A Systematic Review on the Ecological Validity of Behavioral Rating Scales for Attention Deficit Hyperactivity Disorder

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INTRODUCTION

- Attention Deficit Hyperactivity Disorder (ADHD) is one of the most prevalent mental health disorders diagnosed among individuals aged 3–17 years in the U.S., affecting approximately one in 11 (9.4%–9.8%) children in this age range (Bitsko, 2022).
- Behavioral rating scales are a crucial component in the assessment of ADHD. It has been estimated that 85% of clinical psychologists use teacher rating scales to assess ADHD symptoms at school (Handler & DuPaul, 2005).
- Behavior rating scales may be particularly useful measures for the assessment of ADHD as they provide naturalistic information (i.e., ecological validity) about the kind of behavior that occurs across different settings, i.e., at home and at school (Barkley, 2019).
- Behavioral rating scales have been advocated as more ecologically valid and comprehensive tools for the assessment of ADHD symptoms (Barkley, 2019).
- Yet, there is a lack of empirical evidence to demonstrate whether behavioral rating scales are indeed ecologically valid measures, and reports from one source (i.e., parent) have been found to be inconsistent with reports from other sources (i.e., teacher; Goldstein & Naglieri, 2014).

OBJECTIVE

Meta-analysis was conducted to understand the veridicality of ADHD rating scales for parents and teachers with structured observations made by an expert.

DATA SELECTION

- This meta-analysis was conducted in accordance with PRISMA guidelines (figure 1).
- Apa PsycInfo, EBSCOHost (Medline), PsycArticle, Sage Journal, and Science Direct databases were searched.
- Inclusion criteria included peer-reviewed articles, written in English and included (1) participants diagnosed with ADHD, under age 18, and no other neurodevelopmental disorders; (2) blinded classroom observation rating made by trained observers; (3) rating scales completed by teacher and parent; (4) studies included in meta-analysis included Pearson's r between classroom observations and rating scales.
- Two reviewers screened for inclusion criteria blind to each other's answers through Covidence software. A third reviewer served as a moderator.
- Twelve studies were included in the systematic review and three studies correlations were complied into the meta-analysis.
- Pearson's correlation was chosen as the effect size for this meta-analysis
- The meta-analysis used R Studio to conduct data analysis

DATA SYNTHESIS

FIGURE 1: INCLUSION IN METANALYSIS

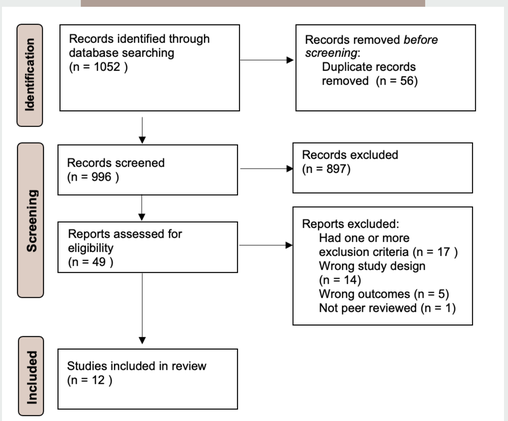


FIGURE 2: FOREST PLOT

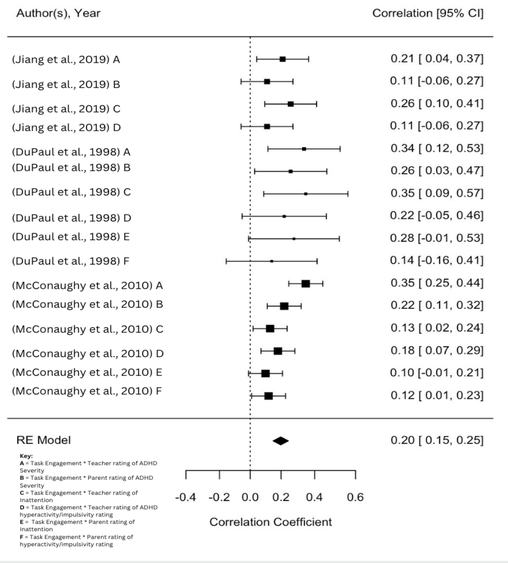
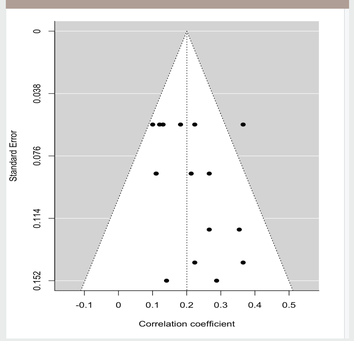


FIGURE 3 FUNNEL PLOT



RESULTS

- Meta-analysis yielded a significant combined effect size of direct structured observations and informant behavioral rating scales for children with ADHD across all studies (r = 0.2005, p < .0001) with low heterogeneity (Forest plot, figure 2; Q = 21.5921, p = 0.1190; I^2 = 36.27%; tau^2 = 0.0035, SE = 0.005).
  - There was no evidence of publication bias as assessed by a funnel plot (figure 3) which appeared symmetrical and statistical analysis [Egger's regression, z = 1.0805, p = 0.2799; Vevea and Hedges (1995) weight-function model to assess publication p <.0001].
- The domains of inattention, hyperactivity/impulsivity, and total scaled scores were assessed individually. No main effects were found. There was a significant interaction effect (r = 0.2647, p <.001)

CONCLUSIONS

- The data analysis showed veridicality across the three studies retained.
- A significant interaction effect between raters (teachers and parents) was also found.
- Across all studies considered for analysis, the outcome measures commonly included behavioral rating scales but lacked clinical observation. Research that included clinical observation was variable in setting and methodology.
- In sum, more research with multi-informant data, including clinician observations, is needed to further understand the ecological validity of behavioral rating sales when assessing ADHD symptoms.

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