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CBC in Rural Schools: Preliminary Results of the First Four Years of a Randomized Trial¹

Susan M. Sheridan, Shannon R. Holmes, Amanda L. Witte,
Michael J. Coutts, & Amy Dent

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Introduction

- Children who exhibit disruptive behavior often do so across multiple settings (e.g., home, school; Achenbach, McConaughy, & Howell, 1987) and are vulnerable to many negative outcomes, including low achievement scores and academic grades (Bub, McCartney, & Willett, 2007; Lopes, 2007), high school dropout (Vitaro, Brendgen, Larose, & Tremblay, 2005), and increased school suspensions (Reinke, Herman, Petras, & Ialongo, 2008).
- Family-school partnership interventions, which are grounded in ecological theory (Bronfenbrenner, 1986), are highly correlated with many positive outcomes for students, families, and teachers (Grolnick & Slowiaczek, 1994; Masten & Coatsworth, 1998). Experimental studies with families as collaborators have been found to improve students' behavioral functioning and decrease disruptive behaviors (Charlop-Christy, 2000; Israel, Solotar & Zimand, 1990).
- There is a lack of empirical research on family-school connections in rural settings (Prater et al., 1997), hindering our ability to understand the impact of family-school partnerships on rural schools, families, and students (Semke & Sheridan, 2012).
- Proportionally, a greater number of children living in rural communities experience mental health problems compared to children living in urban settings (Lenardson, Ziller, Lambert, Race & Yousefian, 2010).
- Families in rural communities are often poorly connected to school services due to challenges associated with geographic remoteness, poverty, inexperienced school staff and inadequate resources, scheduling, and parental education level (Brody, Stoneman, & Flor, 2005; Kushman & Barnhardt, 2001; Weiss & Correa, 1996).
- Rural parents interact with their children and teachers regarding school less often than parents in other geographic areas (Prater, Bermudez, & Owens, 1997).
- Teachers in rural schools are often required to extend their roles to meet students' behavioral needs (Roeser & Midgley, 1997), and report feeling ill-equipped to provide focused services to students with learning and behavior concerns (Monk, 2007).
- Parents and teachers are essential for meeting the needs of students in rural schools. Cross-system interventions may be particularly beneficial for children, parents, and teachers in these communities (Semke & Sheridan, 2012).
- *Conjoint behavioral consultation* (CBC; Sheridan & Kratochwill, 2008) may address barriers and create meaningful partnerships between rural parents and teachers.
- Decades of CBC research has documented its positive effects for improving student behavioral, academic, and social-emotional functioning across demographically diverse samples (Sheridan et al., 2012; Sheridan, Clarke & Burt, 2008; Sheridan, Eagle & Doll, 2006).
- The efficacy of CBC in settings where specialized consultation services are sparse (i.e., rural schools), and where students, families and schools are characteristically distinct, has not been explored.

Research Questions

1. What are the *preliminary* effects of CBC in rural communities on behavioral and social-emotional outcomes of students with or at risk of developing behavioral disorders?
2. What are the *preliminary* effects of CBC in rural communities on parent and teacher problem solving competencies and parent-teacher relationships?

Method

Participants

- The present subsample is derived from the first four years of implementation of a five-year RCT.
- 204 kindergarten through 3rd grade students and their parents ($n=204$) and teachers ($n=133$) from 40 schools in Midwestern rural areas participated (see Table 1 for demographic characteristics of participants).
 - Participating students were identified by teachers as having disruptive behavior problems (e.g., aggression, non-compliance).
 - Screening for inclusion in the study was assessed using a two-gate procedure:
 - Teachers rank ordered their students from most disruptive to least disruptive and
 - Completed a researcher-developed scale of problem behavior severity, frequency and need for intervention (Glover, Sheridan, Garbacz, & Witte, 2005) for the top three ranked students in their class.
 - Students with Autism Spectrum Disorder were excluded from this study.
 - Teachers were randomly assigned to treatment and control groups and all students within a classroom were assigned accordingly.

Procedure

- CBC is a structured indirect form of support in which teachers and parents work together to promote adaptive behaviors and decrease disruptive behaviors.
- Within each CBC-assigned classroom, a consultant met with a teacher and parents of 1 to 3 students for CBC meetings via a 4-stage process operationalized by semi-structured *conjoint* interviews:
 - Needs Identification
 - Needs Analysis/Plan Development
 - Plan Implementation
 - Plan Evaluation

- Control group participants received treatment as usual.

Measures

- Student measures include the School Problems, Externalizing Problems, and Adaptive Skills scales of the Behavior Assessment Scale for Children, 2nd Edition (BASC-2; Reynolds & Kamphaus, 2004) and Social Skills Improvement System (SSiS; Gresham & Elliott, 2008).
- Teacher measures include the Parent Teacher Relationship Scale-Teacher Version (PTRS; Vickers & Minke, 1995) and Teacher Competence in Problem-Solving (TCPS; Sheridan, 2004).
- Parent Measures include the Parent Teacher Relationship Scale-Parent Version (PTRS; Vickers & Minke, 1995) and Parent Competence in Problem Solving (PCPS; Sheridan, 2004).

Analysis Plan

- To analyze the effects of CBC:
 - A three-level longitudinal multilevel model was implemented as a mixed linear model with repeated measures (Level 1) nested within each child (Level 2), and small groups of 2-3 children and their parents nested within teachers (Level 3; Sheridan et al., 2012)
 - Several meaningful pretreatment covariates, including teacher ratings of children's behavior severity, total number of risk factors experienced by a child (e.g., eligibility for free and reduced school meals, fewer than two adults in the home, a primary language other than English spoken in the home, and maternal education that is less than a high school degree), and disability status, were entered in as child-level (Level 2) predictors in the multilevel models (Sheridan et al., 2012).
 - Time X Condition interaction effects were evaluated to determine the degree to which differences in pre-post change on outcomes measures are noted between CBC participants and controls (Sheridan et al., 2012).
 - Effect sizes are reported as *d*.
- Attrition:
 - Overall Attrition at the Cluster Level: 5.9%
 - Differential Attrition: No difference between treatment and control attrition (3 treatment; 5 control)
 - Overall Attrition at the Subcluster (Individual Student) Level (based on clusters remaining in sample): 9%
 - Differential Attrition at the Subcluster Level: No difference between treatment and control attrition (8 control; 4 treatment)

Results

- Results from these preliminary analyses suggest promising effects of CBC for teachers, parents, and students in rural settings (see Table 2).
- According to teacher reports on the BASC-2, students that received CBC displayed significantly fewer externalizing problems ($d = .41, p = .03$) and school problems ($d = .56, p < .01$) than the students in the control group.
- Relative to parents in the control group, CBC parents reported significant improvements in their relationship with their child's teacher ($d = .48, p < .01$) and their perceived competence to engage in educational problem solving on behalf of their child ($d = .84, p < .01$).
- Teachers that participated in CBC reported significantly greater improvements in their relationship with students' parents ($d = .48, p < .01$) than control teachers.
- Statistically significant differences between the CBC and control group were not found on the teacher or parent reports on the SSiS scales and the BASC-2 adaptive skills scale, or parent reports on the BASC-2 externalizing problems scale.

Discussion

- Preliminary findings add to the growing evidence base that CBC is an effective intervention for children, families and schools across different settings (e.g., rural, urban).
- CBC appears promising in producing positive effects for students with behavioral challenges in rural schools. In particular, CBC appears effective for reducing rural children's academic difficulties and disruptive behaviors in the classroom.
- Consistent with ecological theory, the preliminary effects extend beyond student outcomes to promote positive changes in beliefs and practices of the adults responsible for children's well being. Specifically, CBC teachers reported improvements in their relationship with parents. Similarly, parents that received CBC reported stronger connections with their children's teacher and greater involvement in their children's education than the parents that did not receive CBC.
- The unique challenges associated with service delivery in rural communities may be addressed through the partnership-building strategies used by CBC consultants:
 - Frequent contact, constructive problem solving, mutual input toward solutions, and home-school communication may be important to increase trust and alter negative attitudes.
- Limitations of the current study require caution in interpreting results:
 - Data represent four years of a five-year randomized clinical trial. Full interpretation of results is not possible until data collection is complete.
 - Results are limited to one rural region, which does not capture the variation in rural settings (e.g., agricultural rural versus industrial rural).

- Intervention integrity was not included in these analyses.
- Future research is necessary to:
 - Continue to discern unique and specific characteristics of rural settings that impact the implementation of CBC and the mechanisms of CBC that address these characteristics.
 - Establish the factors in rural communities that influence the intervention integrity of CBC and intervention plan implementation.
 - Investigate moderation to determine the conditions under which CBC has its greatest effects.
 - Determine the application and efficacy of CBC in “authentic” practice contexts.

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Table 1

Demographic Characteristics of Sample

	Total	Treatment	Control
Student Characteristics	<i>N</i> = 204 ^a	<i>N</i> = 125	<i>N</i> = 79
Mean (<i>SD</i>) Student Age	7.03 (1.20)	6.93 (1.16)	7.20 (1.24)
Mean (<i>SD</i>) Student Grade	1.47 (1.12)	1.46 (1.10)	1.49 (1.16)
Student Gender (Male[Female])	80% [20%]	79% [21%]	82% [18%]
Student Eligible for Free or Reduced Meals	57%	59%	53%
Student Receives Special Education Services	22%	20%	26%
<u>Student Ethnicity</u>			
White/non-Hispanic	86%	84%	90%
Black/African-American	4%	4%	3%
Hispanic or Latino	5%	5%	4%
American Indian/Alaska Native	1%	1%	1%
Other	4%	6%	3%
Teacher/Classroom Characteristics	<i>N</i> = 133	<i>N</i> = 74	<i>N</i> = 59
Mean (<i>SD</i>) Teacher Age	41.07 (12.53)	41.61 (12.84)	40.39 (12.20)
Mean (<i>SD</i>) Teacher Years of Experience	15.10 (11.28)	16.48 (11.43)	13.34 (10.93)
Teacher Class-wide Behavior Plan Use	74%	73%	75%
Mean (<i>SD</i>) Number of Students in Classroom	18.33 (4.39)	18.08 (4.36)	18.66 (4.44)
<u>Teacher Highest Degree</u>			
College Degree	26%	19%	34%
Additional Formal Schooling	74%	81%	66%
Family Characteristics	<i>N</i> = 204	<i>N</i> = 125	<i>N</i> = 79
Mean (<i>SD</i>) Parent Age	34.41 (7.42)	33.66 (7.18)	35.49 (7.68)
English Language Spoken at Home	98%	98%	99%
Mean (<i>SD</i>) Adults in Home	1.8 (.56)	1.77 (.59)	1.85 (.53)
Maternal Education < College Degree	31%	30%	32%
Paternal Education < College Degree	20%	18%	23%
<u>Annual Household Income</u>			
\$8,001-\$20,000	33%	34%	31%
\$20,001-\$35,000	20%	21%	18%
\$35,001-\$45,000	13%	14%	11%
\$45,001-over \$50,000	35%	31%	40%

^a Demographic data for participants are entered as they are collected, thus, data for some participants are not included in this table.

Table 2

Effects of CBC in Rural Communities

	Time X Group Interaction	<i>d</i> -index
Teacher-Report Measures		
School Problems	3.66**	0.56
Social Skills	0.00	-0.06
Adaptive Skills	-1.46	0.26
Externalizing Problems	3.14*	0.41
Parent-Teacher Relationship	-6.49**	0.57
Parent-Report Measures		
Social Skills	-0.07	0.04
Adaptive Skills	-2.17	0.26
Externalizing Problems	2.44	0.28
Parent-Teacher Relationship	-5.28**	0.48
Competence in Problem Solving	-0.67**	0.84

Note. * $p < .05$, ** $p < .01$. All interaction effects, both significant and nonsignificant, favor the treatment group and reflect the difference between slopes for the treatment and control groups. The multilevel modeling approach and selection of covariates to arrive at these intervention effects followed Sheridan et al. (2012). Positive *d*-indices favor the treatment group and negative *d*-indices favor the control group