Assessing Executive Function in an Adolescent PAE Population: Examining the Predictiveness of Verbal and Nonverbal Accuracy vs. Response Time for FASD Diagnostic Assessment

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Introduction

- EF is a broad domain evaluated as part of an FASD diagnostic assessment
  - Response time vs. Accuracy
  - Applied EF skills
- Aspects of EF skills in adolescence have been associated with PAE
  - E.g., information processing, task persistence, following directions, decision-making
- Age-related differences in PAE and FASD populations
  - Difficulties with letter fluency, inhibition/switching, word context tasks, trail making tests
  - Deficits in visual scanning and letter sequencing were more predictive of an FASD diagnosis in an adolescent population

Goals and Learning Objectives

- Create subcategories within the executive functioning (EF) domain to better differentiate which EF measures predict an FASD diagnosis within an adolescent PAE population

- Examine which of the following subcategories of EF measures most accurately differentiate adolescents with FASD:
  - Verbal executive functioning measures
    - Accuracy
    - Response time
  - Nonverbal executive functioning measures
    - Accuracy
    - Response time

- Identify the utility of parent versus teacher rating scales of applied executive functioning skills for an FASD diagnostic assessment

Psychology Assessment

Informs Following Domains:

- Cognition
- Academic Achievement
- Adaptive Functioning
- Memory
- Executive Functioning
- Attention
- Affect Regulation

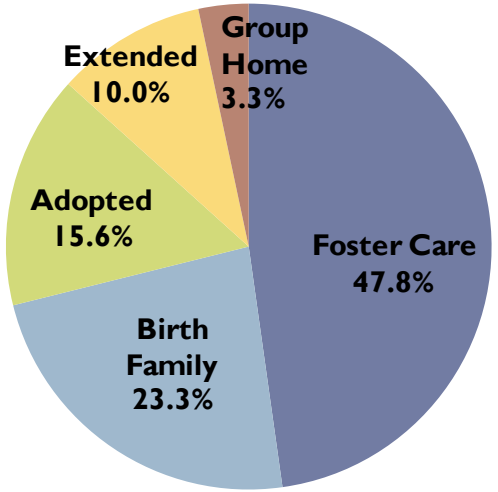
Obtained Through:

- Background Information
- Formal One to One Assessment
- Behavioral Observation
- Parent & Teacher Rating Measures
- Discussion with Other Team Members

Sample

- N = 90 adolescents
- 54 (60%) with FASD dx
- Mean Age = 14.29 years (12 to 17 years)
- 49 (54.4%) boys
- 45 (50%) diagnosed with ADHD

- Primary Caregiver



Measures

- Behavior Rating Inventory of Executive Function (BRIEF)
  - Parent and teacher rating scales
  - Global Executive Composite
    - Behavior regulation
    - Metacognitive skills
- Delis-Kaplan Executive Function System (D-KEFS)
  - Verbal
    - Verbal fluency
    - Color-word interference
  - Nonverbal
    - Trail making test
    - Tower test

BLUE	GREEN	YELLOW
PINK	RED	ORANGE
GREY	BLACK	PURPLE
TAN	WHITE	BROWN

BLUE

GREEN

YELLOW

PINK

RED

ORANGE

GREY

BLACK

PURPLE

TAN

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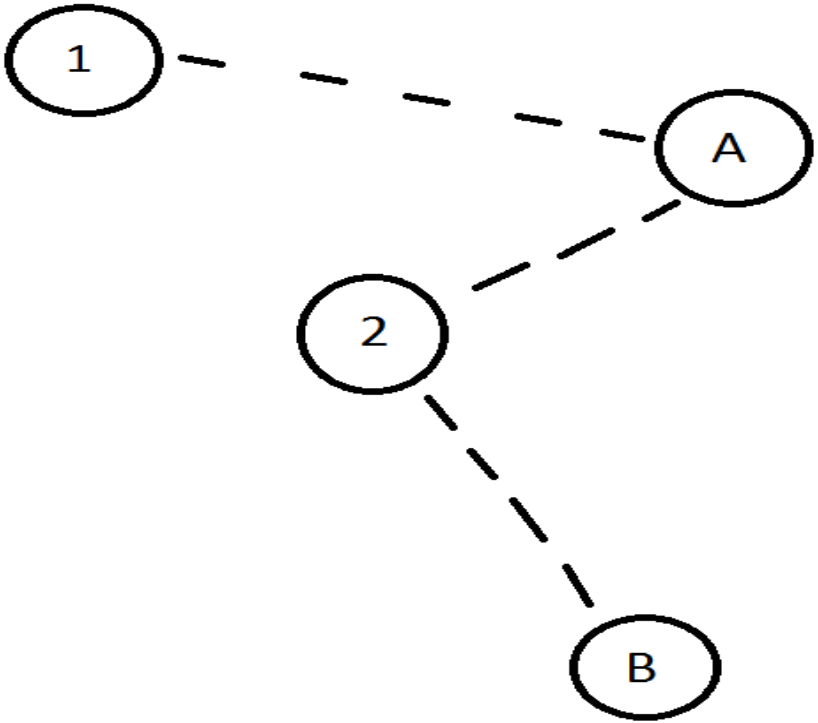
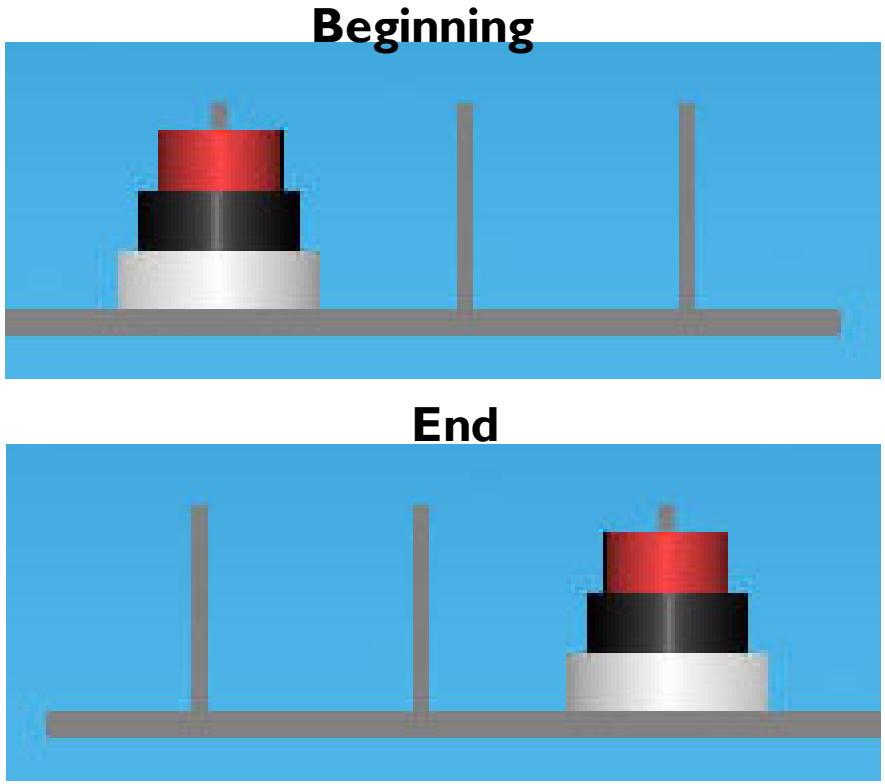
BROWN

Trail Making and Tower Tests

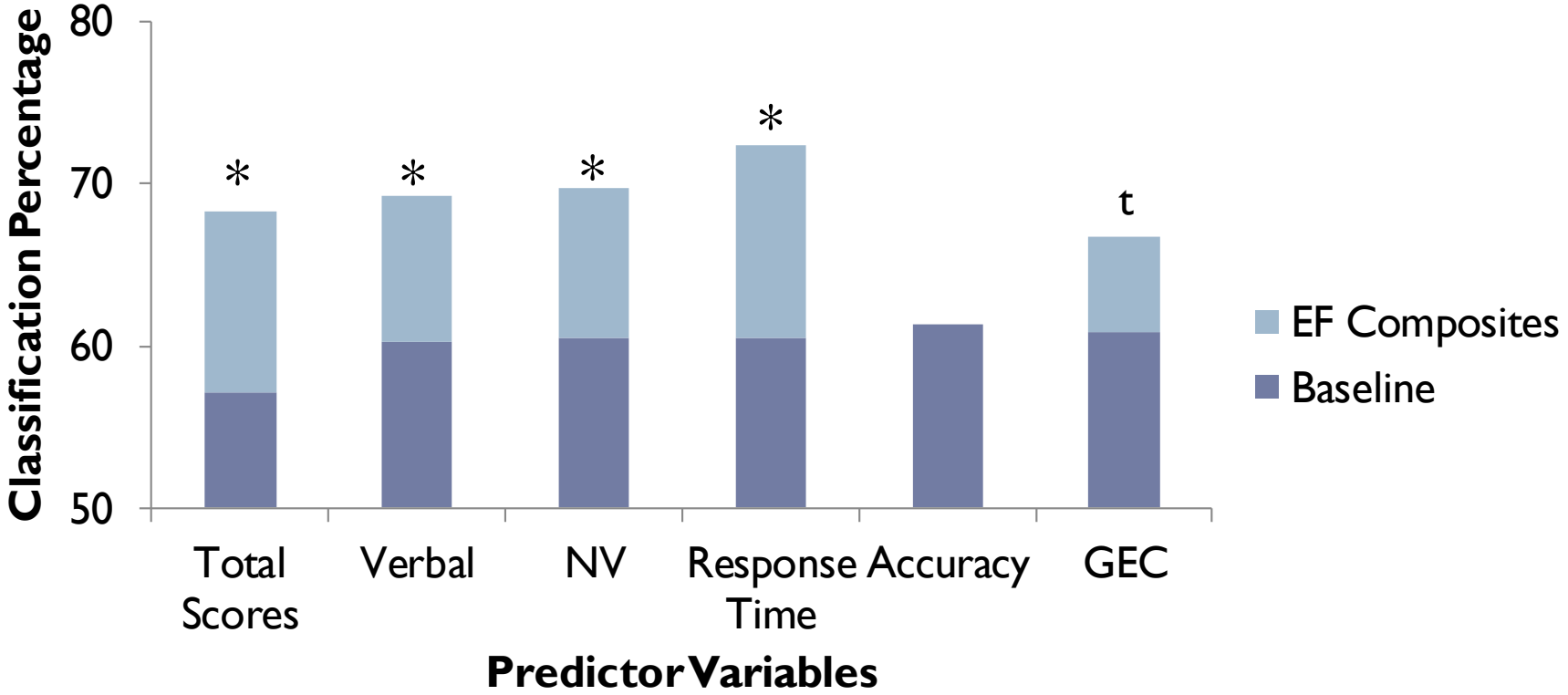




Pre-Analyses

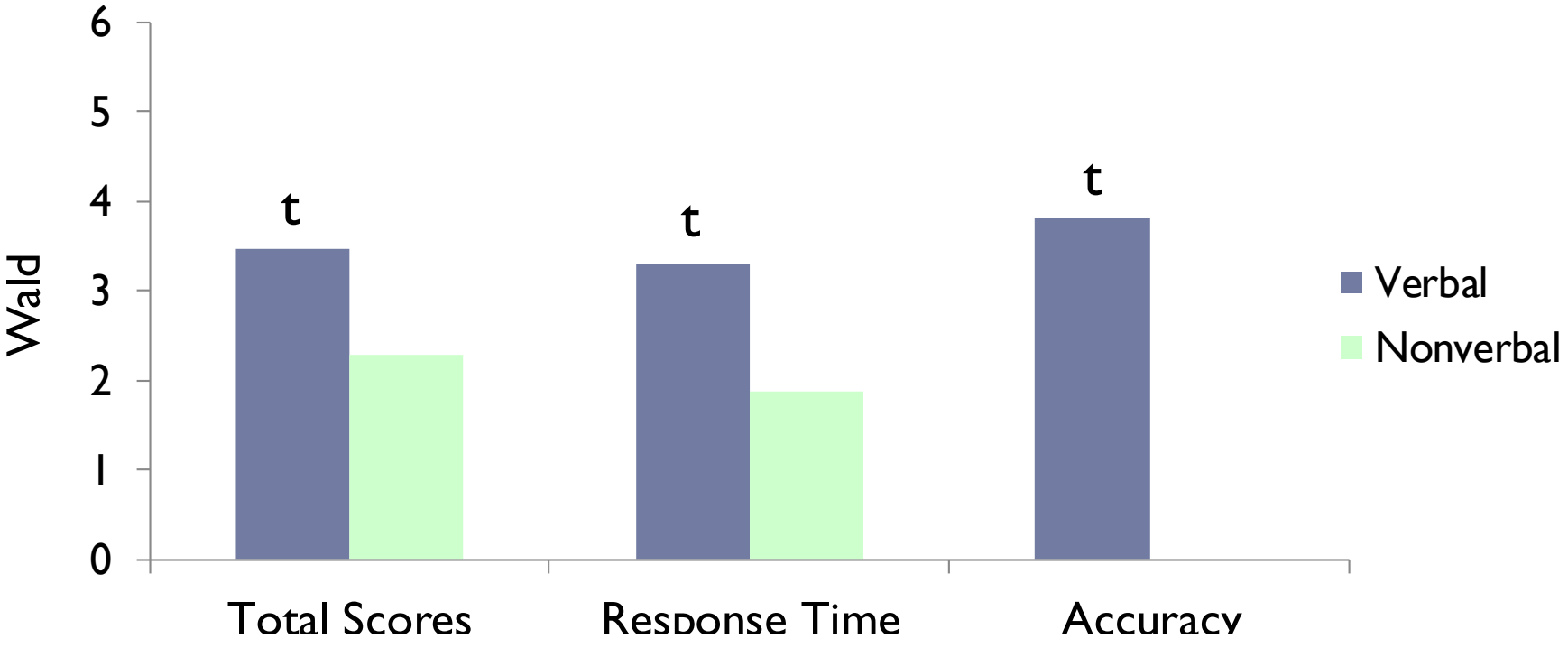
- Combined D-KEFS Scaled Scores into the following subcategories:
  - Verbal EF Total Score; Verbal EF Response Time; Verbal EF Accuracy
  - Nonverbal EF Total Score; Nonverbal EF Response Time; Nonverbal EF Accuracy
- Examined Scaled Scores and T-scores
  - Converted to z-scores for analyses
- Statistical Analyses
  - Bivariate correlations
  - Direct logistic regressions

Logistic Regressions: Do the EF Composites Improve Diagnostic Accuracy?



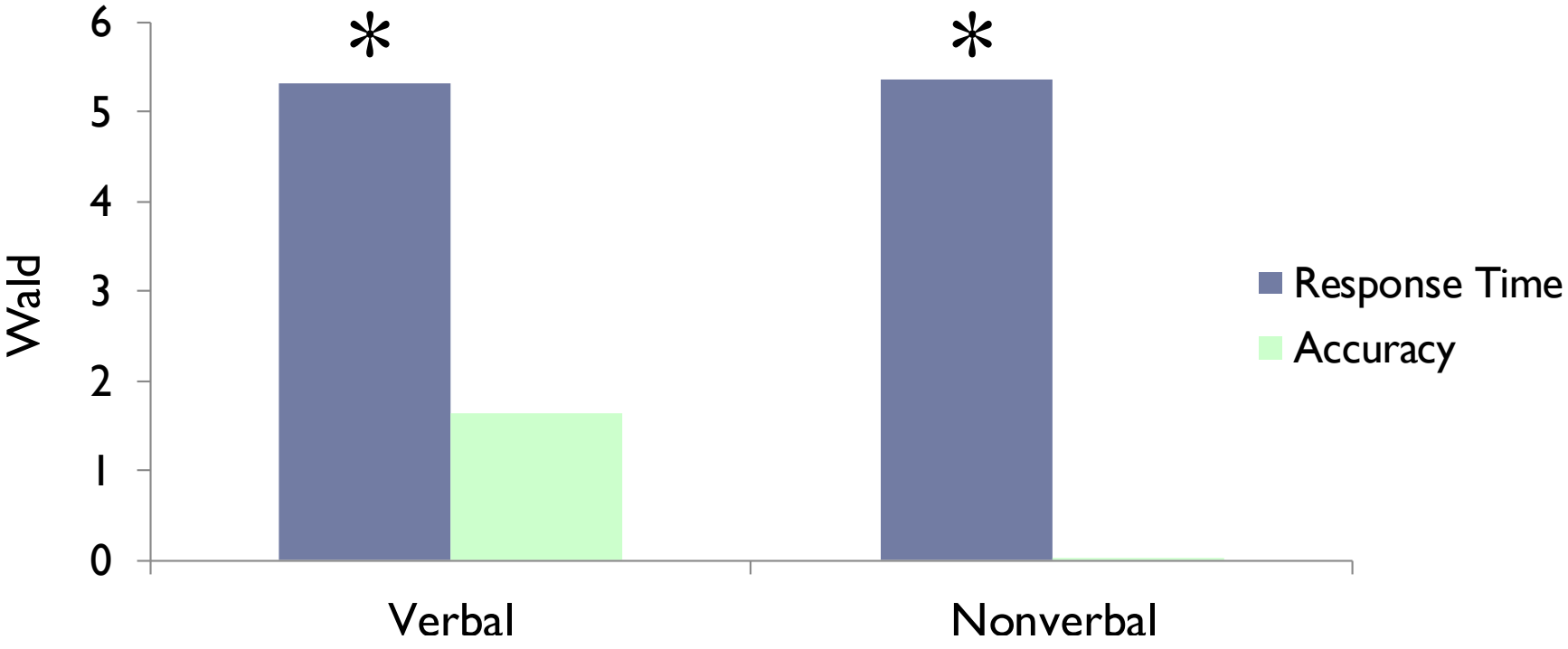
N = 51-78, χ^2= 4.35-10.87, df= 2, p= .11-.004, Nagelkerke R^2= .08-.18

Which EF Composites Predicted an FASD Diagnosis?



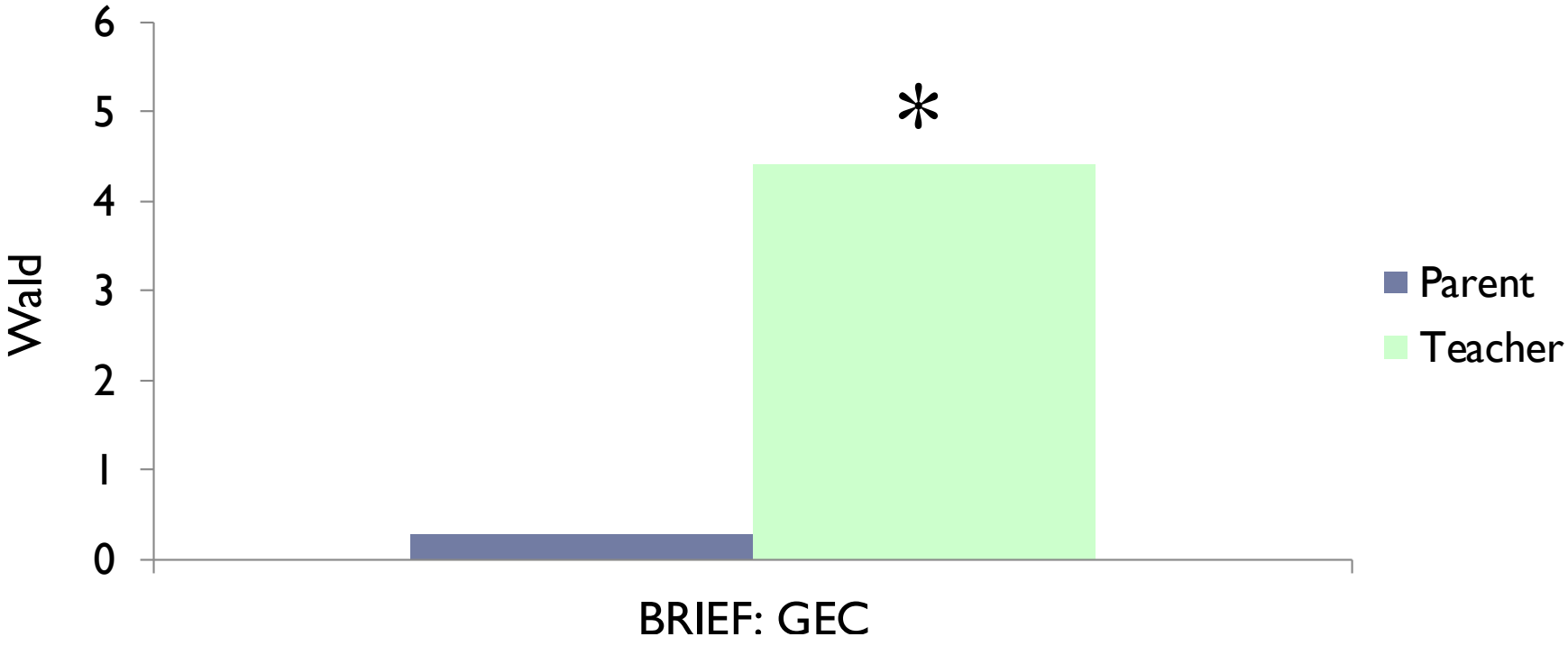
p = .99 - .05

Which Response Measures Predicted an FASD Diagnosis?



p = .87 - .02

Which BRIEF GEC Predicted an FASD Diagnosis?



p = .60 - .04

Results Summary

- EF subcategories differentiated adolescents who received an FASD dx from those that did not (except Accuracy)
- Verbal ≈ Nonverbal EF measures
  - Verbal measures > Nonverbal measures (trends)
    - Total Scores; Response Time; Accuracy
- Response Time > Accuracy for both Verbal and Nonverbal
- Teacher ratings of global executive dysfunction > parent ratings

Contributions & Future Directions

- Clearer understanding of the deficits that can be seen when using EF measures in a testing setting
  - Response Time; Verbally-loaded EF skills (trend)
- Improve diagnostic accuracy and procedures
- Specifies deficits to target for intervention and adaptations to environments
- Apply the EF subcategories to a school-age population
- Examine ADHD in conjunction with FASD using these subcategories
- Prospective longitudinal studies

Acknowledgements

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Thank you!

Questions? Comments?