Initial Psychometric Evaluation of the Observation of Preschoolers System (BOPS)

Alyssa Lundahl, Chris Campbell, Tiffany West, Elaine Martin & Dr. David J. Hansen
Department of Psychology, University of Nebraska – Lincoln

Introduction

CHILD BEHAVIORS
- Children who present early disruptive behaviors are at risk for conduct disorders, violent behavior, and drug abuse (Patterson, Delinquents, & Kolomaj, 2005).
  - It is important to administer evidence-based assessments to determine the appropriate method of intervention for children exhibiting problematic behaviors (Meek & Furness, 2005).

OBSERVATIONAL ASSESSMENTS
- Due to the multifaceted nature of child behavior, different methods of assessment can be used to capture its dimensions (i.e., parent- and teacher-report and/or live observations).
  - Live classroom observations allow for objective assessments in natural, rule-governed settings that may provide valuable information not obtained from teacher-report measures (Beggs, Beggs, & Tyler, 2010).

THE BEHAVIORAL OBSERVATION OF PRESCHOOLERS SYSTEM (BOPS)
- The BOPS (Campbell et al., 2010) was developed for use in Head Start classrooms with the goal of directly capturing all behaviors that can occur in preschool settings.
- The observational system is comprised of five scales and 35 behavior codes.

IMPORTANCE OF PSIHYOMETRIC PROPERTIES
- A measure that assesses the construct in a reliable and valid manner provides investigators with confidence that they are correctly interpreting results (Kovar, 2003).

PURPOSE
- The aim of this study was to conduct an initial psychometric evaluation of the BOPS by examining internal consistency, convergent validity, temporal stability, and sensitivity to treatment outcomes.

HYPOTHESES
- Good levels of internal consistency will be demonstrated for each subscale (Cronbach’s alpha ≥ .60).
- Convergent validity will be demonstrated by significant, positive correlations between the BOPS subscales and measures of similar constructs.

TEMPORAL STABILITY
- Temporal stability will be demonstrated by stronger correlations for weeks between treatment phases vs. between treatment phases.
- Significant, positive changes over time will indicate sensitivity to Teacher-Child Interaction Training (TCT; Campbell, 2011) treatment gains.

Methods

PARTICIPANTS
- Teachers (N = 6) ranged in age from 25 to 54 years, with 83.3% identifying as female and all identifying as European-American.
- Students (N = 77) ranged in age from 3.08 to 6.08 years, with 50.6% identifying as female and 62.3% identifying as European-American, 16.9% as Hispanic, and 30.4% as African-American.

Child Observation Coding System
- The Behavioral Observation of Preschoolers System (Campbell et al., 2010):
  - Identifies proactive and disruptive behaviors in preschool settings.
  - Comprised of 35 items and 5 subscales:
    - Cooperation with Teacher(s)/Adult(s), Peer Interaction(s), Prosocial Initiative Behavior(s), Challenging Behavior(s), and Atypical Behavior(s).
- Includes three independent behavior items:
  - Tasks of Daily Living, Observations, and Activities
  - Observational periods last 15 minutes and consist of 25-second observation intervals and 5-second behavior recording intervals.

TEACHER-REPORT MEASURES
- The Child Behavior Checklist - Teacher Rating Form (CBCL-TRF; Achenbach & Rescorla, 2000):
  - Assesses emotional and behavior problems, school performance, and adaptive functioning
  - Measures social competence, emotional regulation, adjustment patterns, and emergent problems
- Sutter-Ely Student Behavior Inventory Revised (SESBIR; Ely & Powers, 1995): Used in classrooms to identify and rate commonly observed behavior problems.

PROCEDURES
- Research assistants were trained to reliability (>.85) on the BOPS. Each child was observed twice weekly, for 16 weeks. Observations were performed from baseline to post-TCT.
- Teachers participated in TCT that included baseline (7 weeks), Child- Directed Interaction (CDI; 5 weeks), and Teacher-Directed Interaction (TDI; 4 weeks) phases.

Discussion

Evaluation of the psychometric properties of the BOPS produced mixed empirical support.

INTERNAL CONSISTENCY
- Cronbach’s alpha ranged from .30 to .84.
- “Good” reliability was demonstrated by the Challenging Behavior(s) subscale.
- Given the negative alpha coefficient of the Atypical Behavior(s) subscale, which was undoubtedly due to the rare occurrence of these behaviors, this subscale was not examined in subsequent analyses.

CONVERGENT VALIDITY
- Challenging Behavior(s) was found convergent with the CBCL-TRF/S-5.5 subscales, SCBE subscales, and the SESBI-R.
- Independent Observations was found convergent with the CBCL-TRF/S-5.5 subscales, SCBE subscales, and the SESBI-R.
- Peer Interaction(s) was found convergent with the SCBE subscales.
- Prosocial Initiative Behavior(s) was correlated in the unexpected direction with SCBE and SESBI-R subscales.

TEMPORAL STABILITY
- To assess temporal stability over 16 weeks of baseline and TCT, three-week intervals were administered.
- As expected, Cooperation with Teacher(s)/Adult(s), Peer Interaction(s), Independent Observations, and Independent Activities demonstrated a decrease in temporal stability as the number of weeks between assessments increased.
- Challenging Behavior(s) unexpectedly increased in temporal stability.
- Prosocial Initiative Behavior(s) and Tasks of Daily Living did not demonstrate temporal stability.

Sensitivity to Treatment (Figure 1)
- Analyses of variance revealed significant differences over treatment phases for the Cooperation with Teacher(s)/Adult(s) and Prosocial Initiative Behavior(s) subscales.
- “Groups with matching” supercript letters were not significantly different based on LSD post-hoc analyses.

Results

Table 1. Alpha Coefficients and Interrelationships among the BOPS Subscales

<table>
<thead>
<tr>
<th></th>
<th>CWTA</th>
<th>PI</th>
<th>PSB</th>
<th>TBI</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s</td>
<td>.81</td>
<td>.81</td>
<td>.81</td>
<td>.67</td>
<td>.64</td>
</tr>
<tr>
<td>TDI</td>
<td>.69</td>
<td>.69</td>
<td>.69</td>
<td>.71</td>
<td>.71</td>
</tr>
<tr>
<td>CID</td>
<td>.70</td>
<td>.70</td>
<td>.70</td>
<td>.71</td>
<td>.71</td>
</tr>
<tr>
<td>TDI &amp; CID</td>
<td>.68</td>
<td>.68</td>
<td>.68</td>
<td>.71</td>
<td>.71</td>
</tr>
</tbody>
</table>

Table 2. Correlations between BOPS subscales and items and other related measures

<table>
<thead>
<tr>
<th></th>
<th>CWTA</th>
<th>PI</th>
<th>PSB</th>
<th>TBI</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Problems</td>
<td>.68</td>
<td>.68</td>
<td>.68</td>
<td>.71</td>
<td>.71</td>
</tr>
<tr>
<td>TDI</td>
<td>.58</td>
<td>.58</td>
<td>.58</td>
<td>.63</td>
<td>.66</td>
</tr>
<tr>
<td>CID</td>
<td>.56</td>
<td>.56</td>
<td>.56</td>
<td>.60</td>
<td>.64</td>
</tr>
<tr>
<td>TDI &amp; CID</td>
<td>.55</td>
<td>.55</td>
<td>.55</td>
<td>.61</td>
<td>.65</td>
</tr>
</tbody>
</table>

Table 3. Average correlations of the BOPS Subscale Scores Across Increasing Intervals

<table>
<thead>
<tr>
<th></th>
<th>CWTA</th>
<th>PI</th>
<th>PSB</th>
<th>TBI</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time Between Session Intervals (in weeks)</td>
<td>1 to 5</td>
<td>6 to 10</td>
<td>11 to 15</td>
<td>16 to 20</td>
<td>21 to 25</td>
</tr>
</tbody>
</table>

Table 4. Comparison of the BOPS Subscale Scores

<table>
<thead>
<tr>
<th></th>
<th>CWTA</th>
<th>PI</th>
<th>PSB</th>
<th>TBI</th>
<th>AB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Post-TCT</td>
<td>.18</td>
<td>.18</td>
<td>.18</td>
<td>.19</td>
<td>.19</td>
</tr>
</tbody>
</table>

Figure 1. Sensitivity to Treatment