

The Efficacy of Conjoint Behavioral Consultation in the Home Setting:

Outcomes and Mechanisms in Rural Communities

Susan M. Sheridan¹

Amanda L. Witte¹

Shannon Holmes²

ChaoRong Wu³

Sonya A. Bhatia¹

Samantha Angell¹

¹ Nebraska Center for Research on Children, Youth, Families and Schools,
University of Nebraska-Lincoln

² University of Missouri-Columbia

³ University of Iowa

Published 2017

Sheridan, S. M., Witte, A. L., Holmes, S., Wu, C., Bhatia, S. A., & Angell, S. (2017). The efficacy of conjoint behavioral consultation in the home setting: Outcomes and mechanism in rural communities. *Journal of School Psychology, 62*, 81-101.

The research reported here was supported by the Institute of Education Sciences, U.S. Department of Education, through Grant R324A100115 to the University of Nebraska-Lincoln. The opinions expressed are those of the authors and do not represent views of the Institute or the U.S. Department of Education.

Information on peer review process: <https://www.elsevier.com/journals/journal-of-school-psychology/0022-4405/guide-for-authors>

Abstract

This study reports the results of a randomized controlled trial examining the effect of Conjoint Behavioral Consultation (CBC), a family-school partnership intervention, on children's behaviors, parents' skills, and parent-teacher relationships in rural community and town settings. Participants were 267 children, 267 parents, and 152 teachers in 45 Midwestern schools. Using an Intent to Treat approach and data analyzed within a multilevel modeling framework, CBC yielded promising results for some but not all outcomes. Specifically, children participating in CBC experienced decreases in daily reports of aggressiveness, noncompliance, and temper tantrums; and increases in parent-reported adaptive skills and social skills at a significantly greater pace than those in a control group. Other outcomes (e.g., parent reports of internalizing and externalizing behaviors) suggested a nonsignificant effect at post-test. CBC parents reported using more effective parenting strategies, gaining more competence in their problem-solving practices, and feeling more efficacious for helping their child succeed in school than parents in the control group. Parents participating in CBC also reported significant improvements in the parent-teacher relationship, and the parent-teacher relationship mediated the effect of CBC on children's adaptive skills. Implications for practice in rural communities, study limitations, and directions for future research are discussed.

Introduction

Early childhood behavior problems are linked to a host of negative outcomes related to children's growth and development (Reinke, Herman, Petras, & Ialongo, 2008). Externalizing behaviors are associated with lower achievement scores (Bub, McCartney, & Willet, 2007) and poor school adjustment (Fantuzzo, Sekino, & Cohen, 2004). Left unaddressed, early behavior problems are linked to an increased risk for school suspensions (Reinke et al., 2008) and dropout (Vitaro, Larose, Brendgen, & Tremblay, 2005), aggression (Fantuzzo et al., 2004), and adult mental health disorders (Reef, Diamantopoulou, van Meurs, Verhulst, & van der Ende, 2011). Early intervention is necessary at the first sign of behavioral difficulties to reduce problem behaviors and build prosocial alternatives and adaptive skills (Sheridan et al., 2012).

Experiences in early childhood and elementary school play a critical role in children's learning and development (Sheridan, Clarke, & Christenson, 2014) and may prevent the long-term impact of behavior problems (Dishion & Patterson, 2006). For example, children's early experiences with their parents can influence their academic trajectories (Schwartz, Pettit, Lansford, Dodge, & Bates, 2013) and behavior (Stormshak et al., 2000), and parent management of children's behavior is a strong predictor of delinquency (Larzelere & Patterson, 1990). In fact, inconsistent and harsh parenting practices are linked to cascading consequences for children, including conduct problems, social failure, and violence in adolescence (Dodge, Greenberg, & Malone, 2008; Stormshak et al., 2000), whereas warm and consistent parenting strategies are related to higher academic performance (Downer & Pianta, 2006) and fewer behavior problems (Hill, Busch, & Roosa, 2003). Similarly, children's experiences in their classroom shape their social-emotional competence, behavioral skills, and academic achievement (Hamre & Pianta, 2005; Rimm-Kaufman, Curby, Grim, Nathanson, & Brock, 2009). As a result, well-timed

relationship-focused interventions that are designed to address behavioral concerns early, strengthen parenting and teaching practices, and create consistent environments across home and school are linked to improvements in parenting skills and reductions in children's disruptive behaviors (Knoche et al., 2012).

The Importance of Geographic Context

Rural communities vary greatly from urban areas (suburban communities and cities) in meaningful ways that may affect children's development. Rural communities are located at least 5 miles from an urbanized area, and at least 2.5 miles from an urban cluster; towns are situated inside an urban cluster that is between 0 and 35 miles from an urbanized area. They are geographically more remote than suburban communities (which are outside a principal city and inside an urbanized area) and cities (located inside an urbanized area and inside a principal city). They are also less densely populated. By definition, rural communities have populations of fewer than 2,500; towns are core areas with populations between 2,500 and 50,000 (Office of Management and Budget [OMB], 2000). This is in contrast to suburban communities which have populations between 50,000 and 250,000 or more, and cities that contain the primary population and economic center of a metropolitan area (OMB, 2000).

Compared to their urban and suburban counterparts, rural schools are often characterized by higher levels of poverty (Monk, 2007), greater isolation, and fewer resources. Within homes, some rural children been found to be exposed to less emotionally supportive parenting strategies and home-based educational resources than their non-rural counterparts (Clarke, Koziol, & Sheridan, in press). Privacy is often limited in rural settings, and some rural parents may avoid seeking help due to the stigma surrounding mental health services in those communities (Larson & Corrigan, 2010). As a result, rural children may enter school with less well-developed social-

emotional competencies and exhibit higher rates of externalizing behaviors than non-rural children (Sheridan, Koziol, Clarke, Rispoli, & Coutts, 2014) and these behavior problems are often observed across home and school environments (Sheridan, Ryoo, Garbacz, Kunz, & Chumney, 2013). Although there is a clear need for services aimed at improving children's behavior concerns in rural settings, few services are available for those who feel comfortable seeking help (DeLeon, Wakefield, & Hagglund, 2003).

Despite the challenges in rural settings, these communities are often uniquely positioned to support children's healthy functioning. Although relationships between rural families and schools are less positive than in urban areas (Witte & Sheridan, 2016), school staff in rural settings tend to have flexible attitudes about the roles of school and are willing to partner with parents to meet the needs of students. Similarly, parents in rural communities often have a commitment to working as a team for mutual benefit (Wright, 2003). In fact, services delivered through formal community sources (e.g., schools) are viewed as more acceptable than specialized mental health services in rural settings (Girio-Herrera, Sarno Owens, & Langberg, 2013). Interventions that utilize readily available resources and emphasize collaboration are essential in rural communities. School-based interventions may be more accessible to many families than other support services, and interventions designed to strengthen relationships between children's key caregivers while promoting positive outcomes are ideal for children living in rural communities. Conjoint Behavioral Consultation (CBC) is a family-school partnership intervention designed to involve both parents and teachers in a problem-solving process on behalf of a child struggling with externalizing behaviors in the home and school settings (Sheridan & Kratochwill, 2008). Because CBC is linked to service provision in the

school environment, it may be a viable intervention resource for those living in rural communities.

Overview of Conjoint Behavioral Consultation

Conjoint Behavioral Consultation is a collaborative consultation approach in which parents and teachers work together to address a child's problem behaviors across home and school (Sheridan & Kratochwill, 2008). CBC is grounded in ecological systems theory in that it assumes children's behavior is shaped directly by interactions in the environments in which they learn and develop (e.g., home and school) and the interconnections between adults in these environments (e.g., parent-teacher relationship; Bronfenbrenner, 1979). Consistent with this theory, parents, teachers and the quality of their interactions and relationships (i.e., the mesosystem) are considered key agents for promoting children's prosocial skills and reducing their disruptive behavior. As a result, CBC works to build parents' and teachers' skills to create environments that promote positive behavior at home and school, as well as strengthen connections between these environments to develop continuity and consistency across the settings (Bronfenbrenner, 1979). Using a strengths-based approach, a CBC consultant guides parents and teachers through stages involving Needs (Problem) Identification, Needs (Problem) Analysis, Plan Development and Implementation, and Plan Evaluation (see Table 1). As part of the process, parents and teachers collaboratively identify and analyze a target behavior, create an intervention plan that addresses its function, implement the intervention plan with fidelity across home and school, and use data to evaluate plan effectiveness. These steps are achieved over the course of three collaborative meetings in a manner that emphasizes child strengths, shared goals, bi-directional communication, perspective-taking, skill building, and relationship building (Sheridan & Kratochwill, 2008).

CBC has shown to be effective for elementary-aged children in urban settings. Previous research has demonstrated that children who participate in CBC show decreased levels of externalizing behaviors (arguing, temper tantrums, noncompliance) and increased levels of positive social and adaptive behaviors in the home and school settings (Sheridan et al., 2012; Sheridan et al., 2013). Furthermore, parents who participate in the CBC process have reported more bi-directional communication with teachers and more positive, high quality relationships with their child's teacher (Sheridan, Clarke, Knoche, & Edwards, 2006; Sheridan et al., 2013). Importantly, the parent-teacher relationship has been found to be partially responsible as a mechanism of change that drives student success in urban settings (Kim, Sheridan, Kwon, & Koziol, 2013; Sheridan et al., 2012).

The significance of the home-school relationship, and hence CBC, seems particularly relevant in rural schools that are geographically isolated from urban communities. CBC may work to ameliorate issues associated with heightened behavior problems and limited access to community resources by providing local, cost-effective services. The collaborative, problem-solving nature of CBC imparts skills to participants, allowing them to address similar problems on their own in the future, whether in the home or school environment. Furthermore, the individualized, strength-based responsive nature of CBC, as well as its focus on home-school partnerships, may address issues of distrust and fear of stigma that often preclude rural families from engaging in support services.

Purpose and Research Questions

This study was part of a larger randomized controlled trial aimed at addressing children's behavioral problems in rural communities. Outcomes of the effects of CBC on rural students school behaviors were generally positive, and are published elsewhere (Sheridan et al., 2017). In

general, improvements among students in the CBC group significantly outpaced control group students in their teacher-reported school problems (but not global measures of externalizing or internalizing behaviors or social skills). Significantly different rates of change on observational measures of inappropriate (off-task and motor activity) and appropriate (on-task and social interactions) classroom behavior were observed for CBC over control group students. In addition, CBC teachers' responses indicated rates of improvement in their relationship with parents that outpaced their control group counterparts. As in previous studies (Sheridan et al., 2012), the teacher-parent relationship was found to partially mediate effects of CBC on several student outcomes.

The purpose of the present investigation was to determine the effects of CBC on outcomes specific to the home setting for both children (i.e., parent-reported behaviors) and parents (i.e., competence in problem solving, use of effective parenting strategies, efficacy for helping their child succeed in school, relationship with their child's teacher) in rural communities and areas outside urban clusters. We hypothesized that CBC would effectively address child behavior problems in the home setting (i.e., reduce problem behaviors and promote adaptive and prosocial skills) and improve parents' skills, efficacy and relationships. Given CBC's inherent attention to building trust and reducing stigma within rural service delivery, we further hypothesized that the parent-teacher relationship, a unique and salient component of CBC that is not present in most other parent interventions or teacher consultation models, would act as a mediator that engenders positive change for children growing up outside of urban areas.

Specific to this unique geographic setting, our research questions were:

1. What is CBC's effect on children's behaviors and social skills at home?

2. What is the effect of CBC on parents' skills (problem solving, parenting strategies), efficacy, and relationship with their child's teacher?
3. Does the relationship parents develop with teachers mediate CBC's effects on child outcomes?

Methods

Participants and Recruitment

Primary participants were students and their parents. Table 2 provides student and parent/family demographic information across treatment and control conditions. Given the nature of the conjoint (home-school) partnership intervention, teachers played an important role as co-consultees with parents. Trained consultants provided services as intervention agents.

Students. Two hundred sixty-seven students (76% male; 24% female) were participants. Students were identified by their teachers as having disruptive behaviors in the classroom. The average age of participating students was 6.88 ($SD = 1.22$) years. Twenty-seven percent were in Kindergarten, and 21, 29, and 23% in first, second, and third grades, respectively. Eighty-six percent of students were White/non-Hispanic, as reported by their parents. Fifty-six percent of student participants met criteria for free and reduced lunch and 21% had only one adult residing in their home. Forty-four percent of student participants were diagnosed with a disability, based on parent report. Teachers reported that 24% of students had an Individualized Education Plan (IEP), with 15% of students receiving special education services for an average of 75 minutes per school day. In addition, 22% of students received some additional services for behavioral, social and/or emotional problems; of these services, 19% reported outpatient counseling.

Parents. Two hundred sixty-seven parents participated in the study. Eighty-three percent of parent participants self-reported as the child's mother, 9% as the child's father, and the

remaining 8% were step-parents, grandparents, or another adult. In total, 90% were female. The mean age of parents was 34.19 years old ($SD = 7.55$); 90% self-reported as White/non-Hispanic. Eleven percent of parent respondents reported not graduating from high school, 73.5% reported less than a college degree, and 26.5% reported a college degree or higher. Fifty-seven percent of parents were married, 19% were single, and 16% were divorced. Seven percent reported receiving family counseling, and less than 5% reported having received formal parent training.

Teachers. One hundred fifty-two teachers participated with parents as co-consultees (84 treatment, 68 control). Ninety-seven percent were female; all self-reported as White/non-Hispanic. The average age of teachers was 41.22 ($SD = 12.6$). On average, teachers had 15.30 years of teaching experience ($SD = 11.31$).

Consultants. Fourteen (13 female, one male) Master's level clinicians in school psychology, special education or counseling psychology served as consultants in this study. On average, consultants had completed 2.64 ($SD = .71$) years of graduate education. Consultants' average age was 29.63 ($SD = 5.97$) years; all were White/non-Hispanic. As part of their preparation for this study, consultants completed a four-week, 64-hour, criterion-based training program including instruction on the theory and implementation of CBC. Training strategies were comprised of readings on CBC and evidence-based behavioral interventions, manualized procedures and protocols, video demonstrations, behavioral enactment with performance feedback, self-monitoring, and weekly supervision (in both individualized and group formats) of CBC implementation.

Recruitment. Given the present focus on students with disruptive behaviors at school, rural classrooms served as the recruitment site for this study. A continuous enrollment procedure allowed participants to enter the study at different times over five academic years (i.e., over five

cohorts). A multi-step recruitment procedure was used. The study was presented to groups of teachers within participating schools. Teachers were given the opportunity to express interest by indicating their name, grade and contact information on a form; researchers followed up on an individual basis to explain the study and gain informed consent. Within each participating classroom, teachers nominated (by initials only) up to five students who demonstrated disruptive behaviors that interfered with their learning. A definition, examples and nonexamples of disruptive, externalizing behavior were provided. Teachers then completed a brief (i.e., three-item) user-friendly, researcher-developed checklist (Sheridan et al., 2012) that assessed frequency (1 = *low*, 9 = *high*) and severity (1 = *low*, 9 = *high*) of externalizing behaviors and the need for additional intervention (1 = *low*, 5 = *extreme*)¹. These procedures were replicated within each classroom across all cohorts. Students were considered eligible for participation if they were reported anonymously by teachers as having behavioral problems at a moderate to extreme severity level and a moderate to extreme frequency level (ratings between 4 and 9), and considered to have behavioral challenges warranting moderate to significant need for additional services (ratings between 3 and 5). Students diagnosed with a developmental delay or autism spectrum disorder prior to nomination were deemed ineligible.

Up to three students in a classroom who met inclusion criteria were randomly selected. Without disclosing their identity to researchers, teachers of students who met inclusion criteria contacted their parents and provided information about the study. With parents' permission, a researcher then met with the parents, provided details of the study, and sought informed consent. The mean number of participating students per classroom was 1.76 ($SD = .73$).

¹ As a check on concurrent validity, correlations were run between the researcher-developed scale and the BASC-2 ratings. Significant relationships were found between the severity ratings and the BASC-2 Externalizing ($r = .31$; $p < .001$) and BASC Behavioral Symptoms Index ($r = .36$, $p < .001$), and between the frequency ratings and these same BASC-2 composites ($r_s = .31$ and $.33$; $p_s < .001$), suggesting the screening measure effectively identified students with significant behavioral concerns.

A CONSORT diagram is in Figure 1. In all, 462 students were nominated by teachers and assessed for eligibility. Forty-six did not meet inclusion criteria. Of those who did, the parents of 149 chose not to participate, evidenced by their failure to return phone calls or other attempts to provide information. There were no significant differences ($p > .05$) between children whose parents consented and those who did not on severity or frequency of behavior problems, or need for intervention, as assessed on the screening measure.

Classrooms (teachers) were randomly assigned to an experimental condition following teacher consent to participate. The mean rating for problem behavior severity at Time 1 (baseline) was 6.57 ($SD = 1.40$); the difference between control ($M = 6.40$, $SD = 1.40$) and treatment ($M = 6.69$, $SD = 1.39$) was not statistically significant [$t(263) = 1.649$, $p = .10$].

Setting

The setting in this study was 40 communities across three Midwestern states. Average community size was 8,066 residents (range = 68 to 30,787). In all, 152 classrooms in 45 schools participated in the study. Twenty-four of the schools were classified as “rural” by the National Center for Education Statistics (i.e., defined as rural territory at least 5 miles from an urbanized area, as well as at least 2.5 miles from an urban cluster); the other 21 schools were classified as “town” (i.e., defined as territory inside an urban cluster that is between 0 and 35 miles from an urbanized area). The average school enrollment was 260 students (range = 64 to 841); the average classroom size was 13.32 students (range = 7.99 to 18.52). Schools on average employed 18.9 classroom teachers (range = 7.18 to 51.7). All but seven were Title I schools (i.e., schools that receive federal assistance due to high numbers of children from low-income families).

Measures

Assessments of child behaviors at home were completed using brief, standard phone interviews with parents and standardized parent report measures. Assessments of parent outcomes (i.e., competence in problem solving, parenting strategies, efficacy for helping child succeed in school, parent-teacher relationship) were completed using self-report rating scales. Daily parenting practices were assessed via brief phone interviews.

Child behaviors at home. The Parent Daily Report (PDR; Chamberlain & Reid, 1987) was used to evaluate the occurrence of specific disruptive behaviors at home. The PDR is a measure of 34 behaviors (e.g., arguing and teasing) collected via brief phone interviews, wherein parents indicate whether their child has exhibited each behavior within the last 24 hours. It has been used frequently in the behavioral intervention field as a proxy for direct observations in homes (Forgatch & Toobert, 1979) with evidence that the use of repeated administrations focusing on behavioral recall over the past 24 hours reduces measurement error and increases reliability and validity of responses (Fisher & Stoolmiller, 2008). Stability and interrater reliability of the PDR has been found to be acceptable (Chamberlain & Reid, 1991; Sheridan et al., 2013). Concurrent validity has been established with live observations of family functioning (Forgatch & Toobert, 1979) and parental ratings of children's behavioral problems (Chamberlain & Reid, 1987).

Parent Daily Report data were collected four times during the problem identification (baseline) phase of CBC for treatment group participants, and six times during the treatment implementation (treatment) phase. For control group participants, assessments occurred approximately weekly over ten consecutive weeks. PDR scores used for analyses were averages per behavior within the baseline and treatment phases. Of the 34 behaviors, six aligned closely to the highest frequency behaviors targeted in CBC and were thus included in the outcome

analyses: noncompliance and defiance (aligned with target behaviors of compliance/noncompliance), arguing and yelling (aligned with target behaviors characterized as interference), and aggressiveness and tantrums (aligned with target behaviors related to emotional control). Calls were made by both data collectors and consultants approximately equally.

Two standardized measures were used to elicit normative accounts of parents' perceptions of their child's behaviors. Assessments occurred one week prior to CBC (Time 1) and again approximately 12 weeks later (Time 2). First, the Behavior Assessment Scale for Children-2 (BASC-2; Reynolds & Kamphaus, 2004) child (ages 6 to 11) and preschool (ages 2 to 5) forms were used to assess parents' perceptions of their child's behavioral problems and adaptive skills. The BASC-2 parent form is comprised of three composite scale scores: Adaptive Skills, Externalizing Problems, and Internalizing Problems. BASC-2 scores are reported as T-scores, with an average of 50 and standard deviation of 10; high scores are indicative of higher frequencies of behaviors tapping each construct. Internal consistency coefficients across the three composites for our sample ranged from .90 to .93 for Time 1, and from .90 to .94 for Time 2. Evidence of scale validity has been reported (Reynolds & Kamphaus, 2004).

The second standardized scale, the Social Skills Improvement System (SSiS; Gresham & Elliott, 2008) measured parents' perceptions of the frequency of their child's social skills on a four-point Likert-type scale (0 = *never*, 1 = *seldom*, 2 = *often*; 3 = *always*) across subdomains of communication, cooperation, assertion, responsibility, empathy, engagement, and self-control. A total Social Skills standard score was derived ($M = 100$; $SD = 15$). Internal consistency coefficients for our sample were .96 for both Time 1 and Time 2 assessments.

Parent skills, efficacy and relationship with teacher. Several measures assessed parents' skills (problem solving and parenting strategies), efficacy, and relationship with their child's teacher. The Parent Competence in Problem-Solving Scale (PCPS; Sheridan, 2004) was a self-report measure used to assess parents' abilities to effectively solve problems related to their child's learning and behaviors. Examples of items include "I have set goals for my child" and "I have identified specific things that can be changed to help my child's learning and behavior." The scale is comprised of eight items scored on Likert-type scale with item scores ranging from 1 (*disagree very strongly*) to 6 (*agree very strongly*). The alpha estimate for the PCPS based on this study's data was .82 at Time 1 and .87 at Time 2.

Similar to the assessment of child behaviors, both daily report and standardized measures were used to assess parenting skills. The Parent Practices Inventory (PPI) was developed by the research team to complement the PDR and obtain daily information on parents' use of parenting practices at home. The measure is comprised of seven items tapping positive reinforcement (e.g., praise, rewards), social skill training, antecedent control, and reductive techniques (e.g., time out). Immediately following administration of the PDR assessing child behaviors, parents were asked to report whether or not they used each practice over the past 24 hours. The schedule of assessment and response options mirrored that of the PDR. Given the positive focus of CBC and the nature of most interventions used in home settings, the parenting strategies of greatest interest were those associated with reinforcement, skill training and antecedent control.

The Alabama Parenting Questionnaire (APQ; Shelton, Frick, & Wootton, 1996) is a 42-item scale that measures six dimensions of parenting: parental involvement, poor monitoring/supervision, positive parenting, inconsistent discipline, corporal punishment, and other discipline practices. Scores range from 1 (*never*) to 5 (*always*). The parent involvement,

positive parenting, and inconsistent discipline subscales were considered most closely related to the focus of the CBC intervention, and were determined a priori to be the focus of analysis.

Internal consistency for these subscales for the current sample at Time 1 ranged from .75 to .81 and .74 to .84 at Time 2. The APQ effectively differentiated children with behavioral disorders from a control group, with the former group significantly more likely to have one or more elevations across the five APQ scales than the latter (Shelton et al., 1996).

Parents' self-efficacy for helping their children succeed in school was assessed with the Parent Efficacy for Helping Your Child Succeed Scale (PEHCS; Hoover-Dempsey, Bassler, & Brissie, 1992). Twelve items (e.g., "I know how to help my child do well in school"; "My efforts to help my child learn are successful") are scored on a Likert scale from 1 (*disagree very strongly*) to 6 (*agree very strongly*). Internal consistency for the current sample was .78 and .83 at Times 1 and 2, respectively.

Parents' perceptions of their relationship with their child's teacher was assessed using the Parent-Teacher Relationship Scale-II (PTRS-II; Vickers & Minke, 1995), a 24-item measure that assesses how positively parents feel about their relationship with their child's teacher, and whether communication between them is effective. Item scores range from 1 (*almost never*) to 5 (*almost always*). High scores on the PTRS-II indicate that parents feel (a) positively about their relationship with the teacher, and that (b) communication between them is effective. High internal consistency was found for the current sample ($\alpha = .93$ at Time 1 and .90 at Time 2).

Acceptability of CBC. Parents who participated in CBC rated their acceptability of the intervention at one time point with the Acceptability factor of the Behavior Intervention Rating Scale (BIRS; Elliott & Von Brock Treuting, 1991). The BIRS-Acceptability factor is comprised of 15 items rated on a Likert scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Previous

research confirmed the original factor structure of the BIRS within consultation contexts (Freer & Watson, 1999; Sheridan & Steck, 1995), justifying the use of the Acceptability factor in this study. Internal consistency for the current sample was high ($\alpha = .91$).

Procedures

Business as usual. Students who were in classrooms that had been randomly assigned to the control condition continued to receive typical services in or out of school, and were exposed to general school policies for behavioral challenges. A survey completed by building administrators (62% response rate) indicated that 54% of schools used office referrals as a means of addressing disruptive behaviors, 43% used a “time-in” (i.e., in-school suspension) procedure, and 36% used out-of-school suspension. Twenty-five percent of control group students received special education services for an average of 55 minutes per school day. Twenty-five percent received services for behavioral, social or emotional problems; of these, 20% received outpatient counseling.²

Conjoint behavioral consultation. The CBC intervention was administered by consultants in a manner that followed the collaborative home–school problem-solving protocols outlined in Sheridan and Kratochwill (2008; see Table 1). Specifically, within each classroom, a consultant met with one to three parents and a teacher for approximately three to four conjoint consultation sessions over an average of eight weeks. All meetings were between 45 and 60 minutes in length, and all were completed well before the 12-week post-test (Time 2) assessment.

The first collaborative problem-solving session was the Needs Identification/Analysis

² Participants in the CBC condition also continued to receive business as usual; i.e., they also received special education and out-of-school services. There were no differences between experimental and control groups on the proportion of children who received special education services, $\chi^2(1) = .015, p > .05$; amount of time special education services received daily, $t(30) = -.165, p > .05$; or receipt of additional services for behavioral, social, or emotional problems, $\chi^2(1) = .615, p > .05$.

(“Building on Strengths”) Interview, which involved identifying the specific behaviors that would be targeted for intervention, specifying goals, and determining simple data collection procedures for use by parents and teachers. Given the sensitive nature of these interviews (i.e., involving a discussion of students’ challenging behaviors), these interviews were conducted with individual parent-teacher pairs rather than in small groups. In all, 73.2% of parents identified compliance/noncompliance as their primary concern at home; 9.4% targeted engagement, 8.9% selected emotional control, and 7.2% identified interference/keeping hands to self.

The second CBC session was the Plan Development and Implementation (“Planning for Success”) Interview (Sheridan & Kratochwill, 2008). This session involved the development of an intervention plan to address the target concern and discuss methods by which parents could implement the plan at home. Between this meeting and the next, consultants conducted on average of one home visit per family to support parents’ implementation of plans with fidelity. The final session, the Plan Evaluation (“Checking and Reconnecting”) Interview (Sheridan & Kratochwill, 2008) focused on evaluating the plan(s), discussing students’ progress toward goals, and determining needs to continue, modify, or discontinue plans. Approximately 10% of all CBC cases involved more than one formal Plan Evaluation meeting to examine student progress toward goals after behavior intervention plan were revised.

Behavioral intervention plans. The development and implementation of behavioral plans within the context of CBC represents an important feature of CBC. For each student, consultants introduced a number of empirically-based behavioral strategies that were responsive to the unique function of each student’s target behavior, identified through information gleaned from interviews. Intervention strategies were characterized as being part of one of four intervention classes with evidence of empirical support for reducing disruptive behaviors: (a)

positive consequences/reinforcement (e.g., attention and rewards; Moore, Waguespack, Wickstrom, Witt, & Gaydon, 1994); (b) environmental structuring and antecedent control (e.g., structured prompts and checklists, precision requests, and rules; Musser, Bray, Kehle, & Jenson, 2001); (c) skills training (e.g., social skills training and behavioral rehearsal; Pfiffner & McBurnett, 1997); and (d) reductive techniques (e.g., removing privileges and response cost; McMahon & Forehand, 2003). All of the interventions also contained a home–school communication component such as home–school notes (McCain & Kelley, 1994). To retain an individualized and responsive approach characteristic of CBC, tactical implementation details were decided upon in a collaborative and formative fashion, accommodating parent and teacher preferences but retaining the basic components of the evidence-based intervention strategies.

Individualized treatment plans and protocols based on a parent- and teacher-friendly book series (i.e., *The Tough Kid Tool Box* [Jenson, Rhode, & Reavis, 2009]; *The Tough Kid Social Skills Book* [Sheridan, 2010]; and *The Tough Kid Parent Book* [Jenson, Rhode, & Neville, 2010]), and used in previous CBC research (Sheridan et al., 2012; 2104), provided structure for the individualized student behavioral plans. A CBC behavioral strategies toolkit, consisting of 80 different intervention plans organized by behavioral function, was developed from these published materials to standardize plan implementation across cases. Individuation occurred in the form of the specific reinforcers, schedules of reinforcement, and other unique elements used in individualized home-based plans.

Across participants, the most frequently used plan strategies in home settings were positive consequences and reinforcement, which were incorporated into 100% of cases. Antecedent control strategies were used in 86%, skill building techniques in 13%, and reductive techniques in 15% of intervention packages. The average number of intervention components

delivered per student in homes was 3.11 ($SD = 0.66$).

Fidelity Assessments

Fidelity of CBC was assessed in the context of the problem-solving interviews (Sheridan & Kratochwill, 2008) to determine both consultants' adherence to the intervention, and the quality with which intervention objectives were met. All CBC sessions were audio-recorded. Independent, trained coders listened to approximately 25% ($n = 82$) of all interviews, selected randomly to represent each type of CBC session. A CBC fidelity matrix containing definitions of core problem-solving objectives for each CBC interview was used (Kunz et al., 2011; Sheridan, Rispoli & Holmes, 2014). Consultants' adherence to each interview objective was coded dichotomously (1 = *met*, 0 = *not met*). An *overall adherence percentage* per interview was derived by dividing the number of specific objectives met by the consultant by the total possible objectives per interview. Coders also rated the quality of CBC implementation by rating the effectiveness with which consultants implemented each interview objective on a three-point Likert scale (0 = *not effective*, 1 = *moderately effective*, 2 = *highly effective*). An *overall quality score* was derived for each CBC interview by dividing the total score (i.e., sum of 1 and 2 ratings) by the total possible quality rating score for each interview.

Two observers coded 30% of the sessions. Point-by-point inter-rater agreement was derived by determining the specific objectives that yielded the same code from each observer and dividing the number of objectives with the same code by the total possible objectives per interview. Point-by-point inter-rater agreement across interviews was 91.9%. For each interview, point-by-point agreement was 94.20% for Needs Identification/Analysis, 89.73% for Plan Development and Implementation, and 91.73% for Plan Evaluation.

Fidelity of behavior plan implementation. All interventions yielded permanent

products (e.g., sticker charts, dot-to-dot charts, home-school notes) that served as a record of implementation fidelity (Sheridan, Swanger-Gagné, Welch, Kwon, & Garbacz, 2009).

Individualized intervention plans specified during the Planning for Success meetings contained criteria that defined appropriate implementation, many of which were observable on the permanent products (e.g., provided sticker for meeting goal, signed home-note). Checklists were developed and criteria were scored as present or absent. Permanent products were collected and scored at four time points throughout the intervention period. All permanent products were scored by two raters. Any disagreement in scores was discussed by the raters and a supervisor until consensus was reached.

Research Design and Statistical Analyses

Intent-to-treat approach and missing data. All participants randomly assigned to an experimental condition for whom data were available at the time of analysis were included in the statistical models, including those with incomplete intervention exposure. This intent-to-treat (ITT) approach allowed for the comparison of participants in the condition to which they were randomly assigned regardless of whether they received full fidelity of implementation or withdrew from the study. The estimated treatment effect based on this approach is likely conservative and less biased as a result, providing enhanced Type I error control and reflecting a realistic clinical situation (Lachin, 2000).

The percentage of participants with complete data was above 90% for PDR outcomes. Complete survey data are available for 76% of child and 82% of parent outcomes; the majority of missing data occurred at Time 2 (17% and 18% for children and parents, respectively). Consistent with the ITT approach, missing data were accounted for statistically using full information maximum likelihood estimation (FIML; Enders, 2001). FIML assumes that missing

data are ignorable (versus non-ignorable) and missing at random (MAR) or completely at random (MCAR). It makes use of all available data and is implemented through the general linear mixed model framework. Procedurally, all participants who begin the study (i.e., were assessed on at least the first occasion) are retained in the analysis, in contrast to procedures such as listwise deletion, in which any participant with a missing observation would be analytically lost. Individuals with missing data provide information for the estimation of overall effects by borrowing information from participants with complete data (Snijders & Bosker, 1999).

Outcome analysis. To test immediate (i.e., Time 2) intervention efficacy for child and parent survey outcomes, a three-level multilevel model (MLM; Raudenbush & Bryk, 2002; Snijders & Bosker, 1999) was implemented for each outcome separately in SAS PROC MIXED (Singer, 1998). Repeated outcome measures were treated as Level 1 of the hierarchical data nested within participants as Level 2. One to three pairings were cluster-randomized within classrooms to either the treatment condition receiving CBC or a business as usual control condition, with classrooms as Level 3.

Time was operationalized as the difference in days between pre- and post-intervention measurement occasions, centered at the pre-intervention phase. Time 1 and Time 2 survey administrations were designed to occur exactly 12 weeks apart. However, because there was some variability between parents, variation in response time was computed in days. Thus, the participant-specific difference between pre- and post-test phase survey responses was reflected as time in days rather than wave of data collection. To avoid exceedingly small coefficients for Time (where every one-unit increase in Time would reflect a single day rather than pre- to post-intervention wave), the number of days between survey responses was divided by 84 (i.e., 12 weeks) to produce a participant specific “wave.” The cross-level Time by Condition interaction

effect tested the efficacy of CBC, such that a significant Time by Condition (treatment, control) interaction favoring children and parents who received CBC indicated that their improvement significantly outpaced control group participants on average. Level 2 and Level 3 random intercepts were included in the models. Kenward-Roger Degrees of Freedom Approximation (DDFM) was used (Kenward & Roger, 1997).

Parent Daily Reports were collected in a repeated fashion over ten assessments. The first four PDR assessments (i.e., equivalent to the pre-intervention phase for CBC participants) were aggregated and averaged to represent Time 1; the final six assessments (constituting the post-intervention phase for CBC participants) were aggregated and averaged to represent Time 2. Time was operationalized as wave (time 1 as 0; time 2 as 1), and similar three-level models were fit for these outcomes.

Covariates. The sample cohort in which participants were recruited and randomized was the only covariate.

Controlling for multiple tests. A number of outcomes were assessed for both children and parents. Across these outcomes, several domains or “families” of child behaviors (and similarly, parent outcomes) were created. Multiple statistical tests within them were controlled to address a false discovery rate (FDR) and avoid an inflated Type I error. The Benjamini-Hochberg method (Benjamini & Hochberg, 1995) was implemented in SAS PROC MULTTEST (Westfall, Tobias, Rom, Wolfinger, & Hochberg, 1999) to produce FDR-adjusted *p*-values for Time x Condition interaction effects. For student measures, *p*-values were adjusted within: positive (i.e., BASC-2 Adaptive Skills; SSiS) and negative behaviors (i.e., BASC-2 (Externalizing Problems, Internalizing Problems, Behavioral Symptoms Index). For daily reports of children’s behaviors as assessed on the PDR, *p*-values were adjusted across the behaviors that

aligned with targets of CBC, forming three families (i.e., compliance: comprised of noncompliance and defiance; interference: comprised of yelling and arguing; emotional control: comprised of tantrums and aggressiveness). For parent outcomes, four families were derived: parenting skills (i.e., APQ measures), parenting practices (i.e., PPI items), parenting self-efficacy and problem solving (i.e., PCPS, PEHCS), and parent-teacher relationship (i.e., PTRS).

Mediators of survey-based outcomes. Multilevel structural equation modeling (MSEM; Preacher, Zyphur, & Zhang, 2010) tested whether the parent-teacher relationship mediates the efficacy of CBC on student outcomes. Two hierarchical levels were included in this statistical model, with the parent-teacher relationship as reported by parents (mediator) and student behaviors (outcome) at Time 2 modeled as Level 1 (student/parent-level) and condition assignment (treatment, control) modeled as the predictor at Level 2 (classroom-level). The parent-teacher relationship at Time 1 was included as a covariate for the parent-teacher relationship at Time 2; student behaviors at Time 1 were included as their covariate at Time 2. Student behaviors for which a significant Time by Condition interaction effect was found in the MLM models testing CBC efficacy were included in the MSEM models testing parent-teacher relationship as a mediating mechanism. The direct effect of CBC was first re-established without parent-teacher relationship included in the model (as a mediator or covariate) to confirm that the significant finding is robust across statistical approaches (i.e., MLM and MSEM). Parent-teacher relationship was then added to the MSEM model to determine whether there was a significant indirect effect and reduced direct effect of CBC on standardized measures of student behaviors³.

Results

³ Tests of the potential mediating role of CBC on student behaviors as assessed on the PDR were not possible due to the timing of assessments. Specifically, PDR post-intervention data were collected over several weeks and averaged to produce outcome scores. Subsequently, some PDR (outcome variable) data were collected at a point in time that preceded the PTRS Time 2 (mediator variable) data, thus failing to meet the temporal precedence requirement in mediation analyses.

Information regarding fidelity of CBC procedures and behavioral plan implementation in home settings, effects of CBC on students and parents at home, mediation outcomes, and parents' acceptability of CBC are reported in the sections that follow.

Fidelity of CBC and Behavioral Plan Implementation

The degree of adherence to CBC interview objectives, and the quality with which the objectives were met, were assessed for CBC implementation using CBC fidelity matrices. Across all consultants and interviews, average adherence ranged from 93% to 96%, indicating high overall adherence to CBC objectives. On a scale of 0 to 2.0, average quality ratings across interviews and consultants ranged from 1.64 to 1.81 ($SD = 0.15$), suggesting that the CBC interviews were delivered with high quality.

Behavioral plans were developed during Planning for Success meetings. Permanent products were developed as part of each student's plan, and submitted to the research team on four occasions. Over the four occasions, permanent products were collected for an average of 77.3% of students in the CBC group. Scoring of the permanent products revealed that 90% of the behavior plan steps were followed by parents.

Child Outcomes

The effects of CBC on students' behaviors at home were assessed via both repeated (i.e., Parent Daily Report) and standardized measures (BASC-2, SSiS). Descriptive statistics across groups at pre- and post-test are in Tables 3 and 4. Results from the main effects analyses are in Tables 5 and 6, and Figures 2 through 4.

Six PDR behaviors were considered to align closely to the highest frequency behaviors targeted in CBC casework: noncompliance, defiance, arguing, yelling, aggressiveness and tantrums (see Measures). These six PDR behaviors were considered in our final analyses; results

are in Table 5 and Figure 2. Of the six behaviors, a significant Time x Condition interaction was found for aggressiveness, noncompliance, and temper tantrums ($ps < .05$; $ds = .29$ to $.34$), suggesting that for children whose parents and teachers participated in CBC, positive changes were observed at a faster pace than for their control group counterparts.

On the BASC-2, a significant Time x Condition interaction was found for the Adaptive Skills index only [$\gamma = -1.79$, $t(183) = -2.06$, $p < .04$, $d = .22$], indicating that for children whose parents and teachers participated in CBC, the gains in adaptive skills outpaced those of their control group peers (see Table 6 and Figure 3). No significant Time x Condition interactions were found for other BASC-2 composite scores.

Parent reports on the SSiS revealed a significant Time x Condition interaction [$\gamma = 5.95$, $t(190) = 3.98$, $p < .01$, $d = .56$], reflecting that CBC improved the social skills of students whose parents and teachers participated in CBC, and their improvement significantly outpaced students in the control group. Results are presented in Table 6 and Figure 3.

Parent Outcomes

Parents' skills (i.e., problem solving, parenting strategies), efficacy, and relationships with their children's teachers were assessed at Times 1 and 2, for participants in the CBC and control conditions. Descriptive statistics across measures and groups are in Table 7; results of the main effects analyses are in Table 8.

Parenting practices and strategies. Daily use of parenting practices was assessed with the PPI, a technique that parallels the PDR but reports on parents' rather than children's behaviors. Results are in Table 8 and Figure 4. On this scale, parents in the CBC group demonstrated significantly more practices associated the use of rewards to reinforce their child's positive behavior [$\gamma = .188$, $t(208) = 3.99$, $p < .001$, $d = .52$], help their child with social skills [γ

= .079, $t(208) = 1.97$, $p < .05$, $d = .26$], and use antecedent techniques to prevent misbehavior [$\gamma = .090$, $t(208) = 1.99$, $p < .05$, $d = .25$].

Parents self-reported on the strategies they used in their parenting role on the APQ (Shelton et al., 1996). Of the strategies measured on the APQ, those associated with positive parenting, involvement and discipline were most closely aligned with intervention plans used within CBC. On these subscales, there were no differences between parents in the CBC group and those receiving business as usual.

Parent competence in problem solving. Parents receiving CBC reported significantly improved competence in their problem-solving practices with their child's teachers. Specifically, on the PCPS (Sheridan, 2004), a significant Time x Condition interaction [$\gamma = -.49$, $t(209) = 5.08$, $p = .01$, $d = .84$] suggested gains that outpaced parents in the control group.

Parent efficacy for helping child succeed. As a function of CBC, parents indicated significantly improved efficacy for helping their child succeed in school. Their responses on the PEHCS (Hoover-Dempsey et al., 1992) revealed a significant Time x Condition interaction [$\gamma = -.15$, $t(204) = 2.53$, $p = .01$, $d = .43$] and suggested improvements in parenting efficacy that outpaced their counterparts in the control condition.

Parent-teacher relationship. The parent-teacher relationship, as reported by parents, significantly benefited from CBC. Specifically, a significant Time x Condition interaction [$\gamma = -.19$, $t(195) = 3.48$, $p = .02$, $d = .51$] indicated that parents in the CBC condition improved their relationship with their children's teachers at a significantly greater pace than the control parents. In fact, parents' reports of their relationships with teachers deteriorated over time for parents who experienced business as usual.

Mediation Effects

The parent-teacher relationship as reported by parents was tested as a mediator of CBC's efficacy on student behaviors for which a significant Time x Condition interaction was present in the MLM paradigm (i.e., adaptive behaviors, social skills). Among the parent-reported student behaviors for which a significant Time x Condition interaction was present, the effect of CBC on the BASC-2 Adaptive Skills was significantly mediated by the parent-teacher relationship (indirect effect = .60, $p = .03$, see Table 9 for fit and inferential statistics, and Figure 5 for mediation model). A similar effect was not found for the SSiS outcome.

Parent Acceptability of CBC

The BIRS Acceptability factor was used to determine parents' perceptions of the acceptability of CBC. Parents reported CBC to be highly acceptable. Specifically, out of possible items scores ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), mean item ratings on the BIRS Acceptability factor was 5.07 ($SD = .54$) across parent respondents.

Discussion

The present study investigated the effects of CBC on children's behavior in the home setting, CBC's effect on parent skills and relationships, and the role of the parent-teacher relationship as a change mechanism of CBC. Decades of efficacy research attests to the benefits of CBC for academic (Weiner et al., 1998), behavioral (Sheridan et al., 2012), and social behaviors (Owens et al., 2008) at school, and this study supports previous research documenting CBC's efficacy for improving child and parent outcomes within the home environment (Sheridan et al., 2013). However, this study is the first to examine CBC's effects in rural communities and areas outside urban clusters, where school and community factors (e.g., family-school interactions, student behaviors, resource availability and allocation) could influence all aspects of intervention uptake and efficacy. The present study thus represents the first of its kind, rigorously

testing CBC outcomes for children and parents in rural schools where considerable behavioral challenges may be present (Sheridan, Koziol, Clarke, Rispoli, & Coutts, 2015) and limited specialized services available for families (DeLeon, Wakefield, & Hagglund, 2003).

Findings from this study revealed the immediate efficacy of CBC on certain child behaviors and social skills at home across two different types of measures. In addition, findings from this replication study support the efficacy of CBC at improving targeted parenting strategies and relationships, and the mediational role of the parent-teacher relationship on children's adaptive outcomes. In general, these outcomes corroborate and extend findings from previous experimental studies conducted in urban/suburban settings (Sheridan et al., 2013). Therefore, results from the current study add to the growing body of evidence supporting CBC as an effective intervention for improving student behaviors, parent skills, and parent-teacher relationships across different community settings.

Main Findings

Children whose parents participated in CBC demonstrated significantly greater decreases in several specific behaviors as measured through frequent and targeted parent daily reports (PDRs; Chamberlain & Reid, 1987), relative to children receiving "business as usual" (e.g., special education, outpatient therapy, or family counseling). These behaviors (i.e., noncompliance, aggressiveness, and tantrums) were often targets in CBC and were positively affected by the constructive, collaborative CBC process. However, in contrast to previous research in urban/suburban settings (Sheridan et al., 2013), significant differences between CBC and control groups on PDR-reported defiance and arguing behaviors were not observed for children receiving CBC services relative to their non-CBC counterparts. Furthermore, changes observed for aggressiveness, noncompliance and temper tantrums were small to moderate, as

indicated by effect sizes between .29 and .33 (see Table 5). Despite the significant main effects, opportunities to investigate methods for bolstering CBC's effectiveness on behaviors at home may be worth pursuing.

Mixed findings on the broadband measure of behavior (i.e., BASC-2 and SSiS) were noted in this study. Specifically, significantly greater improvements in adaptive and social skills were noted for CBC participants relative to controls as assessed by parent reports on the BASC-2 and SSiS, respectively. The effect size for adaptive skills was notably smaller than for social skills (.22 and .56, respectively). Furthermore, CBC effects for broadband externalizing and internalizing behaviors as reported by parents on the BASC-2 were not found. Given the goal-directed focus of CBC casework and emphasis on supporting the development of prosocial behaviors, it is not surprising to see significantly different outcomes across groups on social and adaptive skills but not externalizing and internalizing problems. It is noteworthy that these results generally corroborate and extend a previous RCT examining CBC efficacy in urban/suburban communities (Sheridan et al., 2012; Sheridan et al., 2013), which found significant Time x Condition interactions for teacher and parent reports of social skills and teacher (but not parent) report of adaptive skills, but not externalizing or internalizing behaviors.

The most consistent finding reflected in this study and elsewhere suggests at a global level, CBC is particularly effective for promoting positive skills rather than decreasing negative child behaviors. At a more targeted, idiosyncratic level, however, it appears that specific negative behaviors in the classroom (off-task, excessive movement; Sheridan et al., 2017) and home (aggressiveness, tantrums, noncompliance) environments assessed on a daily basis may be somewhat sensitive to CBC's effects. It could be that the BASC-2 Externalizing, Internalizing and Behavioral Symptoms composite scores are not responsive to nuanced results associated

with the specific behaviors assessed by the PDR on a repeated basis. More research is needed to uncover other potential reasons for the inconsistent findings between the PDR and BASC-2 results.

Because the importance of family engagement in education-related behaviors is well documented, these parent outcomes are particularly meaningful. Findings are highly encouraging and suggest that CBC effectively increased parent competence in problem solving, daily use of positive parenting strategies, and parenting efficacy relative to a control condition, with effect sizes in the moderate to large range (see Table 8). That is, relative to a control group of parents of children with behavioral concerns, those participating in the collaborative CBC process experienced gains in their ability to respond positively to their child's behavior and feel confident in their ability to help their child succeed in school. These enhanced parenting outcomes are particularly noteworthy for parents in rural communities with limited family supports. Similarly, parents reported significantly greater gains in their own competence in problem solving (e.g., setting goals for their child, identifying and implementing specific strategies that can be changed to help their child's behavior, and gathering information to assess their child's progress), which may generalize to ameliorate future problem behaviors. Such parenting skills that promote the active and positive participation of families are instrumental in children's success (Hoagwood, 2005).

Importantly, this study provides further validation of ecological theory and the home-school connection as essential to student success. CBC is grounded in ecological theory (Bronfenbrenner, 1979), which emphasizes the importance of the mesosystem (i.e., school-home interface) as an influence and potential resource for students at risk. Therefore, consistent evidence of the immediate and remarkably strong effect of CBC on parent-teacher relationships

is of considerable importance. The significant effect of CBC on parent-teacher relationships in rural communities contrasts with findings from a previous RCT (Sheridan et al., 2012) where no difference between the control and CBC group was found in urban parents' reports of the parent-teacher relationships. This is particularly important for rural communities, where communication between families and schools is limited (Prater et al., 1997) and relationships are less positive than in urban areas (Witte & Sheridan, 2016). Furthermore, the parent-teacher relationship again partially explained the efficacy of CBC as it did in a previous RCT, wherein teachers' reports of their relationship with parents mediated positive student outcomes. This set of findings adds further support for ecological theory and highlighting the family-school interface as pivotal for student outcomes. That is, demonstrating the causal role of parent-teacher relationships in promoting important outcomes for students at risk further validates the role of the mesosystem in enhancing students' success.

In addition to significant effects for parents' self-perceptions associated with problem-solving competence, parenting efficacy and parent-teacher relationships, daily reports of parenting strategy use revealed significantly enhanced rates of change on targeted practices (i.e., use of praise, skill building, antecedent control) relative to the comparison group. Effect sizes were small to moderate (range = .25 to .52), suggesting room for continued improvement in terms of parenting strategies. Furthermore, there were no significant differences between groups on other general parenting practices as measured on the APQ (Shelton et al., 1996). Increases on APQ items tapping parental involvement, positive parenting, and discipline (e.g., "You have a friendly talk with your child." "You let your child know when he/she is doing a good job with something." and "Your child talks you out of being punished after he/she has done something wrong.") were anticipated through the behavioral interventions developed through CBC. It is

possible that items on the APQ may not have been sensitive or specific enough to capture the effects of CBC on global parenting responses, and individualized daily reports (i.e., Parent Practices Inventories) captured their practices with greater precision. Exploration of methods for increasing opportunities for strengthening the effect of CBC on promoting effective parenting practices such as observation, performance feedback, and modeling – methods that were not used routinely in the present study – could increase dosage and bolster effects for both parents and children.

Implications for Practice in Rural Communities

Growing up in rural American communities affords children notable opportunities for positive lifetime trajectories. However, the presence of children’s mental and behavioral health problems is salient within rural America where, relative to their urban counterparts, children are more likely to have a mental health problem (Lenardson et al., 2010), demonstrate behavior difficulties at home (Hope & Bierman, 1998), and enter school with higher overall adjustment problems (Sheridan et al., 2014). Our research has shown that even as young as Kindergarten, rural students have more challenging behaviors than non-rural students (Sheridan et al., 2014), and the gap between rural and non-rural students in positive, adaptive behaviors increases with greater levels of risk (i.e., poverty, single parent, language barriers, low parental education). Long-standing barriers to services in rural communities, including insufficient mental health services, cultural differences (Slama, 2004) and stigma make access to treatment options challenging (Larson & Corrigan, 2010). Given the limited resources for their effective treatment, mental health problems are more debilitating for rural children than for their peers in other geographic contexts. Schools are the “hub” of rural communities and are often called upon to provide specialized services, but tend to lack the necessary infrastructure (e.g., trained staff,

professional development, onsite support) to effectively meet the needs of children with behavioral and mental health difficulties (Thornton, Hill, & Usinger, 2006). CBC creates effective family-school partnerships to leverage the strengths in rural communities and increase access to mental health services to ameliorate disparities prevalent in rural settings.

Study Limitations

The results of this study align with previous research on CBC (Sheridan et al., 2012) and advance our understanding of the efficacy of CBC for children and parents in rural communities. However, certain limitations should be considered when interpreting the findings. First, the families in this study were recruited from rural communities and towns across three Midwestern states. These settings vary widely based on population size, industry, and locale, each community with its own unique contextual and cultural features. Given the heterogeneity of the settings, characteristics specific to certain rural communities and towns may impact the effectiveness of CBC. As a result, the findings from this study are limited to one rural region and additional research is needed to determine if results generalize to other areas.

To determine children's daily behavior at home, parents were asked to report on behaviors they observed in the past 24 hours from a standard list of common problems (e.g., noncompliance, arguing). Although this measure is frequently used a proxy for direct observations in the home setting, reliability data were not collected. Parents in the treatment group were aware that they were implementing interventions intent on improving their children's behavior and may have been more likely to report positive changes than those in the control group. Although this same potential bias was not evident on the standardized measures where there were no differences in externalizing and other disruptive behaviors between treatment and control groups, more objective measures of children's behaviors at home may be warranted.

Direct observational data of children's behavior at home may disentangle whether the results are attributed to objective changes in children's behavior or were influenced by the method (e.g., parent-report of observed problem behaviors) used to collect the data.

Similarly, observations of parents' implementation of behavioral inventions at home were not conducted. Assessments of parents' strategy use paralleled the PDR child behavior measurement (i.e., collected daily by researchers via interview), and are subject to the same limitations. Additionally, the phone interview method used to collect parents' report of their practices in a 24-hour period (the Parent Practices Inventory) is a new measure developed by the research team and has not yet been subjected to psychometric scrutiny. More research with this novel measure is needed to fully understand its utility as a means for collecting home-based parenting information on a continuous basis.

The fidelity with which parents implemented the interventions was collected through permanent products on which evidence of intervention components delivered were recorded (e.g., completed home-school notes, behavior charts). These measures provide an understanding of parents' adherence to certain intervention plan components; however, direct observations of parents' implementation of interventions may be necessary to determine the accuracy of parents' reports and measure additional dimensions of fidelity (Dane & Schneider, 1998), including the quality with which parents' delivered the components and the child's responsiveness to the intervention. Such observations may also provide objective information on the degree to which parents learn and practice effective strategies as a function of the CBC intervention.

Finally, consistent with previous research examining the efficacy of CBC (Sheridan et al., 2012) the sample used in this study only included children with disruptive behavior problems. Although this is appropriate to build the evidence-base of CBC, CBC may operate differently for

other common concerns in childhood. Small-*n* experimental studies have demonstrated encouraging findings for the efficacy of CBC for children with concerns other than disruptive behavior, including internalizing problems (Sheridan & Colton, 1994) and academic deficits (e.g., Galloway & Sheridan, 1994; Weiner, Sheridan, & Jenson, 1998). Replicating these findings with larger samples is necessary to understand whether the effects of CBC generalize to other difficulties children experience at home and school.

Future Research Directions

The findings of this study lend themselves to several directions for future research. First, findings from this study support CBC as an efficacious intervention to address behavioral concerns for children in rural communities and towns. Although the results provide a global understanding of how CBC operates in these communities, these settings have their own unique challenges and supports that may impact the efficacy of CBC (Holmes, Witte, & Sheridan, in press). Research intent on discerning the specific characteristics of nonurban settings that may influence the adoption, implementation, and sustainability of CBC is necessary. Rural parents, in particular, may live long distances from their school and have difficulty traveling for CBC meetings or may fear that their involvement in services to address their child's behavioral concerns may be revealed to others in their community. These contextual features, parental beliefs, and expectations may influence the strength of the effects of CBC and warrant careful investigation as potential moderators of the intervention's success.

Second, the results of this study failed to reveal significant differences between the CBC and "business as usual" groups on a standardized global measure of parenting. The measure used in this study to assess parenting practices may not have been sensitive or specific enough to detect changes in practices in a short period of time (i.e., eight weeks). Moreover, fidelity of

parents' implementation of intervention plans was not assessed directly. Given this, it is difficult to know whether CBC effectively modified parents' behavioral practices beyond what was suggested in the more proximal assessment of daily practices. Future research is needed to ascertain whether standard CBC practice is sufficient for modifying parents' behavioral strategy use with objective and reliable measures, and how that influences child outcomes.

Third, it is necessary to determine the lasting effects of CBC. CBC research has established the immediate (Sheridan et al., 2012) and short-term maintenance effects of CBC (Mautone et al., 2012; Murray et al., 2008; Power et al., 2012) for children, parents, and teachers. However, the longitudinal effects of CBC have not been explored. Future research should investigate whether the effects of CBC endure long after participation in the intervention and as children develop and progress through school where they come into contact with different teachers, peer groups, and environments.

Finally, families in rural communities encounter many challenges accessing services for their children. CBC is a promising intervention that may bypass some of these barriers (Holmes et al., in press); however, it is necessary to determine if the results of CBC can be replicated when implemented by authentic school providers (e.g., school psychologists) in much less controlled settings. Understanding the potential role of consultant contributes to this issue, as variations in the field (where controls utilized in this study such as rigorous consultant training, checks on fidelity and individualized supervision are absent) may impact the uptake, delivery and effectiveness of CBC. Future research focused on scaling CBC represents an important next step to fully understand the feasibility and sustainability of the intervention for rural children, families, and schools in rural and other settings.

References

- Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society, Series B*, 57, 289–300.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experimental by nature and design*. Cambridge, MA: Harvard University Press.
- Bub, K. L., McCartney, K., & Willett, J. B. (2007). Behavior problem trajectories and first-grade cognitive ability and achievement skills: A latent growth curve analysis. *Journal of Educational Psychology*, 99, 653–670.
- Chamberlain, P., & Reid, J. B. (1987). Parent observation and report of child symptoms. *Behavioral Assessment*, 9, 97–109.
- Clarke, B., Koziol, N. A., & Sheridan, S. M. (in press). The effects of rurality on parents' engagement in children's early literacy. In G. C. Nugent, G. M. Kunz, S. M. Sheridan, T. A. Glover, & L. L. Knoche (Eds.), *Rural education research: State of the science and emerging directions*. New York, NY: Springer.
- Dane, A. V., & Schneider, B. H. (1998). Program integrity in primary and secondary prevention: Are implementation effects out of control? *Clinical Psychology Review*, 18, 23–45.
- DeLeon, P. H., Wakefield, M., & Hagglund, K. J. (2003). The behavioral health care needs of rural communities in the 21st century. In H. B. Stamm (Ed.), *Rural behavioral health care: An interdisciplinary guide* (pp. 23–32). Washington, DC: American Psychological Association.

- Dishion, T. J., & Patterson, G. R. (2006). The development and ecology of antisocial behavior in children and adolescents. In D. Cicchetti & D. Cohen (Eds.), *Developmental psychopathology, Vol 3: Risk, disorder, and adaptation* (2nd ed., pp. 503–541). Hoboken, NJ: John Wiley & Sons, Inc.
- Dodge, K. A., Greenberg, M. T., & Malone, P. S. (2008). Testing an idealized dynamic cascade model of the development of serious violence in adolescence. *Child Development, 79*, 1907–1927.
- Downer, J. T., & Pianta, R. C. (2006). Academic and cognitive functioning in first grade: Associations with earlier home and child care predictors and with concurrent home and classroom experiences. *School Psychology Review, 35*, 11–30.
- Elliott, S. N., & Von Brock Treuting, M. (1991). The Behavior Intervention Rating Scale: Development and validation of a pretreatment acceptability and effectiveness measure. *Journal of School Psychology, 29*, 43–51.
- Enders, C. K. (2001). A primer on maximum likelihood algorithms available for use with missing data. *Structural Equation Modeling, 8*, 128–141.
- Evans, G. W. (2006). Child development and the physical environment. *Annual Review of Psychology, 57*, 423–451.
- Fantuzzo, J., Sekino, Y., & Cohen, H. L. (2004). An examination of the contributions of interactive peer play to salient classroom competencies for urban Head Start children. *Psychology in the Schools, 41*, 323–336.
- Fisher, P. A., & Stoolmiller, M. (2008). Intervention effects on foster parent stress: Associations with children's cortisol levels. *Developmental Psychopathology, 20*, 1003–1021.

- Forgatch, M. S., & Toobert, D. J. (1979). A cost-effective parent training program for use with normal preschool children. *Journal of Pediatric Psychology, 4*, 129–145.
- Freer, P., & Watson, T. S. (1999). A comparison of parent and teacher acceptability ratings of behavior and conjoint behavioral consultation. *School Psychology Review, 28*, 672–684.
- Galloway, J., & Sheridan, S. M. (1994). Implementing scientific practices through case studies: Examples using home–school interventions and consultation. *Journal of School Psychology, 32*, 385–413.
- Girio-Herrera, E., Owens, J. S., & Langberg, J. M. (2013). Perceived barriers to help-seeking among parents of at-risk kindergarteners in rural communities. *Journal of Clinical Child & Adolescent Psychology, 42*, 68–77.
- Gresham, F. M., & Elliott, S. N. (2008). *Social Skills Improvement System–Rating Scales*. Minneapolis, MN: Pearson Assessment.
- Hamre, B. K., & Pianta, R. C. (2005). Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development, 76*, 949–967.
- Hill, N. E., Bush, K. R., & Roosa, M. W. (2003). Parenting and family socialization strategies and children’s mental health: Low-income Mexican American and Euro-American mothers and children. *Child Development, 74*, 189–204.
- Hoagwood, K. E. (2005). Family-based services in children’s mental health: A research review and synthesis. *Journal of Child Psychology and Psychiatry, 46*, 690–713.
- Holmes, S. R., Witte, A. L., & Sheridan, S. M. (in press). Conjoint behavioral consultation in rural schools. In K. Michael & J. Jameson (Eds.), *Handbook of rural school mental health*. New York, NY: Springer.

- Hoover-Dempsey, K. V., Bassler, O. C., & Brissie, J. S. (1992). Explorations in parent–school relations. *Journal of Educational Research, 85*, 287–294.
- Hope, T. L., & Bierman, K. L. (1998). Patterns of home and school behavior problems in rural and urban settings. *Journal of School Psychology, 46*, 45–58.
- Jenson, W. R., Rhode, G., & Neville, M. H. (2010). *The tough kid parent book*. Eugene, OR: Pacific Northwest.
- Jenson, W. R., Rhode, G., & Reavis, H. K. (2009). *The tough kid tool box*. Eugene, OR: Pacific Northwest.
- Kenward, M. G., & Roger, J. H. (1997). Small sample inference for fixed effects from restricted maximum likelihood. *Biometrics, 53*, 983–997.
- Kim, E. M., Sheridan, S. M., Kwon, K., & Koziol, N. A. (2013). Parent beliefs and children’s social-behavioral functioning: The mediating role of parent-teacher relationships. *Journal of School Psychology, 51*, 175–185.
- Knoche, L. L., Sheridan, S. M., Clarke, B. L., Edwards, C. P., Marvin, C. A., Cline, K. D., & Kupzyk, K. A. (2012). Getting ready: Results of a randomized trial of a relationship-focused intervention on the parent-infant relationship in rural early head start. *Infant Mental Health Journal, 33*, 439–458.
- Kunz, G. M., Bieber, K., Witte, A., Chapla, B., & Sheridan, S. M. (2011). *Conjoint Behavioral Consultation Quality Matrix*. Unpublished scale. Lincoln, NE: University of Nebraska–Lincoln.
- Lachin, J. M. (2000). Statistical considerations in the intent-to-treat principle. *Controlled Clinical Trials, 21*, 167–189.

- Larson, J. E., & Corrigan, P. W. (2010). Psychotherapy for self-stigma among rural clients. *Journal of Clinical Psychology, 66*, 525–536.
- Larzelere, R. E., & Patterson, G. R. (1990). Parental management: Mediator of the effect of socioeconomic status on early delinquency. *Criminology, 28*, 301–324.
- Lenardson, J. D., Ziller, E. C., Lambert, D., Race, M. M., & Yousefian, A. (2010). *Access to mental health services and family impact of rural children with mental health problems: Mental health problems have considerable impact on rural children and their families* (Working Paper #45). Portland, ME: Muskie School of Public Service, Maine Rural Health Research Center.
- Mautone, J. A., Marshall, S. A., Sharman, J., Eiraldi, R. B., Jawad, A. F., & Power, T. J. (2012). Development of a family–school intervention for young children with ADHD. *School Psychology Review, 41*, 447–466.
- McCain, A. P., & Kelley, M. L. (1994). Improving classroom performance in underachieving preadolescents: The additive effects of response cost to a school–home note system. *Child & Family Behavior Therapy, 17*, 27–41.
- McMahon, R. J., & Forehand, R. L. (2003). *Helping the noncompliant child: Family-based treatment for oppositional behavior* (2nd ed.). New York, NY: Guilford.
- Monk, D. (2007). Recruiting and retaining high-quality teachers in rural areas. *The Future of Children, 17*, 155–174.
- Moore, L. A., Waguespack, A. M., Wickstrom, K. F., Witt, J. C., & Gaydos, G. R. (1994). Mystery motivator: An effective and time efficient intervention. *School Psychology Review, 23*, 106–118.

- Murray, D., Rabiner, D., Schulte, A. C., & Newitt, K. (2008). Feasibility and effectiveness of a daily report card intervention for ADHD students. *Child & Youth Care Forum, 37*, 111–126.
- Musser, E. H., Bray, M. A., Kehle, T. J., & Jenson, W. R. (2001). Employing precision requests and antecedent strategies to reduce disruptive behavior in students with social and emotional disorders: A replication. *School Psychology Review, 30*, 294–304.
- Office of Management and Budget (2000). Standards for Defining Metropolitan and Micropolitan Statistical Areas; Notice. Federal Register (65) No. 249. Retrieved from <https://nces.ed.gov/surveys/ruraled/definitions.asp>
- Owens, J. S., Murphy, C. E., Richerson, L., Girio, E. L., & Himawan, L. K. (2008). Science to practice in underserved communities: The effectiveness of school mental health programming. *Journal of Clinical Child and Adolescent Psychology, 37*, 434–447.
- Pfiffner, L. J., & McBurnett, K. (1997). Social skills training with parent generalization: Treatment effects for children with ADD/ADHD. *Journal of Consulting and Clinical Psychology, 65*, 749–757.
- Power, T. J., Mautone, J. A., Soffer, S. L., Clarke, A. T., Marshall, S. A., Sharman, J., . . . Jawad, A. F. (2012). A family–school intervention for children with ADHD: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 80*, 611–623.
- Prater, D. L., Bermudez, A. B., & Owens, E. (1997). Examining parental involvement in rural, urban, and suburban schools. *Journal of Research in Rural Education, 13*, 72–75.
- Preacher, K. J., Zyphur, M. J., & Zhang, Z. (2010). A general SEM framework for assessing multilevel mediation. *Psychological Methods, 15*, 209–233.

- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Reef, J., Diamantopoulou, S., van Meurs, I., Verhulst, F. C., & van der Ende, J. (2011). Developmental trajectories of child to adolescent externalizing behavior and adult DSM-IV disorder: Results of a 24-year longitudinal study. *Social Psychiatry and Psychiatric Epidemiology*, *46*, 1233–1241.
- Reinke, W. M., Herman, K. C., Petras, H., & Ialongo, N. S. (2008). Empirically derived subtypes of child academic and behavior problems: Co-occurrence and distal outcomes. *Journal of Abnormal Child Psychology*, *36*, 759–770.
- Reynolds, C. R., & Kamphaus, R. W. (2004). *Behavior Assessment System for Children, Second Edition (BASC-2)*. Circle Pines, MN: AGS Publishing.
- Rimm-Kaufman, S. E., Curby, T. W., Grimm, K. J., Nathanson, L., & Brock, L. L. (2009). Contribution of children's self-regulation and classroom quality to children's adaptive behaviors in the kindergarten classroom. *Developmental Psychology*, *45*, 958–972.
- Schwartz, D., Pettit, G. S., Lansford, J. E., Dodge, K. A., & Bates, J. E. (2013). The link between harsh home environments and negative academic trajectories is exacerbated by victimization in the elementary school peer group. *Developmental Psychology*, *49*, 305–316.
- Shelton, K. K., Frick, P. J., & Wootton, J. (1996). The assessment of parenting practices in families of elementary school-aged children. *Journal of Clinical Child Psychology*, *25*, 317–327.
- Sheridan, S. M. (2004). *Parent Competence in Problem Solving Scale (PCPS)*. Unpublished scale. Lincoln, NE: University of Nebraska–Lincoln.

- Sheridan, S. M. (2010). *Social skills for the tough kid: Tips and tools for parents*. Eugene, OR: Pacific Northwest.
- Sheridan, S. M., Bovaird, J. A., Glover, T. A., Garbacz, S. A., Witte, A., & Kwon, K. (2012). A randomized trial examining the effects of Conjoint Behavioral Consultation and the mediating role of the parent–teacher relationship. *School Psychology Review, 41*, 23–46.
- Sheridan, S. M., Clarke, B. L., & Christenson, S. L. (2014). Best practices in promoting family engagement in education. In P. L. Harrison & A. Thomas (Eds.), *Best practices in school psychology: Systems-level services* (pp. 439–453). Bethesda, MD: National Association of School Psychologists.
- Sheridan, S. M., Clarke, B. L., Knoche, L. L., & Edwards, C. P. (2006). The effects of conjoint behavioral consultation in early childhood settings. *Early Education and Development, 17*, 593–618.
- Sheridan, S. M., & Colton, D. L. (1994). Conjoint behavioral consultation: A review and case study. *Journal of Educational and Psychological Consultation, 5*, 211–228.
- Sheridan, S. M., Koziol, N. A., Clarke, B. L., Rispoli, K. M., & Coutts, M. J. (2014). The influence of rurality and parent affect on kindergarten children’s social and behavioral functioning. *Early Education and Development, 25*, 1057–1082.
- Sheridan, S. M. & Kratochwill, T. R. (2008). *Conjoint behavioral consultation: Promoting family–school connections and interventions*. New York, NY: Springer.
- Sheridan, S. M., Rispoli, K., & Holmes, S. R. (2014). Treatment integrity in conjoint behavioral consultation: Active ingredients and potential pathways of influence. In L. Sanetti & T. Kratochwill (Eds.), *Treatment integrity: A foundation for evidence-based practice in applied psychology* (pp. 255–278). Washington, DC: American Psychological

Association.

- Sheridan, S. M., Ryoo, J. H., Garbacz, S. A., Kunz, G. M., & Chumney, F. L. (2013). The efficacy of conjoint behavioral consultation on parents and children in the home setting: Results of a randomized controlled trial. *Journal of School Psychology, 51*, 717–733.
- Sheridan, S. M., & Steck, M. (1995). Acceptability of conjoint behavioral consultation: A national survey of school psychologists. *School Psychology Review, 24*, 633–647.
- Sheridan, S. M., Swanger-Gagné, M., Welch, G. W., Kwon, K., & Garbacz, S. A. (2009). Fidelity measurement in consultation: Psychometric issues and preliminary examination. *School Psychology Review, 38*, 476–495.
- Sheridan, S. M., Witte, A. L., Holmes, S. R., Coutts, M. J., Dent, A. L., Kunz, G. M., & Wu, C. (2017). A randomized trial examining the effects of conjoint behavioral consultation in rural schools: Student outcomes and the mediating role of the teacher–parent relationship. *Journal of School Psychology, 61*, 33–53.
- Singer, J. D. (1998). Using SAS PROC MIXED to fit multilevel models, hierarchical models, and individual growth models. *Journal of Educational and Behavioral Statistics, 23*, 323–355.
- Slama, K. (2004, January). Rural culture is a diversity issue. *Minnesota Psychologist, 9–13*.
Retrieved from <https://www.apa.org/practice/programs/rural/cultural-competence.pdf>
- Snijders, T., & Bosker, R. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modeling*. London, England: Sage.
- Stormshak, E. A., Bierman, K. L., McMahon, R. J., & Lengua, L. J. (2000). Parent practices and child disruptive behavior problems in early elementary school. *Journal of Clinical Child Psychology, 29*, 17–29.

- Thornton, B., Hill, G., & Usinger, J. (2006). An examination of a fissure within the implementation of the NCLB accountability process. *Education, 127*, 115–120.
- Vickers, H. S., & Minke, K. M. (1995). Exploring parent–teacher relationships: Joining and communication to others. *School Psychology Quarterly, 10*, 133–150.
- Vitaro, F., Brendgen, M., Larose, S., & Tremblay, R. E. (2005). Kindergarten disruptive behaviors, protective factors, and educational achievement by early adulthood. *Journal of Educational Psychology, 97*, 617–629.
- Weiner, R., Sheridan, S. M., & Jenson, W. R. (1998). The effects of conjoint behavioral consultation and a structured homework program on math completion and accuracy in junior high school students. *School Psychology Quarterly, 13*, 281–309.
- Westfall, P., Tobias, R., Rom, D., Wolfinger, R., & Hochberg, Y. (1999). *Multiple comparisons and multiple tests using SAS*. Carey, NC: SAS Press.
- Witte, A. L., & Sheridan, S. M. (2016, February). *Parent–teacher relationships across community types*. Paper presented at the annual meeting of the National Association of School Psychologists, New Orleans, LA.
- Wright, A. (2003). Preserving and affirming rural values through curriculum. *The Educational Forum, 68*, 32–41.

Table 1

Objectives and Stages of CBC

Interview	Objectives
Needs Identification/Analysis (“Building on Strengths”)	<ul style="list-style-type: none"> ▪ Jointly identify and define child’s needs and priorities in behavioral terms. ▪ Determine a primary behavior to address (target behavior) for initial intervention. ▪ Collaboratively develop appropriate goals for target behavior across home and school. ▪ Discuss what is happening before and after the priority behavior, as well as specific patterns that occur, during the focused time/setting. ▪ Jointly establish a procedure to collect baseline data across settings.
Plan Development and Implementation (“Planning for Success”)	<ul style="list-style-type: none"> ▪ Collaboratively develop a plan built upon strengths and competencies to address the priority behavior across home and school. ▪ Train parents and teachers in plan implementation as necessary. ▪ Implement agreed-upon intervention across home and school settings. ▪ Make immediate modifications to plan as necessary. ▪ Support implementation of behavioral plan at home and school through observing, providing feedback, modeling, and troubleshooting. ▪ Assess immediate changes in student’s behavior.
Plan Evaluation (“Checking and Reconnecting”)	<ul style="list-style-type: none"> ▪ Determine if the goals for the priority behavior have been met. ▪ Discuss effective elements of the intervention plan. ▪ Discuss continuation/termination of plan. ▪ Schedule additional interview if necessary, or terminate consultation.

Note: Due to their sensitive nature, Needs Identification/Analysis Interviews were conducted with individual parents, their child’s teacher, and a consultant. All other interviews were conducted in small groups with one teacher, parents of 2-3 children in their classroom, and a consultant.

Source: Sheridan, S. M., Bovaird, J. A., Glover, T. A., Garbacz, S. A., Witte, A., & Kwon, K. (2012). A randomized trial examining the effects of conjoint behavioral consultation and the mediating role of the parent–teacher relationship. *School Psychology Review, 41*, 23–46.

Table 2

Demographic Characteristics of Student and Parent Participants

	Total (<i>N</i> = 267)	Experimental (<i>N</i> = 159)	Control (<i>N</i> = 108)
Students			
Mean (<i>SD</i>) Age	6.88 (1.22)	6.85 (1.16)	6.92 (1.30)
Mean (<i>SD</i>) Grade ^a	1.48 (1.12)	1.50 (1.09)	1.45 (1.16)
Gender ^c			
Male	76%	72%	82%
Female	24%	28%	19%
Ethnicity ^c			
White, non-Hispanic	86%	86%	90%
African American	3%	4%	2%
Hispanic or Latino	5%	5%	5%
Asian or Other	6%	5%	3%
Mean (<i>SD</i>) Behavior Severity (1-9) ^{a,b}	6.57 (1.40)	6.69 (1.39)	6.40 (1.40)
Parent Reported Disability ^c	44%	42%	47%
Teacher Reported IEP ^{c,d}	24%	23%	26%
Eligible for Free/Reduced Lunch ^c	56%	57%	56%
Parents			
Mean Age (<i>SD</i>)	34.19 (7.55)	33.82 (7.42)	34.77 (7.76)
Gender			
Female	90%	89%	91%
Male	10%	11%	9%
Ethnicity ^c			
White, non-Hispanic	90%	89%	92%
African American	2%	2%	2%
Hispanic or Latino	4%	4%	5%
Asian or Other	3%	4%	1%

Fewer than Two Adults in Home ^c	21%	24%	16%
Maternal Highest Education ^c			
Less than High School	10%	9%	12%
High School Diploma/GED	59%	60%	58%
College Degree or Advanced Degree	31%	31%	30%
Marital Status			
Married	57%	50%	69%
Single	19%	22%	14%
Divorced	16%	20%	10%
Other	8%	8%	7%

^a Independent samples t-tests yielded no significant difference ($p > .05$) between treatment and control conditions. ^b Pre-intervention rating of severity by teachers from 1 (low) to 9 (extreme). ^c Chi-square test of independence yielded no significant difference ($p > .05$) between treatment and control conditions. ^d IEP = Individualized Education Plan

Table 3

Means (Standard Deviations) of the Parent Daily Report Variables

	Control		CBC	
	Time 1	Time 2	Time 1	Time 2
Arguing	0.57 (0.33)	0.43 (0.33)	0.69 (0.33)	0.48 (0.36)
Defiance	0.36 (0.38)	0.21 (0.27)	0.41 (0.38)	0.28 (0.32)
Aggressiveness	0.17 (0.28)	0.15 (0.26)	0.23 (0.31)	0.13 (0.21)
Noncomplying	0.33 (0.35)	0.24 (0.28)	0.52 (0.37)	0.33 (0.33)
Temper tantrum	0.20 (0.29)	0.17 (0.26)	0.26 (0.34)	0.14 (0.22)
Yelling	0.29 (0.34)	0.23 (0.30)	0.38 (0.39)	0.25 (0.30)

Note: Data were collected via brief phone interviews with parents using the Parent Daily Report (Chamberlain & Reid, 1987); data collection occurred over four occasions during a baseline-equivalent phase (Time 1) and six occasions during an intervention-equivalent phase (Time 2). Scores are reported as average proportion of days the behavior was reported as occurring, across participants.

Table 4

Means (Standard Deviations) of Child Variables as Assessed on Standardized Measures

	Control		CBC	
	Time 1	Time 2	Time 1	Time 2
Adaptive Skills ^a	42.81 (10.00)	41.79 (9.60)	41.30 (9.04)	42.42 (9.98)
Behavioral Symptoms Index ^a	62.48 (11.85)	61.58 (12.60)	61.02 (11.33)	58.11 (10.55)
Externalizing Problems ^a	63.19 (12.05)	62.06 (13.33)	62.88 (12.40)	60.21 (13.04)
Internalizing Problems ^a	53.86 (10.95)	52.74 (10.23)	53.06 (11.76)	50.90 (9.62)
Social Skills ^b	87.45 (17.76)	85.53 (17.28)	82.76 (15.73)	87.77 (15.83)

^a Assessed using the Behavior Assessment Scale for Children – 2 (BASC-2; Reynolds & Kamphaus, 2004). Scores reported are T scores, with mean = 50 and SD = 10. ^b Assessed using the Social Skills Improvement Scale (SSiS; Gresham & Elliott, 2008). Standard scores are reported, with mean = 100 and SD = 15.

Table 5

Main Effects for PDR Outcomes

Outcome	Est.	SE	DF	<i>t</i>	<i>p</i>	<i>d</i> - index
Arguing						
Condition	.11	.04	219	2.53	.01	
Time	-.14	.04	219	-3.82	.00	
Time x Condition ^{a,b}	-.07	.05	219	-1.52	.13	.24
Defiance						
Condition	.06	.05	219	1.21	.23	
Time	-.13	.03	219	-3.80	.00	
Time x Condition	-.00	.04	219	-.07	.94	.04
Aggressiveness						
Condition	.06	.04	219	1.56	.12	
Time	-.02	.03	219	-.70	.49	
Time x Condition	-.08	.04	219	-2.1	.04	.29
Noncompliance						
Condition	.19	.04	219	4.20	.00	
Time	-.08	.04	219	-2.35	.02	
Time x Condition	-.11	.05	219	-2.35	.04	.33
Temper tantrum						
Condition	.06	.04	219	1.64	.10	
Time	-.03	.03	219	-.83	.41	
Time x Condition	-.09	.04	219	-2.27	.04	.34
Yelling						
Condition	.09	.05	219	1.95	.05	
Time	-.06	.03	219	-1.87	.06	
Time x Condition	-.08	.04	219	-2.10	.08	.30

Note: False discovery rate (FDR) of parent-report outcomes for the interactions was accounted for to address the possibility of an inflated Type I error rate. *p* values reflect adjusted alphas; bolded values represent significance.

^aNegative values represent decreases (improvements) in behaviors. ^bCohort was controlled in all models; cohort effects were not statistically significant ($p > .05$).

Table 6

Main Effects for Parent-Reported Survey-Based Child Outcomes

Outcome	Est.	SE	DF	<i>t</i>	<i>p</i>	<i>d</i> - index
Adaptive Skills ^a						
Condition	1.67	1.40	135	1.19	.23	
Time	1.47	.57	184	2.58	.01	
Time x Condition	-1.79	.87	183	-2.06	.04	.22
Behavioral Symptoms Index ^a						
Condition	1.31	1.64	140	.80	.43	
Time	-2.81	.65	180	-4.33	.00	
Time x Condition	1.64	1.00	179	1.65	.15	.26
Externalizing Problems ^a						
Condition	.21	1.70	138	.13	.90	
Time	-3.28	.83	186	-3.97	.00	
Time x Condition	2.13	1.26	183	1.69	.15	.21
Internalizing Problems ^a						
Condition	.84	1.45	139	.58	.57	
Time	-1.89	.69	184	-2.74	.01	
Time x Condition	1.00	1.07	184	.94	.35	.11
Social Skills ^b						
Condition	-4.59	2.32	126	-1.98	.05	
Time	-.87	1.13	187	-.77	.44	
Time x Condition ^c	5.95	1.49	190	3.98	.00	.56

Note: False discovery rate (FDR) of parent-reported outcomes was accounted for to address the possibility of an inflated Type I error rate. *p* values reflect adjusted alphas; bolded values represent significance.

^a Based on composite score on Behavioral Assessment Scale for Children-2 (BASC-2). ^b Based on total score on the Social Skills Improvement Scale (SSiS). ^c Cohort was controlled in all models; cohort effects were not statistically significant ($p > .05$).

Table 7

Means (Standard Deviations) of the Parent Variables

	Control		CBC	
	Time 1	Time 2	Time 1	Time 2
Competence in Problem-Solving ^a	4.41 (0.78)	4.48 (0.77)	4.26 (0.81)	5.00 (0.55)
Use of Rewards ^b	0.68 (0.35)	0.61 (0.38)	0.64 (0.37)	0.79 (0.27)
Use of Praise ^b	0.97 (0.09)	0.97 (0.13)	0.97 (0.12)	1.00 (0.06)
Use of Skill Training ^b	0.76 (0.29)	0.75 (0.31)	0.71 (0.35)	0.79 (0.27)
Use of Antecedent Control ^b	0.61 (0.38)	0.58 (0.37)	0.57 (0.36)	0.65 (0.35)
Parent Involvement with Child ^c	4.06 (0.46)	4.03 (0.47)	4.05 (0.45)	4.08 (0.47)
Inconsistent Discipline ^c	2.25 (0.61)	2.18 (0.60)	2.27 (0.61)	2.08 (0.59)
Positive Parenting ^c	4.46 (0.40)	4.40 (0.44)	4.36 (0.49)	4.36 (0.47)
Efficacy for Helping Child Succeed ^d	4.72 (0.62)	4.64 (0.61)	4.54 (0.52)	4.74 (0.56)
Parent-Teacher Relationship ^e	4.37 (0.59)	4.25 (0.52)	4.29 (0.62)	4.50 (0.49)

Note: With the exception of the Parent Practices Inventory, scores from all measures are reported as mean item scores.

^a Assessed using the Perceived Competence in Problem-solving Scale (Sheridan, 2004). Scores range from 1 – 6. ^b Assessed using the Parent Practices Inventory (Sheridan, 2011). Scores are reported as average proportion of days the strategy was reported as having been used. ^c Assessed using the Alabama Parenting Questionnaire (Shelton et al., 1996). Possible scores range from 1 – 5. ^d Assessed using the Parent Efficacy for Helping Your Child Succeed in School Scale (Hoover-Dempsey et al., 1992). Possible scores range from 1 - 6. ^e Assessed using the Parent-Teacher Relationship Scale (Vickers & Minke, 1995), with possible item scores ranging from 1 – 5.

Table 8

Main Effects for Parent Outcomes

Outcome	Est.	SE	DF	<i>t</i>	<i>p</i> ^a	<i>d</i> - index
Competence in Problem Solving ^b						
Condition	.13	.10	214	1.40	.16	
Time	.55	.06	209	8.91	.00	
Time x Condition	-.49	.10	209	-5.08	.01	.84
Use of Rewards ^c						
Condition	-.03	.05	322	-.66	.51	
Time	-.04	.04	206	-1.12	.26	
Time x Condition	.19	.05	203	3.99	.00	.52
Use of Praise ^c						
Condition	-.01	.01	393	-.47	.64	
Time	-.00	.01	221	-.08	.94	
Time x Condition	.02	.02	216	1.32	.19	.16
Use of Skill Training ^c						
Condition	-.05	.04	314	-1.27	.20	
Time	-.01	.03	209	-.29	.77	
Time x Condition	.08	.04	207	1.97	.05	.26
Use of Antecedent Control ^c						
Condition	-.04	.05	302	-.88	.38	
Time	-.01	.04	206	-.41	.68	
Time x Condition	.09	.05	204	1.99	.05	.25
Parent Involvement (with Child) ^d						
Condition	-.03	.07	150	-.40	.69	
Time	-.01	.03	191	-.40	.69	
Time x Condition	.04	.04	192	1.06	.29	.11
Inconsistent Discipline ^d						
Condition	.03	.08	177	.35	.73	
Time	-.04	.05	199	-.83	.41	
Time x Condition	-.09	.07	200	-1.44	.15	.09
Positive Parenting ^d						
Condition	-.10	.07	167	-1.51	.13	
Time	-.04	.04	201	-1.19	.23	
Time x Condition	.07	.05	201	1.36	.18	.10

Efficacy in Helping Child Succeed ^e						
Condition	.17	.07	131	2.26	.03	
Time	.13	.04	203	3.44	.00	
Time x Condition	-.15	.06	204	-2.53	.01	.43
Parent-Teacher Relationship ^f						
Condition	.08	.08	148	.94	.35	
Time	.13	.04	195	3.6	.00	
Time x Condition ^g	-.19	.06	195	-3.48	.02	.51

^a Bolded text represents significance. ^b Assessed using the Perceived Competence in Problem-solving Scale (Sheridan, 2004). ^c Assessed using the Parent Practices Interview (Sheridan, 2011). ^d Assessed using the Alabama Parenting Questionnaire (Shelton et al., 1996). ^e Assessed using the Parent Efficacy for Helping Your Child Succeed in School Scale (Hoover-Dempsey et al., 1992). ^f Assessed using the Parent-Teacher Relationship Scale (Vickers & Minke, 1995). ^g Cohort was controlled in all models; cohort effects were not statistically significant ($p > .05$).

Table 9

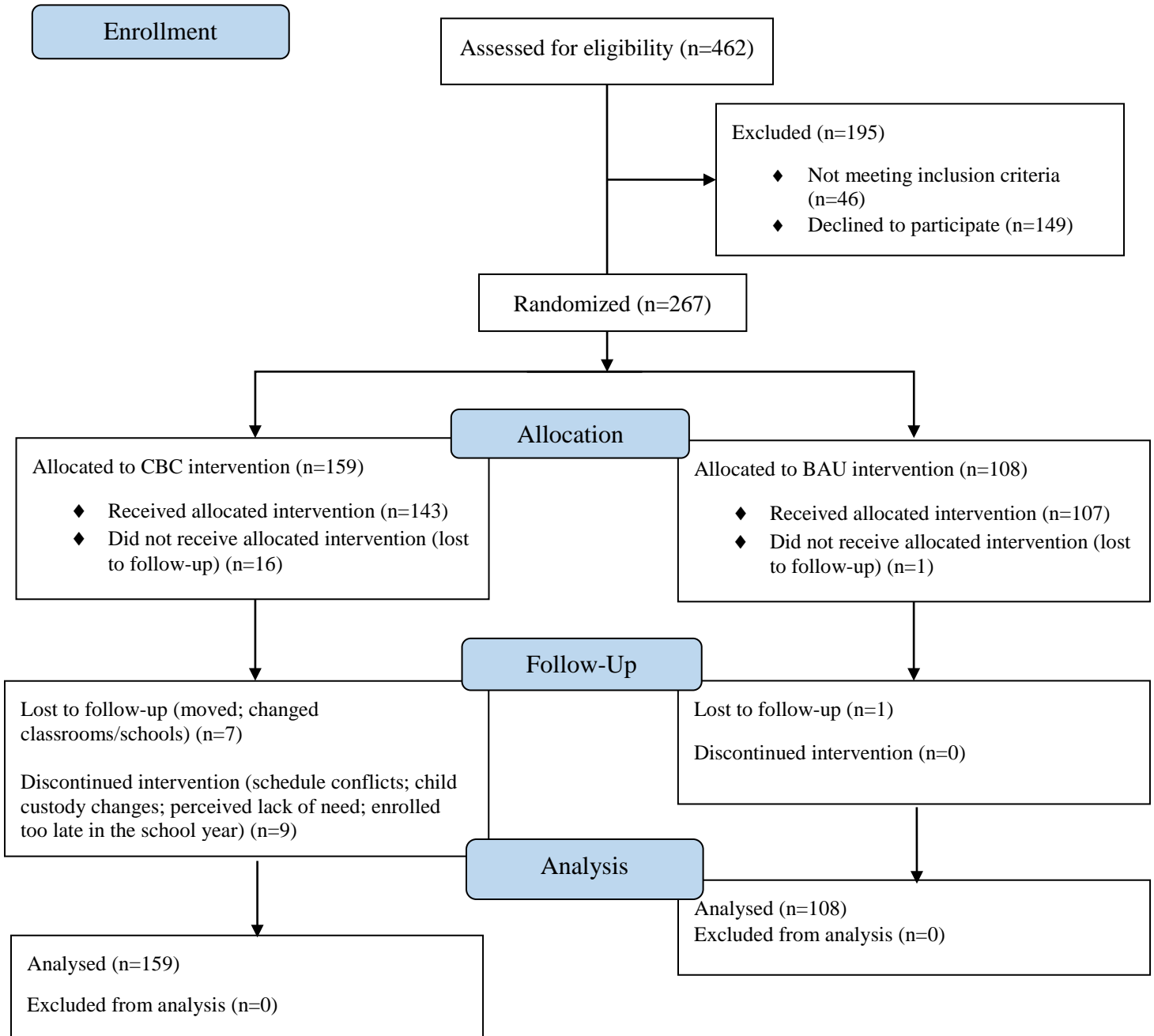
Unstandardized Coefficients for Adaptive Skills

Outcome	Effect	B	SE	<i>p</i>
	Direct Effect	.86	1.04	.41
Adaptive skills	Indirect Effect	.60	.27	.03
	Total Effect	1.53	1.03	.14

Note: Chi-square = 15.76, *df* = 18, *p* = .61, CFI = 1.00, RMSEA = .000, SRMR (Standardized Root Mean Square Residual) = .023.

Figure 1

Diagram of Participant Enrollment⁴



⁴ The analyzed sample included all participants who were randomly assigned to an experimental condition, even if their data at Time 2 were not available due to intervention discontinuation, etc. Source: Sheridan, S. M., Witte, A. L., Holmes, S. R., Coutts, M. J., Dent, A. L., Kunz, G. M., & Wu, C. (2017). A randomized trial examining the effects of conjoint behavioral consultation in rural schools: Student outcomes and the mediating role of the teacher–parent relationship. *Journal of School Psychology, 61*, 33–53.

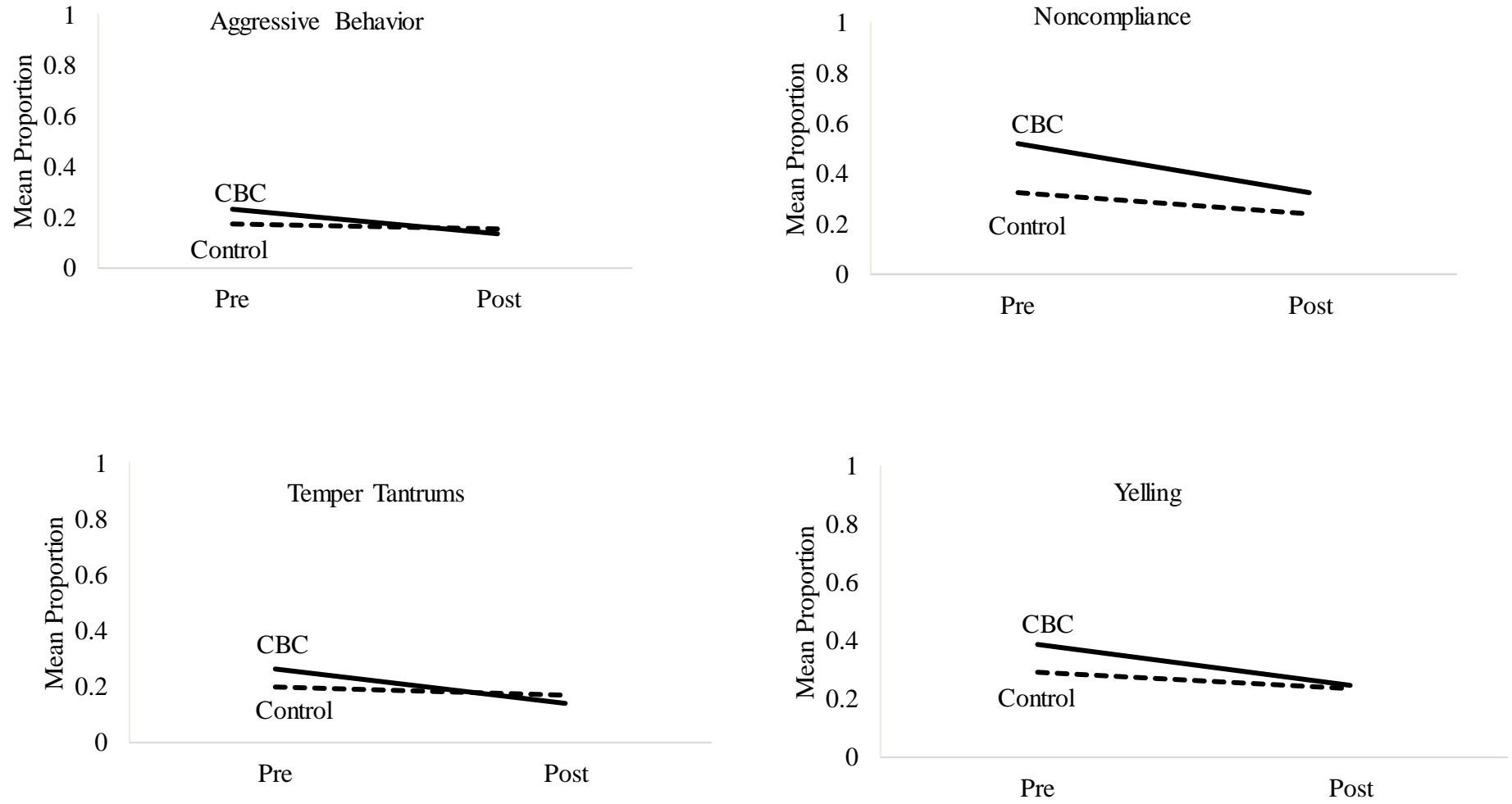


Figure 2. Significant Time x Condition interaction effect for primary daily behavior outcome as assessed on the PDR.

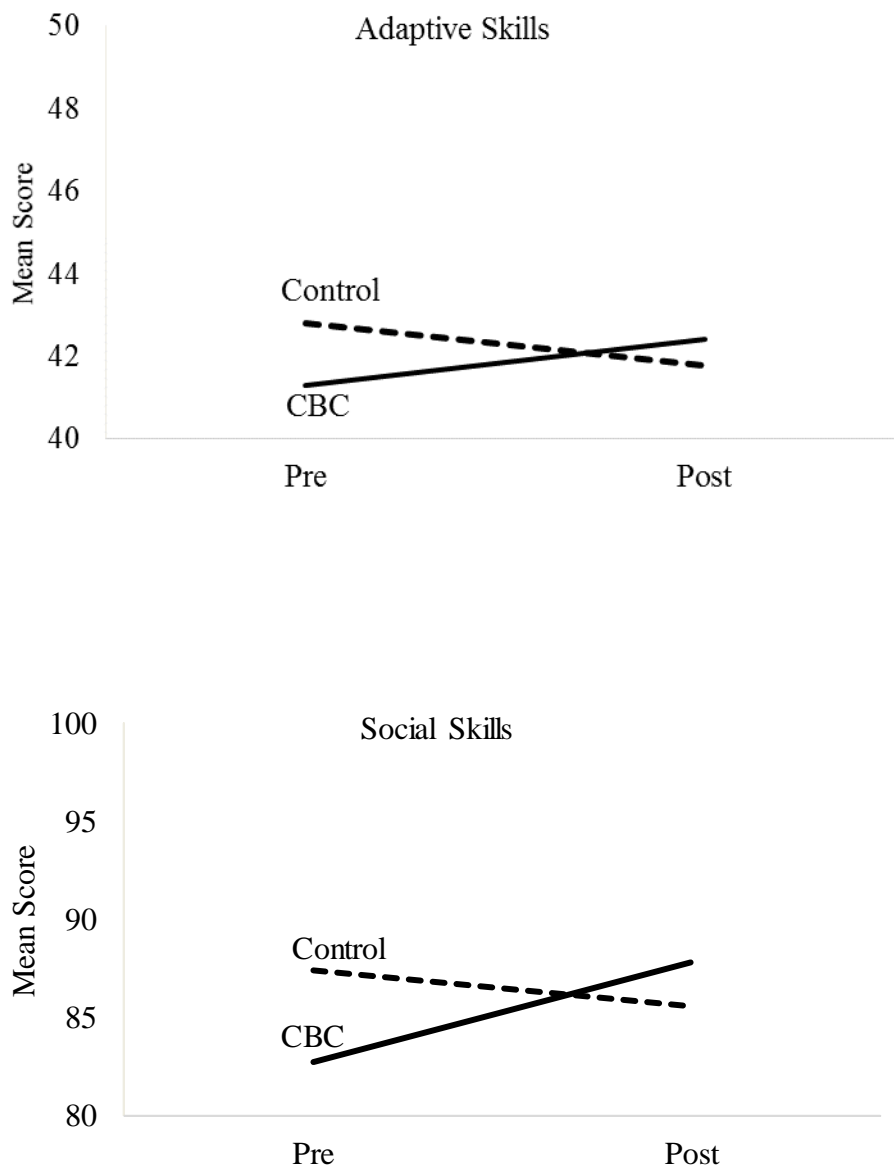


Figure 3. Significant Time x Condition interaction effect for parent-reported Behavior Assessment Scale for Children-2 Adaptive Skills composite (top panel). Scores are T scores with mean = 50 and SD = 10. Significant Time x Condition interaction effect for parent-reported Social Skills Improvement Scale (bottom panel). Standard scores are reported, with mean = 100 and SD = 15.

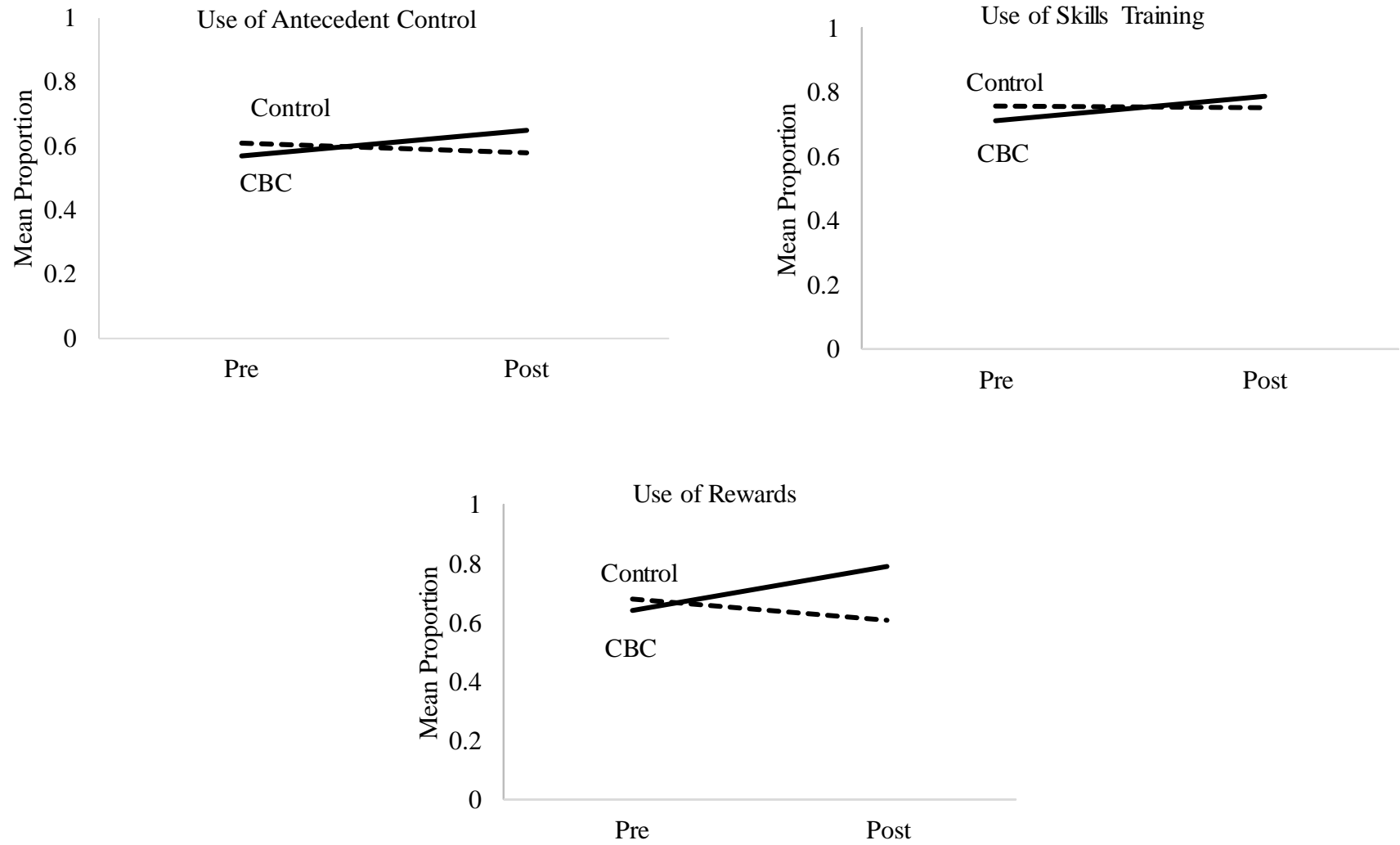
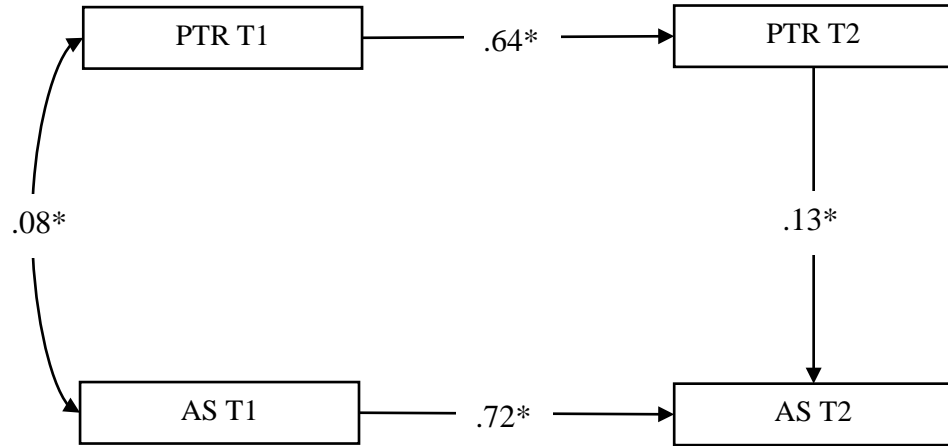


Figure 4. Significant Time x Condition interaction effect for parent daily practices.

Within Classroom (Student Level)



Between Classroom (Teacher Level)

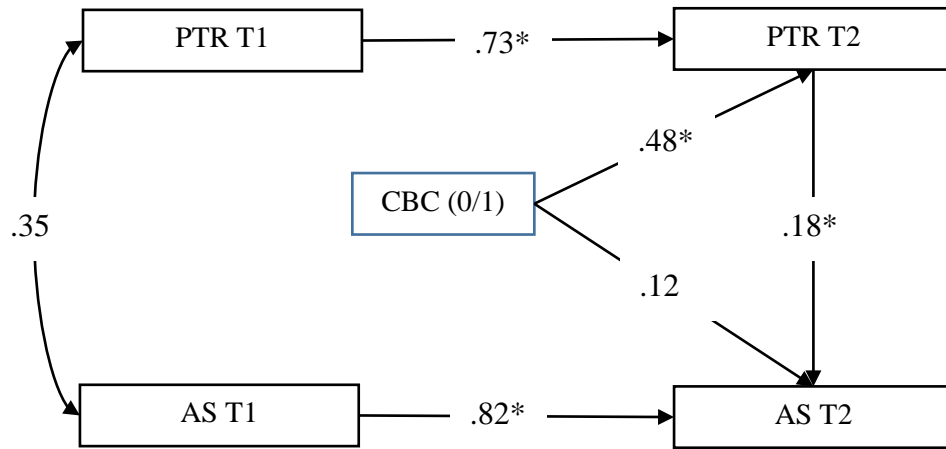


Figure 5. Multilevel path diagram and standardized solution of the indirect effect of assignment to CBC on parent-rated adaptive skills as mediated through the parent-rated parent-teacher relationship. CBC = conjoint behavioral consultation, PTR = parent-teacher relationship, T1 = Time 1, T2 = Time 2. AS = adaptive skills.

* $p < .05$