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Phonological Profiles in 2-year-olds with Expressive-Only and Expressive-Receptive Language Delay: Pilot Study

Kristin VanWyngaarden, B.S. and Shari Deveney, Ph.D.

Background

• Late Talkers (LTs): Under age of 3 with language delay
  • Fewer than 50 words; no/few 2-word phrases
  • Not secondary/other conditions (e.g., Autism, hearing impairment)

• Two subgroups:
  • Expressive-only (E-O); Expressive-Receptive (E-R)
  • E-O LTs speech sounds less developed than peers (Carson et al., 2003; Rescorla & Ratner, 1996; MacRoy-Higgins et al., 2012)
  • Know little about speech sound development of E-R LTs, expect to be less developed since overall exhibit less expressive communication
    • Decreased use of gestures (Thal, Tobias, Morrison, 1991; Thal & Tobias, 1992)
  • Theoretical basis:
    • Bidirectional system (Gershkoff-Stowe & Hahn, 2007)
    • Connectionist model (Storkel & Morristette, 2002)

• Important for:
  • Clinical implications: Identification and appropriate early intervention
  • Role of comprehension: Potential influence of an expressive speech sound output

• Phonological profile analyses:
  • Percent Consonants Correct-Revised (PCC-R): Percent of consonant sounds accurately produced when compared to adult target sounds (relational analysis)
  • Phonetic Inventory: Sounds produced without regard to accuracy or comparison to adult speech (independent analysis)

Research Questions

• Are there differences in phonetic repertoires between 2-year-old toddlers: Children identified as expressive-only language delayed and 2-year-old toddlers identified as expressive and receptive language delayed?

• Are there differences in terms of percent consonant correct compared to the adult target word forms between 2-year-old toddlers: identified as expressive-only language delayed and 2-year-old toddlers identified as expressive and receptive language delayed?

Methods

• 8 participants: Ages 2.0 months to 2.7 months
  • Mean: 2.3; SD: 2748; 5 E-O; 3 E-R
  • 15-minute speech sample with parent at child’s home (M = 15.15 minutes; SD = .87)
  • Video-recorded and transcribed by faculty advisor and graduate student independently; each using International Phonetic Alphabet (IPA)
    • All vocalizations (including babble) transcribed
    • Frequently noted session times
    • Only vocalizations interpreted as same by both included in analyses

  • Inter-Rater Reliability: 10.14% Disagreement; 73 out of 720 total consonants sounds

Preliminary conclusions

Phonetic Inventory:

• Both groups of late talking children exhibited smaller phonetic inventories compared with typically developing 2-year-olds (11 initial consonants; 6 final consonants)
• Phonetic inventories of E-O LTs in present study relatively consistent with previous research findings for this population in both initial and final position (Carson et al., 2003; Rescorla & Ratner, 1996)
• Contrary to expectations, phonetic inventory of E-R LTs was slightly larger than that of the E-O LTs in the present study; due to individual differences in small sample and inclusion of included speech sounds produced in babbling and jargon, not just true words; may indicate rich babble and jargon features prior to increased use of true word productions

Percent Consonants Correct (PCC-R):

• Both groups of late talking children exhibited lower PCC-R scores compared with typically developing 2-year-olds (approximately 89.65%)
• PCC-R scores of E-O LTs in present study relatively consistent with previous research findings for this population (MacRoy-Higgins et al., 2012; Perry et al., 1997)
• Consistent with expectations, PCC-R scores of E-R LTs was lower than that of E-O LTs; indicating a relatively more impaired functional phonological profile for E-R LTs

Overall:

• Both E-O and E-R LTs appear to be delayed in both areas of expressive vocabulary and phonological development
• Present study adds support to notion that underlying weakness in phonological development may contribute to delayed vocabulary development for this population
• Children identified as E-R LTs may have delayed phonological development compared to E-O LTs indicating role of comprehension in phonological development
• More research is needed

Limitations and Future Directions

• Small sample size allows of one participant to potentially skew data; replication targeted study with a larger group comparison
• Inclusion of babble and jargon may have inflated phonetic inventory; Replicate study and analyze only true word productions
• Small number of phonological profile features investigated; examine additional aspects such as syllable structure and/or percent vowels correct
• Culturally/linguistically homogenous sample; recruit more culturally/linguistically diverse participants in future studies

Selected References
