Sensitivity of the Means-End Problem Solving Assessment Tool (MEPSAT) for Discriminating Among Children with Varying Levels of Motor Delay

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**Introduction**

Means-end problem-solving (MEPS) tasks can serve as early indicators of children’s cognitive development. Delays in MEPS performance have been demonstrated in infants at risk for developmental delays [1,2]. The Means-End Problem-Solving Assessment Tool (MEPSAT) was recently developed for early assessment of MEPS.

The purpose of this study was to verify whether the MEPSAT is sensitive to distinguish developmental trends and differences among children with varying levels of motor delay.

**Methods**

- 30 children with motor delays, 7-16 months of corrected age (Mean=10.4, SD=2.4 months).
- Children were classified by the severity of their motor delay (n=10 mild; n=10 moderate; and n=10 severe) based on a scale incorporating Gross Motor Functional Classification System (GMFCS) level [3], distribution of motor deficit, and active movement observed [4]
- Children were assessed longitudinally at 5 visits across 1-1.5-years in their homes.
- At each visit, infants engaged in a MEPS task: pulling a towel to retrieve a distant, supported toy (Figure 1).

**Results**

- The interaction between time and severity was not significant for both outcome variables, meaning that developmental trajectories for different severity groups had approximately the same rate of change: children starting the study with severe delays did not seem to catch up with children having mild or moderate delays by the end of the study (in 12 months).
- There was a significant main effect of severity for means-end learning [F(2,26)=4.22, p=.026] and level of means-end performance [F(2,27)=9.07, p=.001].

**Conclusions**

The MEPSAT was sensitive to identify differences in MEPS among children with varying levels of motor delay. The MEPSAT might be simple, effective, and sensitive tool for screening early problem-solving delays in children with a range of developmental abilities and for evaluating change across time. The MEPSAT might be used in clinical and research settings to assess the efficacy of interventions aimed at advancing problem-solving skills, motor ability, and cognitive outcomes in children at risk for delays.

**References**


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