Classification Validity of the Preschool Language Scale-5 Screener

Pennsylvania Speech-Language-Hearing Association
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Disclosure Statement

- Financial: No Relevant Financial Interests to disclose

- Non-Financial: No Relevant Non-Financial Interests to disclose

Dr. Magnuson and Dr. Wolf are employed by East Stroudsburg University in the Department of Speech-Language Pathology.

Emily Doll received a Master of Arts degree in Applied Developmental Psychology at George Mason University and is currently enrolled in the Master of Science degree in Speech-Language Pathology at East Stroudsburg University.
Goals for Today's Session

- Discuss the need for valid and reliable screening instruments and protocols
- Raise awareness of some of the key research issues associated with screening protocols
- Provide an overview of the implementation of classification validity studies in school and clinical settings.
- Provide an overview of a research study that looked at the classification validity the PLS-5 screener in “real world” settings
  - For identification of children needing further assessment in
    - Speech
    - Language
- Provide suggestions for the SLP when considering mass screenings and selection of screening instruments.
Early Identification

Early identification of children with speech/language disorders is important for mitigating later deleterious social-emotional and academic effects (Catts, Fey, Tomblin, & Zhang, 2002; Torgesen et al., 1999).
Overview of Current Research on Preschool Speech/Language Screening Instruments

Independent studies verifying the effectiveness of universal screeners are limited (Jenkins, Hudson, & Johnson, 2007).

Over-referral results in wasted time and resources, while under-referral results in missed opportunities for intervention and potential negative long-term ramifications.
Key Test Metrics to Screening Selection
Definition and Calculations of Classification Indices

- **Sensitivity**
  - probability that the screening test will accurately identify those who need further evaluation of articulation or language abilities \( \frac{a}{a+c} \)

- **Specificity**
  - probability that children without articulation or language problems will pass the screening test \( \frac{d}{b+d} \)
Definition and Calculations of Classification Indices

- **Positive Predictive Value**
  - probability that those referred by screener will exhibit articulation or language deficits
  - \( \frac{a}{a+b} \)

- **Negative Predictive Value**
  - probability that those who pass the screening test will not exhibit articulation or language deficits
  - \( \frac{d}{c+d} \)
Purpose of Current Study

This study assessed the validity of the Preschool Language Scales 5th Edition Screening Test for identification of preschool age children needing further assessment of speech and/or language.

Hypothesis:

- PLS-5 Screening Test will demonstrate adequate (>0.75) classification validity indices (sensitivity, specificity, positive and negative predictive values)
Measures

- **Preschool Language Scales (5th Ed.) Screening Test** (Zimmerman, Steiner, & Pond, 2012) Normed on ages 0:0 – 7:11
  - Administration: 5-10 minutes
  - Identifies children who need further assessment of articulation, language, social/interpersonal skills, fluency, and voice
  - Uses items/tasks selected from full PLS-5 assessment

- **Goldman-Fristoe Test of Articulation (2nd Ed.)** (Goldman & Fristoe, 2000) Normed on ages 2:0-19:11
  - Administration: 5-15 minutes
  - Assesses ability to produce all English consonants and some common consonant clusters

- **Clinical Evaluation of Language Fundamentals-Preschool (2nd Ed.)** (Semel, Wiig, & Secord, 2004) Normed on ages 3:0-6:11
  - Administration: 15-20 minutes
  - Core Language Score assesses general language ability and presence of language disorders
Methodology of Current Study

IRB approval for both sites sought and received by the East Stroudsburg University Institutional Review Board.

Agreements between both sites regarding research IRB and it’s implementation at the sites.

All children passed a hearing screening at the time of screening administration.
Systematic Checks

- Re-scoring of PLS-5 screener
- Re-scoring of CELF-P 2nd edition
- Re-scoring of Goldman-Fristoe Test of Articulation 2
Montessori Style Private Preschool

- **Participants** ($N =$ )
  - All preschool students enrolled in a private, half-day preschool program in eastern PA invited to participate
  - Exclusion criteria: failed hearing screening ($N =$

- Demographics: Age: range from 2;3 to 5;7 years; $M \text{ age } = 4;1$
- 15 Males, 11 Females

- Participants screened in January and February 2015; evaluated in February and March 2015
- *Mean number of days between screening and evaluation* = 31
Head Start

- **Participants** ($N =$)
  - All preschool students enrolled in the federally funded Head Start preschool program in eastern PA invited to participate
  - Exclusion criteria: failed hearing screening ($N =$)
  - Demographics: Age: range from ; to ; years; $M\ age =$ ;
    - __ Males, __ Females

- Participants screened in ______ and _____ 2014
- Evaluated in _______ and __________
  - *Mean number of days between screening and evaluation =___*
Combined Subject

- N =
- Mean Age:
- Age Range:
### PLS-5 Screening Test: Articulation Classification Validity (N = 54)

<table>
<thead>
<tr>
<th></th>
<th>Fail Eval.</th>
<th>Pass Eval.</th>
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<tbody>
<tr>
<td>Fail Screen</td>
<td>a. True</td>
<td>b. False</td>
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<tr>
<td>Screen Positives (N =  )</td>
<td>Positives (N =  )</td>
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<tr>
<td>Pass Screen</td>
<td>c. False</td>
<td>d. True</td>
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<tr>
<td>Screen Negatives (N =  )</td>
<td>Negatives (N =  )</td>
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## PLS-5 Screening Test: Language Classification Validity  \( N = \)

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<tr>
<td>Fail</td>
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<tr>
<td>Screen</td>
<td>Negatives ( (N = ) )</td>
<td>Negatives ( (N = ) )</td>
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### Classification Accuracy Values: PLS-5 Screening Test for Predicting Referral on Speech and Language Evaluations

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<thead>
<tr>
<th>Measure</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
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<tbody>
<tr>
<td>Articulation</td>
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References


