When Average Isn’t Average Enough: Morphosyntactic Abilities in Toddlers With Hearing Loss

Kameron Carden, University of Alabama, Department of Special Education and Multiple Abilities, Ph.D. Program
R.A. McWilliam, Ph.D., Faculty Mentor
The University of Alabama

ABSTRACT
At age 3, even children who are typically developing are observed to vary widely in expressive language (Novogrodsky et al., 2018). Because of that typical pattern of variability, the gap between “average” and the language skills of a toddler with hearing loss (HL) is often not yet large enough to qualify for the special-education category of hearing impairment, based on standardized assessment alone. We need to ensure we are selecting valid, sensitive measures to make those first determinations beyond early intervention (i.e., infant-toddler services).

The current study proposes to:
Compare performance on a commonly used standardized language measure with a morphology composite obtained from conversational language sample analysis (LSA) in 20 toddlers with HL using listening and spoken language and 20 toddlers with typical hearing (TH) ranging in age from 2;6 to 2;11

HYPOTHESES
H1. Toddlers with HL will display greater variability of early developing morpheme use in spontaneous language as measured by a morphology composite, specifically regular plural -s, irregular past tense, and possessive -s, when compared with age-matched peers with TH.

H2. No significant difference in expressive language scores on a commonly used standardized assessment will be observed between toddlers with HL and those with TH.

INTRODUCTION
Preschoolers Ages 3-5 with Hearing Loss
• Score within 1.5 standard deviations (SDs) of the mean on standardized language assessments (Werfel & Douglas, 2017)
• Demonstrate less lexical diversity and shorter mean length of utterance (MLU), greater number of word omissions, and different types of morphosyntactic errors than children with typical hearing (Werfel & Douglas, 2017; Werfel, 2018)
• Fall > 1 SD below the mean on a finite verb morphology composite calculated from LSA (Koehlinger et al., 2013)

Developmental Language Variability
• Toddlers (24 to 37 mo.) with hearing loss demonstrated similar total scores with high group variability on a novel Hebrew sentence imitation task; no children with hearing loss repeated a 4-word sentence correctly, while 7 of the typically hearing children demonstrated 4-word sentence mastery (Novogrodsky et al., 2018)

Eligibility Determinations
• Assessment for initial eligibility for Part B special education services is conducted between 2;6-2;11
• Current literature on sensitivity of LSA for detecting morphosyntactic differences concentrates on preschoolers 3 years+

PROPOSED METHODS
Participants
• 20 Toddlers with HL ages 2;6 to 2;11 who received bilateral cochlear implants or began using hearing aids binaurally prior to 12 months of age, are enrolled in state early intervention due to hearing loss alone, use listening and spoken language
• 20 Toddlers with TH and typical global development ages 2;6 to 2;11 recruited as control group based upon geographical representation

Instruments and Procedures
• Preschool Language Scale – 5 (PLS-5): Auditory Comprehension, Expressive Communication, and Total Language Composite will be obtained for each child but only the Expressive Communication standard score will be used for analysis
• Conversational LSA: a 12-min. conversational language sample will be elicited using the Hadley (1998) protocol (personal narrative, expository explanation, and story retelling using picture supports) between caregiver-child dyads
• Language samples will be audio-recorded and transcribed using a three-step process (trained graduate student, trained SLP, senior clinician)
• Morphology composite will be generated using following developmental morphemes (Eisenberg & Guo, 2016): regular plural -s, irregular past tense, and possessive -s
• Morphology composite = number of correct collective uses of the three target morphemes divided by the total number of obligatory contexts multiplied by 100

Analyses
• Independent variable: hearing ability
• Dependent variables: Expressive Communication score on the PLS-5 and morphology composite obtained from conversational LSA
• Descriptive statistics will be used to analyze the Expressive Communication scores and morphology composite scores (means and standard deviations)
• Inferential statistics and Cohen’s d effect sizes will be used to quantify standard score and morphology composite comparisons between groups (independent samples t-tests)

CONCLUSIONS/SIGNIFICANCE
Results from the current study could:
1. Advance the field of assessment practices for toddlers with HL
2. Indicate LSA as a more sensitive morphosyntactic assessment measure for toddlers with HL
3. Provide support for the use of morphology composites as more sensitive expressive language measure when making initial eligibility decisions for toddlers with HL at age 3
4. Reinforce the critical need for continued special education service provision following early intervention for toddlers with HL whether or not standardized assessment results fall within the average range.

CONTACT
Kameron Carden
Ph.D. Program, College of Education, Special Education and Multiple Abilities
Email: kcarden1@crimson.ua.edu
Phone: (912) 283-8561

REFERENCES