Structural Validity of a Computerized Neurocognitive Battery for Youth Affected by Human Immunodeficiency Virus in Botswana

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Background
- Perinatal human Immunodeficiency Virus (HIV) infection and exposure (HEU) increase risk of neurocognitive impairment among children
- Sub-Saharan Africa (SSA) is high HIV burden area, but cognitive screening is limited
- Penn Computerized Neurocognitive Battery (PennCNB) adapted for use in Botswana

Objective: To assess the structural validity of the PennCNB adapted for use in Botswana

Computerized Neurocognitive Battery
- Streamlines neurocognitive assessment
- Computerized & “game-like” tests
- Measures performance accuracy and response speed on major cognitive domains
- Low-cost & publicly-available

Methodology
- Botswana-Baylor Children’s Clinical Centre of Excellence
- N=209, 7-17 years, HIV+ & HEU
- Mean age= 11.54 years
- Setswana (90%) PennCNB, English (10%) PennCNB
- Efficiency score = scale (speed z-score + accuracy z-score)
- Confirmatory & exploratory factor analysis

Results

Confirmatory Factor Analysis

Conclusions
- Acceptable fit- confirms theoretical design of battery
- High inter-factor correlation
- EFA suggests tests measuring executive functioning and sensorimotor/processing speed cluster together
- Insight into validity of battery adapted for use in non-Western setting
- Useful tool for Botswana and resource-limited settings

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