



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

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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 & Hunsely, 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 that 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 that 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	-.3087	-.085
Aggressive/Calm	.156	-.219	-.213	-.384**	.084	.166	-.053
Egotistical/Prosocial	-.046	-.060	-.297*	-.113	.080	.197	.007
Oppositional/Cooperational	-.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)

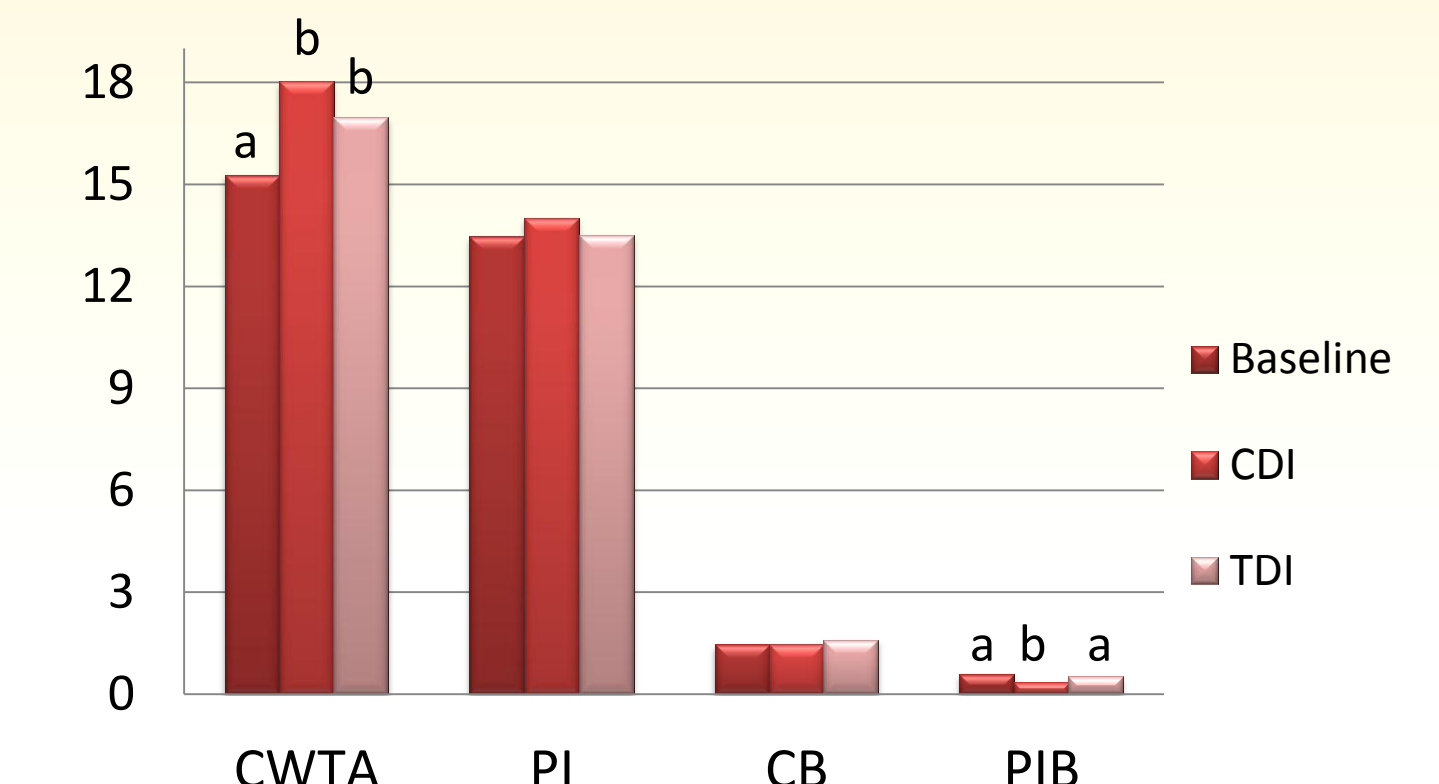
- Challenging Behavior(s)* was found convergent with the CBCL-TRF/1.5-5 subscales, SCBE subscales, and the SESBI-R.
- Independent Observations* was found convergent with the CBCL-TRF/1.5-5 subscales, SCBE subscales, and the SESBI-R.
- Peer Interaction(s)* was found convergent with the SCBE subscales.
- 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.
- ^{a,b} 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.