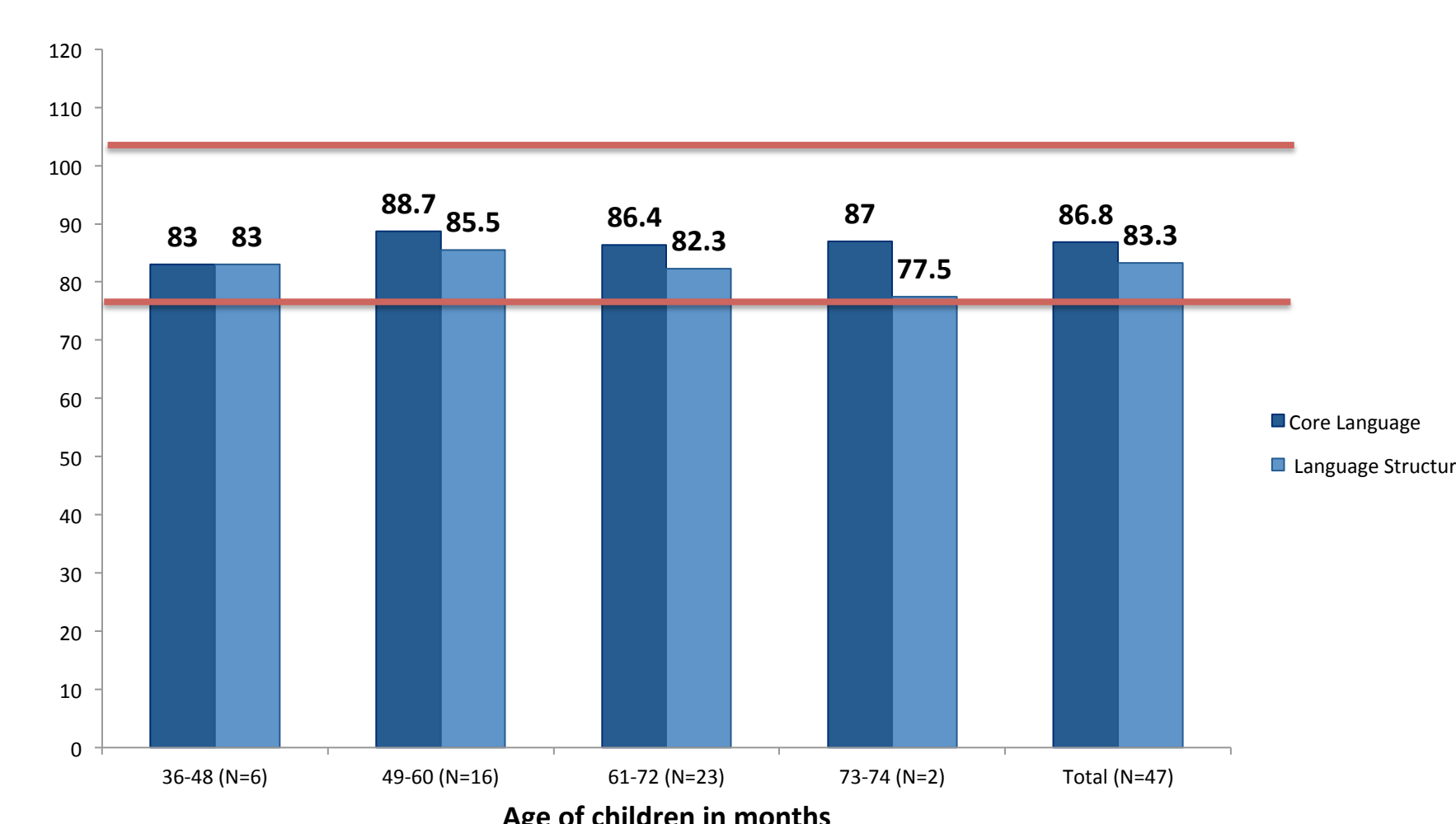
Does the Core Language score on the CELF-P2 reflect morphosyntactic performance?

Core Language: M= 86.79; SD=17.98

Language Structure: M= 83.30; SD=18.34

Statistically significant difference:
 $t(46)=5.254, p=.000$

Figure 2. Mean scores on Core Language and Language Structure by age of participants (Within Normal Limits (WNL) between 85-115)



Question 2:

Are there trends in the morphosyntactic errors made by preschool children who are DHH?

Item Number	Percentage missed (# missed/N)	Item Testing (example)
WS1	4	Progressive -ing (sleeping)
WS3	9	Preposition (in/inside the box)
WS2	13	Progressive -ing (walking)
WS5	21	Preposition (on the chair)
WS7	30	Copula -Contractible (It is big)
WS6	36	Pronoun -Objective (her)
WS20	39	Pronoun -Subjective (She does)
WS21	39	Copula -Uncontract/Auxiliary (She is)
WS19	47	superlative (fastest)
WS14	48	Pronoun -subjective (He is)
WS15	48	Future tense (will slide)
WS8	51	Pronoun -Objective (him)
WS16	53	Pronoun -Reflexive (herself)
WS10	58	Regular Plural (horses)
WS12	58	Possessive Noun (king's)
WS18	58	Comparative (faster)
WS11	60	Third Person Singular (flies)
WS4	60	Pronoun -Possessive (hers)
WS13	63	Noun Derivation (singer)
WS23	64	Irregular Past (blew)
WS9	68	Third Person Singular (sleeps)
WS17	75	Regular Past Tense (climbed)
WS24	80	Irregular Past Tense (fell)
WS22	83	Copula -Uncontract/Auxiliary (They are)

Figure 5. Child #21 Performance on CELF and item analysis for Word Structure subtest

Core Language Standard Score: 86 (normal limits 85-115)
Sentence Structure Scaled Score: 9 (normal limits 8 - 12)
Expressive Vocabulary Scaled Score: 8
Word Structure Scaled Score: 6

Item	Norpheme	Example
#4	Possessive pronoun	hers
#8	objective pronoun	him
#9	3 rd person singular	sleeps
#10	Regular plural	horses
#11	3 rd person singular	flies
#12	possessive noun	king's
#17	regular past tense	climbed
#18	derivational form - comparative	faster
#22	copula - uncontract./auxiliary	they are
#23	Irregular past	blew

Figure 6. Error Patterns Noted In Frequency

Produced - highlighted blue (Adapted from Cole & Flexer, 2011)

250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz
First formant of vowels /u/ and /i/	First formants of most vowels.	The important Acoustic cues for manner of articulation	The important acoustic cues for place of articulation	The key for /s/ and /z/
Fundamental Frequencies of female's and children's voices	Harmonics of all voices (male, female, child)	Second formants of back and central vowels	The key frequency for speech intelligibility	plurals idioms possessives auxiliaries
Nasal murmur Associated with the Phonemes /m, n, ng/	Voicing cues	C-V and V-C transition information	Second and third formant information for front vowels	third person singular verb forms
Prosody	Nasality cues	Some Plosive bursts	C-V and V-C transition information	questions copulas past perfect
Voicing cues		Unstressed morphemes	Fricative turbulence	

IV. Conclusions

•On average, children with HL are performing within the standard limits on the CELF-P2 Core Language Score Test.

•The composite standard scores do not accurately reflect the morphosyntactic errors.

•Clinically, SLPs should incorporate information re: performance on the Word Structure subtest for eligibility, intervention, and collaboration with audiologists

•Criterion referenced assessments (such as language samples) can be used to monitor morphological development and supplement standardized assessments.