

Using mental health consultation to decrease disruptive behaviors in preschoolers: adapting an empirically-supported intervention

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Background: This study examined the effectiveness of an adaptation of an empirically-supported intervention delivered using mental health consultation to preschoolers who displayed elevated disruptive behaviors. **Method:** Ninety-six preschoolers, their teachers, and their primary caregivers participated. Children in the intervention group received individualized mental health consultation focused on providing teachers with behaviorally-based, empirically-supported strategies for decreasing disruptive behaviors within the classroom. Caregivers were invited to participate in parent training (35% attendance). Effectiveness was assessed in contrast to an assessment/attention comparison group where typical treatment was available. **Results:** This treatment approach was more effective than the comparison condition in decreasing child disruptive behavior, increasing the use of appropriate teacher strategies, and increasing the use of appropriate parenting practices. **Conclusion:** Adapting empirically-supported treatments for use in mental health consultation may be a way to bridge the gap between research and clinical practice and increase effectiveness of mental health consultation in treating disruptive disorders in young children. **Keywords:** Preschoolers, at-risk, early intervention, disruptive behavior, mental health consultation. **Abbreviations:** AD/HD-T: AD/HD-IV Rating Scale-Total Score; ODD-T: AD/HD-IV Rating Scale Oppositional Defiant Appended Items-Total Score; BASC-EX: Behavior Assessment System for Children-Externalizing Composite; PS: Parenting Scale; Behavior Management: Child Behavior Management Questionnaire.

Impulsivity, hyperactivity, oppositionality, and aggression are behaviors that most three- and four-year-old children display to some degree with up to 10 to 20% of preschoolers exhibiting these behaviors at significant levels at home or at preschool/day care (Powell, Fixsen, & Dunlap, 2003). For children who experience poverty, these rates increase substantially, generally ranging from 20 to 30% but perhaps as high as 57% (Huaqing Qi, & Kaiser, 2003). Externalizing behaviors were the problem most frequently identified as needing intervention by parents of young children who were of minority status and who were experiencing poverty (Thompson, 2005). Approximately half of preschoolers continue to display these behaviors over time (Campbell, 2002; Keenan & Shaw, 1994). For a subset of these children, their behaviors will continue to escalate, becoming developmentally deviant in terms of their seriousness, chronicity, and impairment in adaptive functioning thus warranting a DSM-IV diagnosis of Attention-Deficit/Hyperactivity Disorder (AD/HD), Oppositional Defiant Disorder (ODD) and/or Conduct Disorder (CD) (Campbell, 2002). Once established, disruptive behaviors become strikingly stable over time and are resistant to treatment (Hinshaw & Anderson, 1996). Thus, successful prevention and intervention depend on early treatment when devel-

opmental trajectories are still malleable (Keenan & Shaw, 1994).

But what constitutes successful prevention/treatment? There has been an increasing emphasis on developing empirically-based mental health treatments for children in the last decade (Kazdin & Weisz, 2003). Mrazek and Haggerty (1994) provide a comprehensive review of the models of prevention research with recommendations for conducting this research appropriately. Additionally, Flay and colleagues (2005) provide a thorough review of how intervention research should progress (from efficacy, to effectiveness, to dissemination) in order to establish treatments as efficacious. However, despite the increasing research on evidence-based practices, most children have little access to these programs (Conroy & Brown, 2004). Exclusionary criteria in special education law (Individuals with Disabilities Education; IDEA), lack of early identification approaches, and the mismatch between traditional service delivery models and best practices in early childhood mental health contribute to this problem and do not support meaningful collaboration among families and early childhood professionals (Conroy & Brown, 2004). The disparity between research and practice is also due to differences between the characteristics of clinical trials (e.g., focus on the particular therapy techniques, requiring specific diagnostic categories/no comorbidity, identical training received by therapists, treatment dictated

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by a manual) and how these interventions might be implemented within the community (e.g., therapists of different qualifications and/or orientations, deviations in number of sessions; Garland, Hurlburt, & Hawley, 2006).

To address this issue, some have emphasized the need to link prevention and intervention in an integrated model, one that bridges research to practice (Weisz, Sandler, Durlak, & Anton, 2005). In what has been termed the deployment-focused model of intervention, Weisz and colleagues (2005) argue for more research on interventions that can be adapted for everyday practice. These researchers contend that empirically-supported treatments need to be expanded into more contexts and that treatments with multiple components taught in a regimented fashion be simplified and tested to see if these 'streamlined versions are sufficient to produce ample benefit' (Weisz et al., 2005, p. 639).

One context where empirically-supported treatments could be adapted for use in community intervention is within preschool mental health consultation. Preschoolers are being expelled three times more frequently than children in grades K-12 (Gilliam, 2005). However, when mental health consultation was available, preschoolers were much less likely to be expelled compared to preschoolers where consultation was unavailable (Gilliam, 2005). Individual consultation has been shown to improve the quality of the childcare environment and improve teacher self-efficacy (Alkon, Ramler, & MacLennan, 2003). Research on early childhood mental health consultation has begun to identify characteristics of successful consultation including: focus on developmental needs; family-centered care; individualized; comprehensive, community-based, and coordinated services; family participation; and focus on strengths (Alkon et al., 2003; Hemmeter, Ostrosky, & Fox, 2006). While there is a growing body of literature on best practices when providing consultation in early childhood settings, we found no published research to date examining the effectiveness of adapting empirically-based approaches and delivering them using mental health consultation, a format that more closely approximates the treatment most readily accessible for preschoolers displaying disruptive behavior.

Behaviorally-based interventions are effective in decreasing disruptive behavior in young children (Garland et al., 2006). These programs may be translatable into a consultation model. One program is the Incredible Years Parent and Teacher Training Series (Webster-Stratton, 1999a, 1999b; Webster-Stratton, Reid, & Hammond, 2001). This program teaches parents and teachers behavior management techniques while emphasizing the promotion of social competence and the importance of a close and positive adult-child relationship (Webster-Stratton et al., 2001). There is a companion child social skills/problem-solving program also taught within a

group setting. Considerable evidence indicates that this program is effective for families from culturally and economically diverse backgrounds and that children who receive the entire Incredible Years package benefit over those who receive parent training alone or no intervention (Webster-Stratton et al., 2001). However, there is less research on what benefits can be achieved using primarily the teacher training component (Webster-Stratton & Reid, in press). Most of the research examining the teacher training component has been investigated in combination with the delivery of the social skills/problem-solving program (Webster-Stratton & Reid, 2003). We found no published research examining whether adapting this program to deliver strategies individually to teachers using mental health consultation would be an effective treatment for decreasing disruptive behavior in preschoolers.

Therefore, the purpose of this study was to determine the effectiveness of adapting a prevention/early intervention program with empirical support – Webster-Stratton's Incredible Years Parent and Teacher Training Series (Webster-Stratton & Reid, 2003) – to be implemented using mental health consultation. Teacher consultation was the primary mode of intervention. Additionally, as is sometimes available within community settings where mental health services are being provided, a parent training group was offered.

Based upon previous research (e.g., Reid, Webster-Stratton, & Baydar, 2004; Webster-Stratton et al., 2001), we predicted that preschoolers receiving treatment would show greater decreases in externalizing behaviors compared to preschoolers in an assessment/attention comparison (comparison) group as rated by teachers. Additionally, we expected that that teachers receiving consultation would show greater increases in their knowledge and utilization of effective teacher strategies compared to teachers in the comparison group. We expected caregivers of children in the intervention group to also report greater decreases in externalizing behaviors compared to caregivers of children in the comparison group. Finally, we predicted that caregivers who participated in the parent training component would evidence greater decreases in parenting stress and greater increases in parenting skills compared to caregivers in the comparison group.

Method

Recruitment

Participants were recruited during Head Start's centralized registration and during the first six weeks of the school year (see electronic appendix for specific recruitment procedures). Approximately 600 preschoolers ($M = 4$ years, 1 month; range 2 years, 10 months to 4 years, 6 months) were screened over two years using either primary caregivers' or Head Start

teachers' ratings on a brief behavior rating scale (see electronic appendix for more information).

To ensure that diffusion of treatment did not occur *within* a center, centers rather than classrooms were assigned as intervention or comparison sites in a quasi-experimental design. Two of three large centers containing 21 classrooms were randomly assigned to be the intervention sites. The remaining centers (19 classrooms; 1 larger center and 4 small centers) were assigned to the comparison condition. We did not completely randomize centers due to transportation and staff issues needed to conduct the intervention comprehensively. However, Head Start personnel (program directors, center directors, or teachers) had no knowledge of or influence on center designation. We assessed the quality of all classrooms prior to treatment using the Early Childhood Environment Rating Scale-Revised where raters were trained using the video training materials (Harms, Clifford, & Cryer, 1998). Intervention versus comparison classrooms did not differ in terms of the quality of the classroom environment, teacher qualifications/experience, or teacher-child ratio. Nine teachers participated in the project during both years, including six in the intervention classrooms/centers and three in the comparison classrooms/centers. No teachers or classrooms changed classification. The number of children in each classroom ranged from 1 to 5 (median = 2).

Participants

Ninety-six caregivers of the 103 preschoolers who met eligibility criteria participated and are included in the analyses (see electronic appendix for more information). Full informed consent was obtained from caregivers and teachers. Attempts were made to recruit equal sample sizes for the intervention and comparison groups; however, families for the comparison group were more difficult to recruit and retain despite the incentives and provision of a developmental and behavioral evaluation and recommendations. Fifty-nine children were assigned to the intervention group and 37 children assigned to the comparison group. The groups did not differ significantly in terms of severity of behavior problems or how children met inclusion criteria. Demographics for both groups were statistically equivalent. The racial composition for the intervention group was 86% African American, 7% Caucasian, 7% other and for the comparison group was 92% African American, 3% Caucasian, 6% other. Children's mean age was 4 years, 5 months for the intervention group and 4 years, 6 months for the comparison group ($SD = 6$ months for both groups). Boys comprised 72% of the intervention group and 68% of the comparison group. The majority of children resided in single-parent homes; 76% in the intervention and 84% in the comparison group. The Total Hollingshead score was 25.8 for the intervention group and 24.6 for the comparison group. The demographics of the participants (e.g., race/ethnicity, SES, and marital status) were representative of the overall Head Start population in the county with the exception of a higher number of boys.

Despite multiple efforts to obtain post data, we experienced attrition. Sixty-three (66%) participants

had complete (information from both the caregiver and the teacher) baseline and post-assessment data, 18 (19%) had complete baseline but only teacher post-assessment data, 10 (10%) had complete baseline but only caregiver post-assessment data, and 5 (5%) had no post-assessment data. In comparing participants with caregiver post data versus those without, there were no significant differences in the rates of non-completion by group (comparison versus intervention), demographic data, caregiver functioning, or teacher's use of behavioral strategies. The same was true when comparing participants with teacher post data versus those without. Additionally, there were no differences in baseline rates of caregiver- or teacher-reported disruptive behaviors for children with no caregiver post data compared to those with caregiver post data. However, compared to children with teacher post data, those without teacher post data were rated by their teachers to have higher initial levels of AD/HD and ODD behaviors, $t(92) = 2.28$, $p < .05$, $t(92) = 2.65$, $p < .01$, respectively and were rated by their caregivers to have higher initial levels of AD/HD behaviors, $t(93) = 3.59$, $p < .01$, and higher externalizing behaviors overall, $t(91) = 3.05$, $p < .01$.

We collected follow-up data from parents one year after the child's completion in the project from 60 caregivers (63%). There were no differences in the rates of non-completion by group (comparison versus intervention) or in baseline statistics (demographics, caregiver functioning, teacher functioning, and child disruptive behavior) between participants with follow-up data versus those without.

Assessment

Questionnaires were completed at baseline, after completion of the project, and one year post treatment. All teachers and caregivers received identical instructions and monetary compensation. Caregivers in both groups received identically formatted comprehensive written developmental evaluations. Caregivers in the comparison group were provided resources for mental health services (please see electronic appendix for more information and for a more detailed description of the assessment/attention comparison group).

Intervention

The intervention was provided within a framework consistent with best practices for mental health consultation (Alkon et al., 2003; see electronic appendix for more information). The duration of services varied depending upon individual child and family needs, but each child received a minimum of four months of intervention. While careful to retain the fidelity of the Incredible Years Teacher and Parent Training Series (Webster-Stratton et al., 2001; <http://incredibleyears.com>), the program was adapted for use within a consultation model. Consultation services were provided by two advanced graduate students obtaining their Ph.D. in clinical psychology. They were trained and supervised by the principal investigator who is a licensed psychologist and received formal training in the Incredible Years training programs. See the electronic appendix for further details.

Consultation. Teachers in the intervention group received one group training session that introduced the treatment. Subsequently, teachers participated in weekly individualized consultation. Consistent with Webster-Stratton's program, consultation focused on effective classroom management (i.e., developing classroom rules, preparing children for transitions, monitoring), increasing the use of effective and proactive discipline (i.e., using praise, encouragement and incentives, using positive attention, giving specific commands), and strengthening positive teacher-child relationships (i.e., using encouragement, building self-esteem). Specific strategies were emphasized based upon the child's problem behavior within the classroom as well as the teacher's skill level and preferences. Thus, not all teachers received training on all areas of the Teacher Training Series. Rather, they received specific, hands-on training for the components of the series that would be most effective to treat a particular child's challenging behavior. However, all teachers received consultation on how to increase their use of effective and proactive discipline. Please see electronic appendix for specific details.

Parent training. All families were encouraged to participate in parent training based on the Incredible Years program but reduced in length (10 weeks), based upon input from Head Start personnel indicating that this length would be more accepted and attended by families. Content areas included: development of disruptive disorders; importance of play; skills for playing with their child; using praise, positive attention, modeling, and tangible rewards to encourage adaptive behavior; using ignoring and limit-setting to decrease negative behaviors; effective implementation of time-out; problem solving with your children; and transitioning to kindergarten. Accommodations made to maximize caregiver attendance included holding sessions at the center at times requested by families, providing child care, providing meals, and offering transportation. Twenty-one (35%) caregivers in the intervention group participated (defined as attending at least 50% of the sessions; *Median # sessions = 9, Range = 6-10*). There were no group differences in terms of the severity of caregiver or teacher report of child behaviors. Caregivers participating in parent training were older, $t(1, 58) = -3.21, p < .01$; married, $X^2(3,54) = 10.96, p < .05$; and experienced less parental distress, $t(1, 58) = 2.35, p < .05$.

Measures

AD/HD and ODD. Children were screened using the AD/HD-IV Rating Scale (DuPaul, Power, Anastopoulos, & Reid, 1998) which consists of 18 -items corresponding to the DSM-IV symptoms of AD/HD (APA, 1994). The scale has adequate reliability and validity estimates for school-age and preschool children (DuPaul et al., 1998; McGoey, Bradley-Klug, Crone, Shelton, & Radcliffe, 2000; Shelton, Woods, & Williford, 2001). The scale was amended to include the eight symptoms of ODD and seven of 15 symptoms of CD (APA, 1994) that were appropriate for the preschool population (Frick et al., 1994). Caregivers and teachers rated the frequency of the child's behavior on a 4-point scale (*Never through Very Often*). Summed scores were used for AD/

HD symptoms (Hyperactivity-Impulsivity and Inattention combined) and ODD/CD symptoms. Higher scores indicate higher incidence of behaviors.

Broad externalizing behaviors. Caregivers and teachers completed the Behavior Assessment System for Children (BASC; Reynolds & Kamphaus, 1992) which contains 131 items rated on a 4-point scale (*Never through Always*). The BASC assesses broad-band psychopathology and strengths/competencies. Reliability and internal consistency coefficients for each subscale average around .80 (Merenda, 1996). T-scores on the Externalizing Composite Score were used. Higher scores reflect greater severity of disruptive behaviors.

Parenting stress. Caregivers completed the Parenting Stress Index-Short Form (Abidin, 1995). This 36-item, 5-point scale (*Strongly Agree to Strongly Disagree*) contains subscales for parental stress stemming from the child, the caregiver-child relationship, and the caregiver as well as a total score. This measure has good reliability and validity, with coefficients exceeding .80. The total stress score was used in the analyses with higher scores indicating higher stress.

Parenting skills. Caregivers completed the Parenting Scale (Arnold, O'Leary, Wolf, & Acker, 1993). This 30-item scale requires caregivers to indicate where on a continuum their response would be to a variety of discipline possibilities which yields factor scores for *Laxness, Over-reactivity, and Verbosity*. Solid internal consistency, test-retest reliability, and construct validity have been demonstrated (Arnold et al., 1993). The factor scores were employed with higher scores indicating the use of less effective strategies.

Caregivers also completed the Child Behavior Management Questionnaire (O'Dell, Tartler-Benlolo, & Flynn, 1979). This measure assesses the caregiver's knowledge of behavioral principles as they apply to parenting. We used a 20-item scale amended from the original questionnaire. A summed raw score was used for the analysis with higher scores equating to higher knowledge of behavioral principles.

Effective teacher strategies. The Teacher Strategies Questionnaire is a 58-item questionnaire that assesses effective teaching strategies (Webster-Stratton, n.d.). Teachers rate strategies in terms of both *Difficulty* to administer and *Usefulness* for a particular child. For the current study we used 27 items that assessed *Positive strategies* (i.e., 'reward good behavior with incentives', 'praise for good behavior') and *Limit Setting strategies* (i.e., 'use time-out for destructive behavior', 'use verbal redirection for child who is disengaged') (Webster-Stratton, n.d.). The items were summed to create an effective strategies composite score (baseline $\alpha = .95$). Higher scores indicate that teachers found the strategies easier to administer and more useful in promoting positive behavioral change.

Results

A correlation matrix is provided in the electronic appendix. In order to reduce the overall number of

analyses, composite variables were created for caregiver and teacher report of child disruptive behavior (AD/HD-T, ODD-T, BASC-EX; baseline α scores were .87 and .86 respectively) because these variables measured similar constructs and shared substantial variance. The variables were transformed into z-scores and then averaged to create composite scores. The caregiver functioning variables were not combined because their correlations were small and not significant. Table 1 provides descriptive statistics for the intervention and comparison groups at baseline, post, and follow-up assessment.

We used hierarchical linear modeling to examine change over time. Specifically, two-level hierarchical linear models were used to examine baseline to post changes in teacher-reported child disruptive behavior and changes in teacher strategies. In addition, three-level models were used to examine changes in caregiver-reported child disruptive behavior and changes in parent functioning where three time-points were available. These models are described below. For all models we used full maximum likelihood estimation (mle) and reported results based on the robust standard errors. Additionally, we examined the variance components of the unconditional models first. Significant variance components indicate that variability existed that might be explained by the inclusion of group classification (intervention versus comparison where the intervention group was coded as 1) into the models. In all models the group classification variable was entered at the child level with the variance fixed to zero (necessary to identify the model). All other coefficients were treated as random effects and therefore their variances were estimated.

First, we examined whether children who received the intervention were reported by their teachers to evidence fewer disruptive behaviors when compared to children in the comparison condition and whether teachers who were provided with consultation services reported greater increases in their use of effective teaching strategies when compared to teachers who did not receive the intervention. For both outcome variables a two-level random intercept model was used to estimate the hierarchical/organizational structure of the data where children (level 1) were nested within classrooms (level 2). The HLM analyses account for the dependencies among children who shared the same teacher (HLM adjusts the standard error estimates to account for the intraclass correlation between children within the same classroom; Raudenbush & Bryk, 2002). Given only 2 time-points for teacher-reported data (because children had a different teacher when the follow-up assessment occurred), we created a change score (post intervention minus baseline) for teacher-reported child disruptive behavior ($n = 83, M = .080, SD = .92$) and for the teacher strategies ($n = 83, M = 2.64, SD = 19.87$) and therefore higher scores indicated

Table 1 Descriptive statistics for outcome variables

| Variable | Group | | | | | | | | | | | | | | | | |
|-------------------------------------|--------------|-------|------|-------|-----------|-------|------------|----|-------|-------|-----------|-------|-------|----|-------|-------|----|
| | Intervention | | | | | | Comparison | | | | | | | | | | |
| | Pre | | Post | | Follow-up | | Pre | | Post | | Follow-up | | | | | | |
| | M | SD | N | SD | N | M | SD | n | M | SD | n | M | SD | n | | | |
| Teacher-Child Disruptive Behavior | .05 | .93 | 59 | .79 | 50 | na | na | na | -.059 | .83 | 37 | .31 | .98 | 33 | na | na | na |
| Teacher Strategies | 99.08 | 20.43 | 59 | 15.43 | 50 | na | na | na | 104.2 | 15.56 | 37 | 98.83 | 22.49 | 33 | na | na | na |
| Caregiver-Child Disruptive Behavior | .016 | .85 | 59 | .68 | 43 | -.056 | .76 | 34 | -.025 | .97 | 37 | .16 | 1.11 | 33 | .076 | 1.10 | 25 |
| Parenting Stress | 78.30 | 21.17 | 20 | 16.34 | 16 | 76.42 | 19.42 | 12 | 87.05 | 22.41 | 37 | 83.19 | 22.58 | 34 | 84.04 | 25.08 | 25 |
| PS-Laxness | 2.69 | 1.00 | 20 | .97 | 16 | 2.20 | .89 | 12 | 2.56 | .95 | 37 | 2.73 | 1.11 | 34 | 2.65 | .88 | 25 |
| PS-Verbosity | 3.84 | .87 | 20 | .78 | 16 | 3.34 | .90 | 12 | 4.15 | 1.08 | 37 | 4.17 | .86 | 34 | 3.90 | .99 | 25 |
| PS-Over-reactivity Behavior | 2.93 | .90 | 20 | .84 | 16 | 2.67 | .90 | 12 | 2.75 | .91 | 37 | 2.66 | .96 | 34 | 2.56 | .98 | 25 |
| Management | 6.35 | 2.56 | 20 | 3.40 | 16 | 8.00 | 2.99 | 12 | 4.73 | 2.52 | 37 | 5.21 | 2.33 | 34 | 5.12 | 2.98 | 25 |

Table 2 Teacher report of child disruptive behavior and effective teacher strategies

| | Teacher-child disruptive behavior | | Teacher strategies | |
|----------------|-----------------------------------|-----|--------------------|------|
| | Coefficient | SE | Coefficient | SE |
| Fixed effects | | | | |
| Intercept | .48** | .14 | -6.59+ | 3.88 |
| Group | -.51** | .19 | 14.08** | 4.77 |
| | Variance | df | Variance | df |
| | Component | | Component | |
| Random effects | | | | |
| Intercept | .16*** | 35 | 41.03+ | 35 |

Note. +*p* < .10; **p* < .05; ***p* < .01; ****p* < .001. Group was dummy-coded so that children in the intervention group were given a score of 1.

the report of greater disruptive behavior and the use of more effective teacher strategies, respectively, from baseline to post assessment. Because random intercept models were used, the variance associated with the intercept was free to vary. The group classification variable was entered at the child level (level 1) as a fixed effect and, thus, the variance term was fixed to zero. The results of these models are presented in Table 2 and Figure 1 and indicate that teachers in the intervention group reported that children’s disruptive behavior remained fairly stable across the school year while teachers in the comparison group reported that children’s behavior became more disruptive from

baseline to post assessment. Additionally, teachers in the intervention group reported greater use of effective teacher strategies from baseline to post assessment while teachers in the comparison group reported, on average, less use of effective teacher strategies.

We fit a series of three-level random intercept and slope hierarchical linear models to determine whether the linear trajectories for the intervention group were significantly different from the linear trajectories of the comparison group in terms of caregiver report of child disruptive behavior and caregiver functioning (Parenting Stress, PS-laxness, PS-verbosity, PS-over-reactivity, and Behavior Management). In these models three waves of data (baseline, post intervention, and follow-up) were nested within children and children were nested within classrooms. Thus, level one was wave, level two was child and level three was classroom. The third level was added to statistically control for the fact that children shared the same teachers as described above. Linear trajectories were fitted for these models because three waves of data were available. In these models HLM allows for unbalanced designs so that children with incomplete outcome data at level 1 (wave) could be included in the analyses. Thus, despite significant attrition between baseline and follow-up years of age, the HLM analyses included all participants (96 for caregiver report of child disruptive behavior and 57 for caregiver functioning). Because we were especially interested in differences in functioning at the end of the intervention the intercept was set at the post assessment. We were also interested in whether the slope across the 3 waves (baseline to follow-up) differed between the intervention and comparison groups. If the group effect was significant for both the intercept and slope this would indicate that the effects of the intervention were salient one year following treatment. If the effect of group for the intercept was significant but the slope was not significant this would indicate that the effects of the treatment diminished over time. For these models the variances associated with the intercept and slope (time) at levels two and three were free to vary. The group classification variable was entered at the child level (level two) with the variance terms fixed to zero. The results of these models are presented in Table 3 and indicate that caregivers in the intervention group did not differ from caregivers in the comparison group in their report of child disruptive behavior. There were no group differences in caregiver report of parenting stress. Caregivers who received parent training did evidence more effective parenting skills compared to caregivers in the comparison group. Specifically, caregivers in the intervention group reported decreased verbosity and increased knowledge of behaviorally-based child management strategies (Behavior Management) at post assessment. Additionally, overall caregivers reported decreased

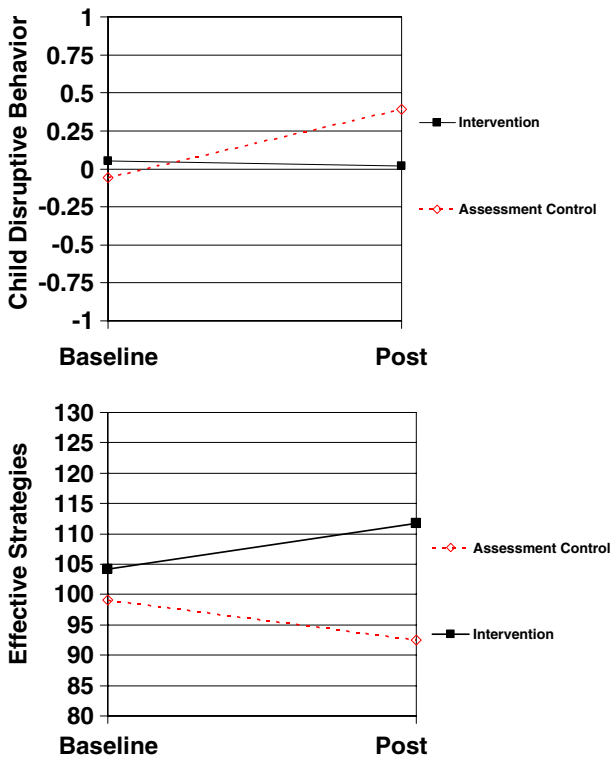


Figure 1 Effect of group on teacher-reported decreases in child disruptive behavior and teachers’ use of effective teacher strategies

Table 3 Caregiver report of child disruptive behavior and parenting skills

| | Caregiver-child disruptive behavior | | Parenting Stress | | PS-Laxness | | PS-Verbosity | | PS-Over-reactivity | | Child Behavior Management | |
|-----------------------------------|-------------------------------------|------|--------------------|---------|--------------------|-----|--------------------|------|--------------------|-------|---------------------------|-----|
| | Coefficient | SE | Coefficient | SE | Coefficient | SE | Coefficient | SE | Coefficient | SE | Coefficient | SE |
| Fixed effects | | | | | | | | | | | | |
| Intercept | .05 | .18 | 83.55 | 2.98*** | 2.60*** | .14 | 4.06*** | .15 | 2.61*** | .16 | 5.54*** | .37 |
| Group | -.087 | .21 | -7.61 | 5.38 | -.26 | .23 | -.54** | .20 | -.022 | .23 | 2.15** | .71 |
| Slope | .053 | .064 | -3.07 | 2.09 | -.09 | .07 | -.13+ | .073 | -.14 | .067* | .78** | .24 |
| Group | -.11 | .089 | Na | Na | Na | Na | -.14 | .18 | Na | Na | .Na | .Na |
| | Variance component | df | Variance component | df | Variance component | Df | Variance component | df | Variance component | df | Variance component | df |
| Random effects | | | | | | | | | | | | |
| Level 1 and 2 variance components | | | | | | | | | | | | |
| Intercept | .46*** | 39 | 234.89*** | 17 | .59*** | 20 | .40*** | 20 | .37*** | 20 | 4.55*** | 20 |
| Slope | .058* | 39 | 1.77 | 18 | .083 | 21 | .19** | 20 | .052 | 21 | .066 | 21 |
| Level 3 variance components | | | | | | | | | | | | |
| Intercept | .13** | 37 | 19.71 | 31 | .013 | 28 | .051 | 28 | .13* | 28 | .81 | 28 |
| Slope | .0069 | 37 | 51.48* | 31 | .012 | 28 | .00082 | 28 | .0028 | 28 | .52* | 28 |

Note. + $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$. Group was dummy-coded so that children in the intervention group and caregivers who participated in parent training were given a score of 1.

over-reactivity and increased knowledge of behavioral management strategies over time. Except for PS-Verbosity, the variance components for the slopes of the caregiver functioning variables in the unconditional models were not significant and thus group classification was not included as a predictor of the slope.

As an assessment of clinically relevant change in children's disruptive behavior, we examined differences in the number of children who evidenced at least a 1 SD improvement (at baseline) in their score for at least one measure of disruptive behavior for the intervention versus the comparison groups (see electronic appendix for a table of these results). Children were categorized into two groups: 1) children who did not improve 1 SD on any measure, and 2) children who improved 1SD or greater on at least one measure of disruptive behavior. Caregivers in the intervention group reported that 64% of the children improved at least 1SD on one measure compared to 33% of the children in the comparison group, $\chi^2(1, N = 76) = 7.04, p = .008$. Teachers in the intervention group reported that 55% of the children improved at least 1SD on at least one measure compared to 30% of children in the comparison group, $\chi^2(1, N = 80) = 4.99, p = .026$.

Discussion

This project adapted an empirically-supported intervention to be implemented using mental health consultation when treating preschoolers with disruptive behaviors. Our results supported the hypothesis that mental health consultation focused on increasing teachers' use of effective behavior management strategies and improving the teacher-child relationship would be effective intervention in preventing the escalation of disruptive behaviors within the classroom. Teachers in the comparison group reported that children's disruptive behavior increased from baseline to post assessment while teachers in the intervention group reported that children's behavior remained relatively stable across time. Contrary to our hypothesis, caregivers whose children received the intervention did not differ from caregivers in the comparison group in their report of change in disruptive behavior over time. The lack of agreement between caregiver and teacher report of child behavior change was not surprising given that the concordance rates between caregiver and teacher report are often low, especially when children are young, and that behavior is often contingent upon context (Winsler & Wallace, 2002). Lastly, teachers and caregivers in the intervention group reported that a significantly larger percentage of children improved substantially in their behavior (at least 1 SD decrease in at least one measure of disruptive behavior) compared to teachers and caregivers in the comparison group.

We found that teachers receiving our consultation rated effective strategies as becoming less difficult to implement and more useful over time while teachers in the comparison group reported that strategies were difficult to implement and perceived them as ineffective by the end of the project. Unlike some models of teacher consultation where information is provided in a one-shot, short-term workshop, and where the focus is on behavioral strategies alone, this project provided ongoing, on-site consultation based on not only the child's needs but also the capabilities of the teacher and his/her goals for the classroom, as well as on improving the teacher-child relationship. Thus, the current study provides evidence that providing teachers with consultation on how to use empirically-supported, behaviorally-based classroom strategies for specific problems within their classroom may increase teacher efficacy.

Caregivers who attended the parent training reported significant increases in their use of effective parenting practices. Contrary to predictions, there was not a significant decrease in parenting stress. Given the economic deprivation that families in our study experienced, it is likely that other factors, not addressed by this project, remained that contributed to parenting stress (e.g., worry over not being able to provide a safe and consistent home, difficulties in providing economically for their child, caregiver depression). Providing more comprehensive services for families experiencing economic challenges may be needed to reduce parenting stress and/or it may be that the sustainable changes in the child's behavior must be present for some time before parenting stress decreases. Recent research suggests that adding a problem-solving therapy component to assist caregivers in coping with general life stress might result in greater improvements in both parenting stress and child behavior (Kazdin & Whitley, 2003).

Overall, these results suggest that empirically-supported treatments that provide behaviorally-based strategies to teachers and caregivers may be adapted for effective use in mental health consultation – a format used frequently to address children's behavior problems in preschool. Thus, this program is an example of the kind of research that Weisz and colleagues (2005) promote – that is, research adapting effective treatments so they are more easily usable for the everyday mental health practitioner. Mental health practitioners sometimes refrain from incorporating empirically-supported treatments into their intervention regimens because these treatments are seen as 'expert models' where professionals deliver treatments to the caregiver or teacher rather than work collaboratively with them, are too manualized, and/or do not allow for individualization. If programs such as Webster-Stratton's Incredible Years can be adapted so that consultants can provide this information to teachers in a way that addresses a teacher's specific challenges with a

certain child or aspect of a classroom, this will increase the use of behavioral techniques (which have been repeatedly shown to be effective in decreasing disruptive behaviors) by mental health professionals who more oftentimes use approaches that do not have sound empirical support (Weisz et al., 2005). What may be particularly attractive about this adaptation is the ability of mental health professionals to incorporate these strategies into their current practices (Weisz et al., 2005).

Some limitations warrant discussion. We used a comparison group that received a comprehensive behavioral assessment, access to typical treatment, and increased support staff in order to minimize confounding due to attention. However, we did not randomly assign centers to comparison or intervention sites. While we made this decision based upon logistics only and found no differences between children, caregiver, or teacher characteristics, in the intervention versus the comparison groups, lack of randomization limits the confidence with which our conclusions based upon the results can be accepted by the reader. Therefore, replication of our findings is needed in order to establish firm evidence of the effectiveness for adapting empirically-supported treatments for early childhood mental health consultation. We hope that researchers, clinicians, and mental health agencies can work together in order to design similar small-scale studies with this objective. We feel confident that if mental health consultants are trained in the use of established behaviorally-based strategies that can be provided to teachers and caregivers, their effectiveness in decreasing disruptive disorders in children will increase.

Additionally, despite efforts to encourage participation, the majority of our caregivers did not attend parent training. We did not require parents to participate in the parenting portion of the program, which certainly affected our initial attendance. It is likely that logistical barriers (work schedules, lack of easy transportation, etc.) decreased initial attendance. However, families that attended the initial sessions continued to participate and indicated that they would have attended more sessions even without the additional supports. One way to possibly increase initial attendance would be to have someone who knows the family well (the child's teacher, the childcare director, the center family advocate) call the caregiver and ask them to at least attend the first session. Another reason for the lack of participation is that some families may not have seen the relationship between the parenting group and their children's behavioral challenges, especially for caregivers where children were referred by the teacher only. Research suggests that parental attributions about their child's behavior need to be in sync with the intervention (i.e., if the parent doesn't believe that her parenting practices influence her child's behavior she will be less likely to participate

in and/or benefit from parent training; Nock & Kazdin, 2001). Increasing caregiver involvement in early intervention services is important because it would increase the probability that gains in positive behavioral functioning would persist throughout early childhood because caregivers might continue to use the behavioral strategies they learned in parent training to promote adaptive child behavior and they could provide their child's teachers with information regarding which strategies are useful in helping their child stay on track in the classroom.

Another limitation is that although we collected multiple outcome measures from both caregivers and teachers, we did not obtain observational data of children's behavior within the home or classroom and inclusion of such data would have strengthened our results. Finally, it is impossible to know the outcomes of the children, caregivers, and teachers for whom we failed to collect post or follow-up data. Children for whom we were missing teacher post data had higher baseline disruptive behaviors and this limits the generalizability of our results. The need to collect full information is perhaps most important from samples of underserved populations such as this one where less research on treatment effectiveness has been conducted. Researchers need to make special efforts to keep participants invested in the project. For instance, we found parents and teachers to be quite invested when interacting with project staff either in person or over the phone. Therefore, we might have experienced less attrition if we had collected data in an interview format.

Despite these limitations, this study provides an important first step in providing evidence to support the adaptation of empirically-supported interventions for use in mental health consultation when providing services to preschoolers with disruptive behavior problems. This study suggests that these interventions can be effectively exported from controlled clinical settings into community settings. These results will need to be replicated by training professionals already providing mental health consultation within the preschool setting to incorporate the use of the empirically-supported strategies into their everyday work with teachers and children. Having mental health consultation that includes empirically-supported interventions delivered within this collaborative framework available as part of the array of services will likely reduce the need for more costly treatments in the future.

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Supplementary material

The following supplementary material is available for this article:

Appendix

This material is available as part of the online article from: <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1742-4658.2007.01839.x> (This link will take you to the article abstract).

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References

- Abidin, R.R. (1995). *Manual for the Parenting Stress Index*. Odessa, FL: Psychological Assessment Resources.
- Alkon, A., Ramler, M., & MacLennan, K. (2003). Evaluation of mental health consultation in child care centers. *Early Childhood Education Journal*, 31, 91–99.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th edn). Washington DC: Author.
- Arnold, D.S., O'Leary, S.G., Wolff, L.S., & Acker, M.M. (1993). The parenting scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment*, 5, 137–144.
- Campbell, S.B. (2002). *Behavior problems in preschool children: Clinical and developmental issues* (2nd edn). New York: Guilford Press.
- Conroy, M.A., & Brown, W.H. (2004). Early identification, prevention, and early intervention with young children at risk for emotional and behavioral disorders: Issues, trends and a call to action. *Behavioral Disorders*, 29, 224–236.
- DuPaul, G.J., Power, T.J., Anastopoulos, A.D., & Reid, R. (1998). *AD/HD Rating Scale-IV: Checklists, norms, and clinical interpretation*. New York: Guilford Press.
- Flay, B.R., Biglan, A., Boruch, R.F., Castro, F.G., Gottfredson, D., Kellam, S., Moscicki, E.K., Schinke, S. Valentine, J.C., & Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention Science*, 6, 151–175.
- Frick, P.J., Lahey, B.B., Applegate, B., Kerdyck, L., Ollendick, T., Hynd, G.W., Garfinkel, B., Greenhill, L., Biederman, J., Barkley, R.A., McBurnett, K.,

- Newcom, J., & Waldman, I. (1994). DSM-IV field trials for disruptive behavior disorders: Symptom utility estimates. *Journal of the American Academy of Child and Adolescent Psychiatry*, 33, 529–539.
- Garland, A.F., Hurlburt, M.S., & Hawley, K.M. (2006). Examining psychotherapy processes in a services research context. *Clinical Psychology: Science and Practice*, 31, 30–46.
- Gilliam, W.S. (2005). *Prekindergarteners left behind: Expulsion rates in state prekindergarten systems*. New Haven, CT: Yale University Child Study Center. Online: http://www.fcd-us.org/PDFs/NationalPreKExpulsionPaper03.02_new.pdf.
- Harms, T., Clifford, R.M., & Cryer, D. (1998). *Early childhood environment rating scale* (rev. edn). New York: Teachers College Press.
- Hemmeter, M.L., Ostrosky, M., & Fox, L. (2006). Social and emotional foundations for early learning: A conceptual model for intervention. *School Psychology Review*, 35, 583–601.
- Hinshaw, S.P. & Anderson, C.A. (1996). Conduct and oppositional defiant disorders. In R.A. Barkley & E.J. Mash (Eds.), *Child psychopathology* (pp. 113–149). New York: Guilford Press.
- Huaqing Qi, K., & Kaiser, A.P. (2003). Behavior problems of preschool children from low-income families: Review of the literature. *Topics in Early Childhood Special Education*, 23, 188–216.
- Kazdin, A.E., & Weisz, J.R.(Eds.). (2003). *Evidenced-based psychotherapies for children and adolescents*. New York: Guilford Press.
- Kazdin, A.E., & Whitley, M.K. (2003). Treatment of parental stress to enhance therapeutic change among children referred for aggressive and antisocial behavior. *Journal of Consulting and Clinical Psychology*, 71, 504–515.
- Keenan, K., & Shaw, D.S. (1994). The development of aggression in toddlers: A study of low-income families. *Journal of Abnormal Child Psychology*, 22, 53–77.
- McGoey, K.E., Bradley-Klug, K., Crone, D., Shelton, T.L., & Radcliffe, J. (2000, March). *Reliability and validity of the AD/HD Rating Scale-IV Preschool Version*. Paper presented at the Annual Meeting of the National Association of School Psychologists, New Orleans, LA.
- Merenda, F. (1996). BASC: Behavior assessment system for children. *Measurement and Evaluation in Counseling and Development*, 28, 229–232.
- Mrazek, P.J., & Hagerty, R.J.(Eds.). (1994). *Reducing risks for mental disorders: Frontiers for preventive intervention*. Washington, DC: National Academies Press.
- Nock, M.K., & Kazdin, A.E. (2001). Parent expectations for child therapy: Assessment and relation to participation in treatment. *Journal of Child and Family Studies*, 10, 155–180.
- O'Dell, S.L., Tarler-Benlolo, L. & Flynn, J.M. (1979). An instrument to measure knowledge of behavioral principles as applied to children. *Journal of Behavior Therapy and Experimental Psychiatry*, 10, 29–43.
- Powell, D., Fixsen, D., & Dunlap, G. (2003). *Pathways to service utilizations: A synthesis of evidence relevant to young children with challenging behavior*. Tampa, FL: University of South Florida, Center for Evidence-Based practice: Young Children with Challenging Behavior.
- Reid, M.J., Webster-Stratton, C., & Baydar, N. (2004). Halting the development of conduct problems in Head Start children: The effects of parent training. *Journal of Clinical Child and Adolescent Psychology* 33, 279–291.
- Reynolds, C.R., & Kamphaus, R.W. (1992). *Manual for the BASC: Behavior assessment*. Circle Pines, MN: American Guidance Service.
- Shelton, T.L., Woods, J.E., & Williford, A.P. (2001, June). *Disruptive behavior symptoms in an economically disadvantaged preschool population*. Presented at the International Society for Research in Child and Adolescent Psychopathology, Vancouver, BC.
- Thompson, R. (2005). The course and correlates of mental health care received by young children: Descriptive data from a longitudinal urban high-risk sample. *Children and Youth Services Review*, 27, 39–50.
- Webster-Stratton, C. (1999a). *The incredible years. The parents and children series*. Seattle, WA: Seth Enterprises.
- Webster-Stratton, C. (1999b). *The incredible years. The teachers and children series*. Seattle, WA: Seth Enterprises.
- Webster-Stratton, C. (n.d.). Teacher Strategies Information. Retrieved July 8, 2004, from The Incredible Years-Evaluation Tools/Forms website; <http://www.incredibleyears.com>.
- Webster-Stratton, C., & Reid, J.M. (in press). Incredible Years Teacher Training Program: Content, methods and processes. In P. Tolan, J. Szapocznik, & S. Sambrano (Eds.), *Preventing youth substance abuse: Science-based programs for children and adolescents*. Washington, DC: American Psychological Association.
- Webster-Stratton, C., & Reid, M.J. (2003). The Incredible Years Parents, Teachers, and Children Training Series: A multifaceted treatment approach for young children with conduct problems. In A.E. Kazdin & J.R. Weisz (Eds.), *Evidenced-based psychotherapies for children and adolescents*. New York: The Guilford Press.
- Webster-Stratton, C., Reid, M., & Hammond, M. (2001). Preventing conduct problems, promoting social competence: A parent and teacher training partnership in Head Start. *Journal of Clinical Child Psychology*, 30, 283–302.
- Weisz, J.R., Sandler, I.N., Durlak, J.A., & Anton, B.S. (2005). Promoting and protecting youth mental health through evidence-based prevention and treatment. *American Psychologist*, 60, 628–648.
- Winsler, A., & Wallace, G.L. (2002). Behavior problems and social skills in preschool children: Parent-teacher agreement and relations with classroom observations. *Early Education and Development*, 13, 41–58.

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