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Title: IADL of children with ADHD in comparison to typical children: Establishing construct and criterion validity for the Do-Eat assessment

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Abstract

Children with Attention Deficit Hyperactivity Disorder (ADHD) experience difficulties in performing Instrumental Activities of Daily Living (IADL). The literature emphasizes the requirement to evaluate IADL among this population using a performance-based tool. Due to the absence of such a tool for evaluating young children the Do-Eat assessment (Goffer, Rosenblum & Josman, 2009) was developed. This is a valid ecological assessment tool that focuses on food preparation, drawing, writing and cutting. The assessment is based on top-down and bottom-up approaches, and can be administered in the child's natural surroundings. Throughout the child's performance on the Do-Eat, he or she receives (1) a task performance score, (2) a sensory-motor skill analysis score, (3) an Executive Function (EF) analysis score and (4) a score for the level of mediation required to perform tasks independently (Josman, Goffer & Rosenblum, 2010). The Do-Eat includes a functional parent questionnaire, which contributes information about the child's performance in his/her natural environment.

The **objectives** of the current study were to validate the Do-Eat by:

1. Establishing construct (discriminative) validity by comparing functional performance between children with ADHD and children with typical development.

2. Establishing criterion (concurrent) validity by examining the correlations between the Do-Eat score and the scores of two other validated assessment tools: the BRIEF questionnaire for assessing Executive Functions (EF), and the Children Activity Scales questionnaire (ChAS-P; Rosenblum, 2006) for assessing sensory-motor skills.

3. Establishing criterion (predictive) validity by a discriminant analysis.

The first study hypothesis was that differences between children with ADHD and typical controls would emerge in all of the Do-Eat scores. **The second hypothesis** was that positive and significant correlations would be revealed between the general EF score of the Do-Eat and the Global Executive Composite of the BRIEF, and between the general sensory-motor score of the Do-Eat and the ChAS-P score. **The third hypothesis** was that the Do-Eat scores would enable differentiation between the children with ADHD and the controls.

Participants: the study included 23 children with ADHD and 24 controls with typical development and without behavior concerns. Of the 47 children, 30 were boys and 17 were girls. The ADHD children were recruited from the Maccabi Health Care Service Attention Clinic in northern Israel. The controls were recruited through friends and colleagues, and matched by age, gender and socioeconomic status.

Measures: The Connor's Parent Rating Scale-Revised-Short Form and two subtests of Wechsler Intelligence Scale for Children-III (Wechsler, 1992) were used to determine the participants' suitability for the study. Five other measures were used to evaluate the participants and to gather information concerning their development and functioning: demographic questionnaire; medical history questionnaire; questionnaire addressing current and past functioning (Rosenblum et al, 2007), the Do-Eat assessment and questionnaire; the BRIEF and the ChAS-P.

Procedure: The participants completed the Wechsler subtests and Do-Eat tasks, while their parents simultaneously completed the study questionnaires.

Data analysis: The differences between the ADHD children and the controls were examined by Mann Whitney test for a-parametric variables, and the correlations between the Do-Eat and the other assessments (BRIEF and ChAS-P) were evaluated by the Spearman coefficient for a-parametric variables.

Results: The study hypothesis regarding the differences between the children with ADHD and the controls were confirmed. Significant differences were found in the general performance score, (Z= -3.72, p=.001), general scores for sensory-motor skills (Z= -3.41,

p=.001) and executive functions (Z= -4.77, p=.001), the general clue score (Z= -2.84, p=.005), and the final Do-Eat score (Z= -4.49, p=.000), so that the ADHD group scored lower on all measures. It was also found that parents of children with ADHD estimated their children's performance as significantly poorer than typical children's parents (Z= 8.44, p=.004).

Simultaneously, in the ADHD group, the BRIEF indexes and the general sensorymotor score of the Do-Eat correlated negatively and significantly. In the typical group, positive coefficient was found between the ChAS-P questionnaire score and the final Do-Eat score (rs=.45, p<.05). All coefficients were low to moderate range. Another important outcome revealed, by discriminant analysis, was that 93.2% of the study participants were classified correctly into their groups by only four of the Do-Eat variables.

Conclusions: The current study confirms that the Do-Eat can reveal valid information concerning the way children participate in IADL and learning tasks. Simultaneously, it can indicate the children's sensory-motor and EF performance skills, and the level of mediation needed for their independent performance. The Do-Eat was also found to be an efficient assessment tool for children with ADHD, as it provides insight into the implications of EF deficiency on these children's daily performance. All this information is obtained through a short, enjoyable assessment.