



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, DeGarmo, & Knutson, 2000).
- It is important to administer evidence-based assessments to determine the appropriate method of intervention for children exhibiting problematic behaviors (Mash & Hunsley, 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-guided settings which may provide valuable information not obtained from teacher-report measures (Bagner, Boggs, & Eyberg, 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 PSYCHOMETRIC PROPERTIES

- A measure that assesses the construct in a reliable and valid manner provides investigators with confidence that they are correctly interpreting results (Kazdin, 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 will be demonstrated by stronger correlations for weeks within treatment phases vs. between treatment phases.
- Significant, positive changes over time will indicate sensitivity to Teacher-Child Interaction Training (TCIT; 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 10.4% as African-American.

LIVE OBSERVATIONAL CODING SYSTEM

- The Behavioral Observation of Preschoolers System (Campbell et al., 2010):
 - Identifies prosocial 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
- Social Competence and Behavior Evaluation, Preschool Edition (SCBE; LaFreniere & Dumas, 1995)
 - Measures social competency, emotional regulation, adjustment patterns, and emergent problems
- Sutter-Eyberg Student Behavior Inventory-Revised (SESBI-R; Eyberg & Pincus, 1999)
 - Used in classrooms to identify and rate commonly observed behavioral 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-TCIT.
- Teachers participated in TCIT which included baseline (7 weeks), Child-Directed Interaction (CDI; 5 weeks), and Teacher-Directed Interaction (TDI; 4 weeks) phases.

Table 1. Alpha Coefficients and Intercorrelations among the BOPS Subscales

	α	Correlations				
		CWTA	PI	PIB	CB	AB
CWTA	.488	1.00				
PI	.583	-.262*	1.00			
PSB	.447	-.011	.430***	1.00		
CB	.848	-.081	.100	-.045	1.00	
AB	-.039	.048	.135	-.009	.064	1.00

NOTE: CWTA = Cooperation with Teacher(s)/Adult(s); PI = Peer Interaction(s); PIB = Prosocial Initiative Behavior(s); CB = Challenging Behavior(s); AB = Atypical Behavior(s)
* $p < .05$, ** $p < .01$, *** $p < .001$

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

	CWTA	PI	PSB	CB	TDL item	IO item	IA item
CBCL-TRF							
Emotionally Reactive	.165	-.037	.040	.403***	.007	-.230	-.036
Anxious/Depressed	-.074	.058	.065	.077	-.041	.110	-.078
Somatic Complaints	-.220	.092	-.080	.102	-.045	.148	.294*
Withdrawn	-.078	-.017	.092	.545***	-.135	-.139	.074
Attention Problems	.116	-.059	.218	.554***	.008	-.340**	.039
Aggressive Behavior	.010	.216	.174	.708***	-.107	-.373**	.087
Internalizing	-.164	.084	.077	-.034	-.156	-.172	.121
Externalizing	.035	.057	.156	-.159	-.098	-.152	.056
Total Problems	-.084	.146	.110	-.064	-.110	-.189	.106
SCBE							
Depressive/Joyful	-.063	.097	-.084	.019	.117	-.027	.180
Anxious/Secure	.080	.131	-.042	.076	.108	-.175	-.129
Angry/Tolerant	-.049	-.175	-.308*	-.232	.082	.273*	-.143
Isolated/Integrated	-.002	.264	-.061	.090	.119	-.308*	-.085
Aggressive/Calm	.156	-.219	-.213	-.384**	.084	.166	-.053
Egotistical/Prosocial	-.046	-.060	-.297*	-.113	.080	.197	.007
Oppositional/Cooperative	-.068	-.104	-.242*	-.292*	.101	.337**	-.102
Dependent/Autonomous	.030	.080	-.064	-.215	.023	.027	-.199
Social Competence	.094	.142	-.045	-.105	.070	-.084	-.227
Internalizing	-.031	-.012	-.199	.019	.137	.083	-.032
Externalizing	-.182	-.302**	-.384**	-.310*	.126	.542***	.014
General Adaptation	-.008	-.010	-.206	-.159	.126	.133	-.125
SESBI-R							
Intensity	.031	.354**	.289*	.546***	-.087	-.520***	.129
Total Problems	.027	.176	.087	.510***	-.044	-.372***	.152

NOTE: CWTA = Cooperation with Teacher(s)/Adult(s); PI = Peer Interaction(s); PIB = Prosocial Initiative Behavior(s); CB = Challenging Behavior(s); TDL = Tasks of Daily Living Item; IO = Independent Observations Item; IA = Independent Activities Item; CBCL-TRF = Child Behavior Checklist -Teacher Rating Form; SCBE = Social Competence and Behavior Evaluation SESBI-R = Sutter-Eyberg Student Behavior Inventory - Revised
* $p < .05$, ** $p < .01$, *** $p < .001$

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

Subscales	Time Between Session Intervals (in weeks)				
	1 to 3	4 to 6	7 to 9	10 to 12	13 to 15
CWTA	.206	.204	.220	.158	.133
PI	.247	.249	.208	.228	.137
PIB	.085	.065	.086	.025	-.011
CB	.400	.372	.416	.415	.425
TDL	-.005	.067	.059	.047	-.030
IO	.160	.159	.190	.072	.076
IA	.100	.107	.042	.024	-.038

NOTE: CWTA = Cooperation with Teacher(s)/Adult(s); PI = Peer Interaction(s); PIB = Prosocial Initiative Behavior(s); CB = Challenging Behavior(s); TDL = Tasks of Daily Living Item; IO = Independent Observations Item; IA = Independent Activities Item

Results

INTERNAL CONSISTENCY (TABLE 1)

- Cronbach's alphas ranged from .039 to .848.
- "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 (TABLE 2)

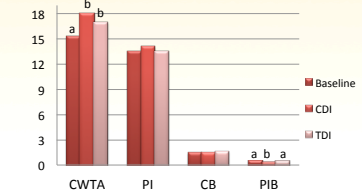
- Challenging Behavior(s) was found convergent with the CBCL-TRF/1.5-5 subscales, SCBE subscales, and the SESBI-R.
- Independent Observations was found convergent with the CBCL-TRF/1.5-5 subscales, SCBE subscales, and the SESBI-R.
- Peer Interaction(s) was found convergent with the SCBE subscales.
- Prosocial Initiative Behavior(s) was correlated in the unexpected direction with SCBE and SESBI-R subscales.

TEMPORAL STABILITY (TABLE 3)

- To assess temporal stability over 16 weeks of baseline and TCIT, three-week intervals were examined.
- 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 superscript letters were not significantly different based on LSD post-hoc analyses.



Discussion

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

INTERNAL CONSISTENCY

- Revisions of the subscales are needed due to low alpha coefficients (except Challenging Behavior(s)).

CONVERGENT VALIDITY

- Challenging Behavior(s) and Independent Observations were correlated with teacher-report measures in the expected directions, providing support for convergent validity.
- Peer Interaction(s) and Prosocial Initiative Behavior(s) were correlated in unexpected directions.
 - These subscales may measure specific forms of interactions and prosocial behavior (i.e., initiative) not assessed by the SCBE or SESBI-R.

ADDITIONAL FINDINGS

- Temporal stability and sensitivity to treatment outcomes were supported.

LIMITATIONS

- The sample size was limited for a psychometric evaluation.
- Many behaviors were infrequently/never observed, which may have hindered conclusions.
- Observations were conducted in a variety of settings and contexts (e.g., indoors and outdoors; structured activities and free time).

FUTURE RESEARCH

- The BOPS should be evaluated with larger samples and in other early childhood development centers.
- Observations should be conducted in more consistent settings and contexts.
- Revisions of the subscales are needed to address low alphas.