

Counselor-Level Predictors of Sustained Use of an Indicated Preventive Intervention for Aggressive Children

John E. Lochman · Nicole P. Powell · Caroline L. Boxmeyer · Lixin Qu · Meghann Sallee · Karen C. Wells · Michael Windle

Published online: 12 October 2014
© Society for Prevention Research 2014

Abstract Despite widespread concern about the frequent failure of trained prevention staff to continue to use evidence-based programs following periods of intensive training, little research has addressed the characteristics and experiences of counselors that might predict their sustained use of a program. The current study follows a sample of school counselors who were trained to use an indicated preventive intervention, the Coping Power program, in an earlier dissemination study, and determines their levels of continued use of the program's child and parent components in the 2 years following the counselors' intensive training in the program. Counselor characteristics and experiences were also examined as predictors of their sustained use of the program components. The Coping Power program addresses children's emotional regulation, social cognitive processes, and increases in positive interpersonal behaviors with at-risk children who have been screened to have moderate to high levels of aggressive behavior. The results indicated that counselors' perceptions of interpersonal support from teachers within their schools, their perceptions of the effectiveness of the program, and their expectations for using the program were all predictive of program use over the following 2 years. In addition, certain counselor personality characteristics (i.e., conscientiousness) and the level of actual teacher-rated behavior change experienced by the children they worked with during training were predictors of counselors' use of the program

during the second year after training. These results indicate the central importance of teacher support and of child progress during training in the prediction of counselors' sustained use of a prevention program.

Keywords Sustained use · Prevention · Aggression · Counselor perceptions · Counselor personality

Introduction

Increasingly, schools are turning to evidence-based programs (EBPs) to address students' mental health needs, including prevention of negative outcomes, promotion of positive youth development, and treatment of existing psychopathology. Under conditions of limited time, staffing, and financial resources, schools look to EBPs as a method by which high-quality, effective services can be delivered to students in an efficient manner. A key assumption in schools' implementation of EBPs is that positive outcomes can be achieved for students who participate in such programs. In fact, there is a body of research that supports the effectiveness of school-based EBPs, when implemented with fidelity to the intervention model, on students' emotional and behavioral functioning (e.g., Durlak and DuPre 2008), as well as on academic indicators such as achievement and attendance (Wingspread Conference 2004).

Students' aggressive and disruptive behaviors are particularly challenging for schools. Students who exhibit such behaviors are at risk for academic underachievement and attendance problems, and may also negatively impact their classmates' learning and attendance (Kokko et al. 2006). Further, aggressive students are at risk for negative long-term outcomes including school dropout, delinquency, violent behavior, and substance abuse (Dodge et al. 2008).

J. E. Lochman (✉) · N. P. Powell · C. L. Boxmeyer · L. Qu · M. Sallee
The University of Alabama, Tuscaloosa, AL, USA
e-mail: jlochman@ua.edu

K. C. Wells
Duke University Medical Center, Durham, NC, USA

M. Windle
Emory University, Atlanta, GA, USA

One preventive intervention that has demonstrated positive effects for at-risk students with aggressive and disruptive behaviors is Coping Power (Lochman et al. 2008). Several studies have documented the program's effectiveness in reducing aggressive and disruptive behaviors at school, as well as on reducing students' risk for later delinquency and substance use (Lochman and Wells 2002a, 2002b, 2003, 2004). Longer term follow-ups in two different samples have found that Coping Power reduces youth externalizing behavior at school for up to 3 years after the intervention is delivered (Lochman et al. 2014; Lochman et al. 2013). A recent study has also demonstrated positive effects on students' Language Arts grades after 2 years (Lochman et al. 2012).

Implementation and Sustainability of EBPs

Enthusiasm for the effectiveness of EBPs in schools is tempered, however, by issues relating to fidelity and sustainability. The degree of fidelity to EBPs is related to the attainment of positive intervention outcomes (e.g., Schoenwald et al. 2004), but the extent to which programs are implemented as specified is variable in school settings (e.g., Langley et al. 2010). Adherence to EBP protocols can be difficult to achieve, not only due to schools' limited resources, but also due to varied and complex student needs, for which adaptations may be indicated (Goldstein et al. 2012).

Similarly, sustaining the use of EBPs over time also presents challenges in school settings. Although programs may be implemented with enthusiasm in the initial stage following training, rates of use tend to decline as the training period becomes more distant (e.g., Elias and Kamarinos 2003). Schools often dedicate significant resources to the identification of appropriate programs, procurement of EBP materials, and training for staff members with an underlying assumption that effective programs will be used across multiple years. Because implementation research indicates that this is often not the case, interest has grown in the factors that influence the sustainability of EBPs (e.g., Han and Weiss 2005).

In a review of research examining factors related to sustainability of EBPs in schools, Han and Weiss (2005) present a process model of enhanced sustainability. In this model, Han and Weiss posit that when teachers implement an effective program with high fidelity (*program implementation*), noticeable changes in student behavior will occur (*changes in student behavior@@@*), leading teachers to feel successful about their implementation (*experience of success*) as they attribute positive changes to the EBP (*attribution of student functioning to the program*) and to their own implementation efficacy. As a result of this success, teachers' *@@@motivation to implement the program* increases, and their *skills* improve with experience and recognition of effective implementation. These latter factors influence ongoing program implementation, completing the feedback loop. Few of the

elements in the Han and Weiss model have been tested empirically, but the current study will address several of the model's proposed relations.

Perceptions of Program Effectiveness The Han and Weiss model predicts that sustained use of a program will result when program implementers ascribe participating students' improvements to their involvement in the program. However, the predicted relation has not been found in several previous studies. For example, teachers who participated in a randomized controlled trial of an EBP preschool curriculum were interviewed about factors involved in their continued use of the program during the year following completion of the study (DeRousie and Bierman 2012). Interestingly, teachers tended to perceive program benefits, even when they did not continue with implementation. Program components tended to be sustained under conditions of perceived requirement by administrators and when the program components were perceived to fulfill a classroom need. A similar pattern was reported in a study conducted 1 year after completion of an EBP in an after-school program (Lyon et al. 2011). Implementation staff reported positive views with regard to perceived benefits to students and intentions to continue use of the program; however, sustainability rates were low. Research has not examined how interventionists' actual experience in producing behavior change in children, in addition to their perceptions of program efficacy, affect their sustained program use.

Intentions to Sustain Use The Han and Weiss model also predicts that providers' *motivation to implement* a program influences whether and how they use the program in practice. Practitioners who clearly state their intentions to implement a newly learned skill have been shown to increase their actual use of that skill following training (Casper 2008). These results follow from the Theory of Planned Behavior, which asserts that behavior results from an individual's intention to perform the behavior (Ajzen 1991), and several meta-analyses have confirmed the correlation between intentions and behavior (e.g., Armitage, and Conner 2001). Further, research suggests that interventions designed to enhance implementation intentions can result in increased behavioral application (e.g., Webb and Sheeran 2006). As such, integrating methods to enhance clinicians' intentions to use an EBP during training could potentially lead to higher implementation rates. However, the role of intentions in predicting clinicians' immediate or sustained use of EBPs has not been explored.

Other Factors Influencing Program Implementation In addition to constructs in the Han and Weiss model, other factors that may relate to program implementation and sustained use include the social context surrounding providers and the providers' individual characteristics.

Perceived Support In an examination of factors related to sustainability of EBPs in schools and community agencies, significant correlates to predicted post-funded sustainability included perceived staff and principal support (Tibbits et al. 2010). Predicted sustainability, in turn, significantly related to actual sustainability, leading the authors to recommend that gaining school support should be a focus in sustainability efforts.

A 2009 study sought the expert opinions of program developers to identify important factors in sustaining EBPs (Forman et al. 2009). The developers identified support of principals, administrators, and teachers as key to sustainability. Forman and colleagues further noted that while teacher support was seen as critical to sustainability, delayed program benefits can present a challenge to gaining teacher support. The authors recommended the development of methods for evaluating students' progress during long-term programs and providing feedback to involved school staff.

Counselors' Personality Features Practitioners' personality characteristics have been studied in relation to EBP implementation (Klimes-Dougan et al. 2009; Lochman et al. 2009), but no published research has described how personality variables might be involved in later program use. Understanding how clinicians' personal characteristics relate to sustained use may help in the development of training protocols and ongoing support efforts.

In a dissemination study of an EBP for children with disruptive behaviors (Coping Power), school counselors who had received training and had implemented the program completed a personality inventory early in the training process (Lochman et al. 2009). Analyses indicated that self-reported agreeableness was associated with completion of intervention objectives, sessions scheduled, and engagement with parents during parent sessions. Counselors' self-reported conscientiousness was correlated with engagement with child participants during intervention meetings. Klimes-Dougan and colleagues (2009) also examined the role of practitioners' personality characteristics in the implementation of an EBP (Early Risers) in elementary schools. Results indicated that low neuroticism and high levels of conscientiousness predicted higher level of implementation quality in the program's child and family components.

Purpose of the Study

The purpose of this project was to explore how clinician characteristics (perceptions, intentions, and personality features), and their experience of children's behavior change during training, relate to clinicians' sustained use of an EBP. This will be the first study to examine how these counselor perceptions, characteristics, and training experience, as a set would predict counselors' sustained use of a targeted

preventive intervention (Coping Power) over a 2-year period following the counselors' formal training. This is one of the only studies to use constructs from the Han and Weiss (2005) model of enhanced sustainability (*changes in student behavior related to experience of success; motivation to implement the program related to experience of success and to changes in student behavior*) to predict counselors' sustained use of the program. Secondary analyses examined how the clinician-level variables predicted sustained program use.

Method

This study reports on data gathered from school counselors who were trained to implement the Coping Power program (CP) with at-risk aggressive students in the context of a dissemination field trial. During the 2 years following the implementation phase of the project, school counselors were asked to provide feedback on their sustained use of the program.

Coping Power Dissemination Field Trial Specific details about the selection methods and the participating students are reported by Lochman and colleagues (2009). School counselors were randomized to one of three training conditions: Coping Power–training plus feedback (CP-TF), Coping Power–basic training (CP-BT), or a comparison group, resulting in 19 schools per condition. The schools' populations ranged from inner city, heavily impoverished, and African-American, to suburban, middle class, and largely Caucasian.

Counselors in the CP-TF and CP-BT conditions participated in 3 days of initial training and monthly supervision meetings for a 1.5-year period. During that time, they implemented Coping Power with small groups of 4th and 5th grade students rated as moderately to highly aggressive by their teachers, and ran separate groups for the students' parents. All intervention sessions were audiotaped, but only CP-TF counselors received feedback.

Of the 38 intervention schools, 25 schools had one counselor and one school had two counselors; the remaining 12 schools shared counselor time with another participating school (i.e., 6 counselors served 12 schools). Due to staffing changes, an additional five counselors received initial training and started CP implementation mid-way through the training period. In all, 38 counselors participated in this project.

Participants Of the 38 counselors in the 2 CP conditions (19 in CP-TF, 19 in CP-BT), 32 returned completed surveys for both years; 2 counselors returned completed forms for only 1 year. Data were not collected at either time point for four counselors due to retirement ($N=2$), serious illness/death ($N=$

1), or failure to respond ($N=1$). Of the 34 counselors with sustained use data, 17 had been in CP-TF and 17 in CP-BT. The counselors who returned surveys were predominantly female (97 %) and a majority were African-American (53 %; 47 % Caucasian). Counselors were trained across two cohorts, with more counselors trained in the second cohort (62 %). All had an educational background in guidance counseling, and the majority held master's degrees (76 %). They had a mean of 10.3 years of experience (range 0–29) and, on average, had worked in their school for 8.0 years (range 0–29). While most reported having prior experience running groups for children with behavioral difficulties (73.5 %), fewer reported that they had led a manualized cognitive behavioral intervention similar to CP (17.6 %).

Procedure

School counselors reported on their sustained use of CP each spring for the 2 years following training. Counselors were given the option of completing the surveys independently and returning them by mail, or answering the items over the phone. They received a small stipend (US \$30) each time they completed the measure. During regularly scheduled training meetings, counselors completed the personality measure and, at the final meeting, they reported on attitudes toward and perceptions of the program. Data on students' behavior at pre- and post-intervention were collected from teachers. IRB approval was obtained for this study.

Coping Power Intervention

CP includes a 34-session child intervention (Lochman et al. 2008) and a 16-session parent intervention (Wells et al. 2008), both delivered in small groups. The child component addresses social-cognitive deficits in aggressive children identified in prior studies. Main foci of the program include (a) group rules, weekly behavioral goals, and contingent reinforcement; (b) organizational and study skills; (c) emotional awareness and anger management skills; (d) perspective taking and attributions of others' intentions; (e) social problem solving skills; and (f) coping with peer pressure. In parent sessions, participants learn skills for (a) identifying prosocial and disruptive behavioral targets in their children, (b) rewarding appropriate child behaviors, (c) giving effective instructions and establishing appropriate rules and expectations, (d) applying effective consequences to negative behaviors, and (e) establishing family communication structures in the home (e.g., weekly family meetings).

Intervention Integrity Several procedures were utilized to enhance intervention integrity. Manuals were used to guide both the child and parent components and, while some degree of

individualization was permitted (e.g., adaptations of terminology), all sections of the interventions were expected to be administered. Intervention sessions were audiotaped, and trained research staff coded each taped session for intervention integrity. CP-TF counselors received monthly feedback on intervention integrity based upon review of recorded sessions.

Measures

Sustained Use of Coping Power Using two single items on the sustained use survey, counselors reported whether they had used the CP child and/or parent intervention components at all, and the degree to which they perceived principals and teachers as supportive of the program (1=not at all supportive, 7=extremely supportive). Using a three-point scale (completely, partially, not at all), school counselors who continued to implement any aspect of the program indicated the extent to which they had used each of 98 core objectives from the child component and 52 core objectives from the parent component. The sustained use of the child component was calculated as the mean of these ratings of each of the core objectives, and the same procedure was used for the sustained use of the parent component.

Counselor Exit Interview Counselors completed a written survey at the end of training. Single items were used to assess counselors' perceptions of the program's effectiveness (perceived CP effectiveness) and their intent to use CP in the future (planned use of CP).

NEO Five-Factor Inventory Counselors' personality characteristics were assessed with the NEO Five-Factor Inventory (Costa and McCrae 1992). This measure consists of 60 items rated on a 5-point scale. For the present study, the agreeableness, neuroticism, and conscientiousness scales were used. Internal consistency values established for this project were 0.41 for agreeableness, 0.88 for neuroticism, and 0.81 for conscientiousness. Cross-observer, convergent, and discriminant validity have been established (Costa and McCrae 1992). Although the internal consistency for agreeableness was much lower in this sample than in the normative sample, the scale as used within this sample had demonstrated validity previously through its relation with counselors' quality of program implementation (Lochman et al. 2009).

Behavior Assessment System for Children The Behavior Assessment System for Children (BASC; Reynolds and Kamphaus 1992) assesses clinical problems, with items rated from 0 to 3. The BASC has demonstrated strong reliability ($\alpha=0.80-0.89$) and construct validity. For the present study, the aggression and conduct problems scores were the primary variables of interest. Behavior change scores on these variables were calculated by subtracting post-intervention

scores from pre-intervention scores for each student. Because we were interested in groups' behavior changes during the training year as a counselor-level variable, an overall training group change score was derived for each counselor, and the training group change scores were used to predict counselors' later sustained use of the program.

Results

In the first year after training, counselors' mean use of the CP child and parent components were 0.64 (SD=0.54) and 0.26 (SD=0.47), respectively. Two years after training, counselors' mean use of the CP child and parent components were 0.83 (SD=0.69) and 0.39 (SD=0.66), respectively. Three notable observations can be made about these ratings. First, the mean levels of program use increase for both the overall child component (an increase of 30 %) and parent component (an increase of 50 %), from the first year after training to the second year. The increases in use are not statistically significant, although the nonsignificant trend increases for the overall child component, $t(31)=1.79$. Second, counselors used elements of the overall child component substantially more than the overall parent component, both in the first year after training, $t(32)=4.13, p<0.001$, and in the second year, $t(32)=3.41, p<0.002$. Third, the standard deviations for use are greater in year 2 than in year 1. The increased variability in year 2 could account for some increasing correlations between predictors and counselors' use of the program.

Table 1 presents the means and standard deviations for the four sets of predictor variables (personality variables,

perceptions of contextual support, perceptions of program efficacy, children's behavioral improvement). The correlations among predictor variables are presented in Table 2. Of the hypothesized correlations of variables within the Han and Weiss (2005) model, counselors' perceptions of program effectiveness at the end of training were significantly related to counselors' experience of reductions in children's teacher-rated aggression, $r(30)=0.44, p<0.05$, and tended to be related to reductions in teacher-rated conduct problems, $r(30)=0.35, p=0.06$. Counselors' planned program use was significantly related to their perceived program effectiveness, $r(29)=0.75, p<0.001$ and to their experience of reductions in children's aggression, $r(29)=0.40, p<0.05$, by the end of training; however, counselors' planned use was not significantly related to teacher-rated reductions in conduct problems, $r(29)=0.29$.

Of the 31 remaining correlations among counselor-level predictor variables in Table 2, six were at or above $r=0.35$, and several indicated interesting associations. When the association between personality traits and other predictors was examined, neuroticism was negatively associated with perceptions of principal support, $r(34)=-0.35, p<0.05$ and of teacher support, $r(35)=-0.43, p<0.01$. The two forms of perceived support, from principals and teachers, were moderately correlated, $r(36)=0.44, p<0.001$, and counselors' perceived program effectiveness was significantly positively correlated with counselors' perceived teacher support, $r(29)=0.52, p<0.001$, and tended to be associated with perceived principal support, $r(28)=0.36, p=0.06$. As expected, counselors' experience of reductions in teacher-rated child aggression and teacher-rated conduct problems among the children in their groups was highly correlated, $r(38)=0.74, p<0.001$.

Predictors of Counselors' Use of the Overall Coping Power Child and Parent Components

Table 3 presents correlations between counselor characteristics and experiences and their later use of the overall child and parent components. Nine of the 36 correlations were at least at $r=0.34$ and were statistically significant.

Counselors' Sustained Use 2 Years After Training Multiple regression analyses examined how counselor characteristics and experiences predicted use of the child and parent components 2 years after training. Criterion variables were counselors' sustained use of the CP child component and of the CP parent component. The regression analyses were conducted with stepwise elimination procedures (the poorest predictor variable was eliminated in turn), and the final pruned models are in Table 4. Due to missing data for two of the variables (counselors' perception of program efficacy; expectations to use the program in the future), separate sets of regression analyses were conducted either with seven predictors (three counselor personality characteristics; two counselor

Table 1 Means and standard deviations of counselor and child predictor variables collected during the training year

Predictor	Mean	SD	N
Counselor Personality			
Agreeableness	37.4	3.7	36
Conscientiousness	37.3	5.3	36
Neuroticism	14.7	7.8	36
Counselor Perceptions			
Principal Support	4.9	1.5	30
Teacher Support	4.1	1.5	30
Perceived CP Effectiveness	4.4	1.1	30
Planned Use of CP	5.0	1.0	29
Counselor Experience of Children's Behavioral Improvement (Pre-Post; Teacher-rated BASC)			
Aggression	-1.0	3.7	38
Conduct Problems	-1.2	1.5	38

CP Coping Power

Table 2 Correlations between predictor variables collected during the training year

	Agreeable	Conscientious	Neurotic	Principal Support	Teacher Support	Perceived CP Efficacy	Planned Use of CP	Experience of Child Aggression Change	Experience of Child Conduct Problems Change
Agreeable		-0.07	-0.24	0.00	0.07	0.15	0.20	-0.12	0.07
Conscientious			-0.28+	0.02	0.17	0.17	0.01	0.16	0.21
Neurotic				-0.35*	-0.43**	-0.15	0.05	0.13	0.08
Principal Support					0.44**	0.36+	0.32+	0.15	0.07
Teacher Support						0.52**	0.30	0.26	0.22
Perceived CP Effectiveness							0.75**	0.44*	0.35+
Planned Use of CP								0.40*	0.29
Experience of Child Aggression Change									0.74**

Bolded correlations are statistically significant.

CP Coping Power

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

perceptions of school-level program support; two behavioral indicators of how successful that counselors' groups were in reducing problem behaviors during training) or with two predictors (counselor perceptions of program efficacy at the end of training; counselor expectations at the end of training that they would use the program in the future).

For the prediction of counselors' sustained use of the CP child component, the stepwise-reduced model with seven predictors was statistically significant, $F(2,29)=5.34$, $p < 0.02$. The two significant predictors of better sustained use of the child program in this model were lower levels of

principal support during the training period, and greater reductions in teacher-rated aggression for their group during the training period. The stepwise-reduced model with two predictors was also statistically significant, $F(1,24)=4.98$, $p < 0.04$. The significant predictor of counselors' better sustained use of the program in this regression model was the counselors' perception at the end of the training period that the program had been efficacious.

For the prediction of counselors' sustained use of the CP parent component, the stepwise-reduced model with seven predictors was statistically significant, $F(2,29)=5.37$,

Table 3 Correlations between sustained use outcome variables for coping power's primary components and predictor variables from the training period

	1 Year After Training		2 Years After Training	
	Child CP Overall	Parent CP Overall	Child CP Overall	Parent CP Overall
Counselor Personality				
Agreeable	0.28 (33)	0.04 (33)	0.20 (32)	0.32+ (32)
Conscientious	0.04 (33)	0.10 (33)	0.34* (32)	0.15 (32)
Neuroticism	-0.30+ (33)	-0.21 (33)	-0.04 (32)	-0.21 (32)
Counselor Perceptions				
Principal Support	0.07 (32)	0.20 (32)	-0.33+ (32)	0.21 (32)
Teacher Support	0.37* (33)	0.31+ (33)	0.01 (33)	0.49* (33)
Perceived Effectiveness	0.22 (27)	0.51** (27)	0.41* (26)	0.39* (26)
Planned Use of CP	0.30 (26)	0.44* (26)	0.36+ (26)	0.44* (26)
Counselor Experience of Child Behavior Change				
Aggression	0.03 (33)	0.08 (33)	0.31+ (33)	0.28 (33)
Conduct Problems	0.24 (33)	0.09 (33)	0.38* (33)	0.34+ (33)

Bolded correlations are statistically significant.

CP Coping Power

† $p < 0.10$, * $p < 0.05$, ** $p < 0.01$

Table 4 Four multiple regressions: counselor-level predictors of counselors' sustained use of coping power 2 years after training

Predictor Variable	DF	Parameter Estimate	Standard Error	<i>t</i>	<i>p</i>
Coping Power Child Component					
With full sample					
Intercept	1	2.062	0.463	4.45	0.000
Principal Support	1	-0.175	0.074	-2.36	0.025
Experience of Aggression Reduction	1	0.188	0.074	2.54	0.017
With subsample due to missing data					
Intercept	1	-0.124	0.470	-0.26	ns
Perceived CP Effectiveness	1	0.234	0.105	2.23	0.035
Coping Power Parent Component					
With full sample					
Intercept	1	-2.200	0.983	-2.24	0.033
Agreeable	1	0.043	0.025	1.70	0.099
Teacher Support	1	0.187	0.072	2.60	0.014
With subsample due to missing data					
Intercept	1	-0.986	0.563	-1.75	0.093
Planned Use of CP	1	0.269	0.111	2.42	0.024

The predictors in the models were those that remained after stepwise elimination of nonsignificant predictors. The initial model with the full sample had seven counselor-level predictors (three personality variables; two perceptions of school support; two indicators of counselors' experience of behavior change in children in their groups), and the initial model with the subsample had two counselor-level predictors (perceived effectiveness of CP, planned use of CP)

CP Coping Power

$p < 0.02$. Greater level of teacher support was a significant predictor of more sustained use, and counselor agreeableness was a nonsignificant trend predictor of sustained use. The stepwise-reduced model with two predictors was also statistically significant, $F(1,24) = 5.86$, $p < 0.03$. In this regression model, the significant predictor of counselors' better sustained use of the parent component was the counselors' expectation of their future use of the program.

Counselors' Changes in Sustained Use During the 2 Years After Training Multiple regression analyses were conducted to examine how counselor characteristics and experiences predicted counselors' changes in use of the child and parent components during the 2 years after training. Criterion variables were again the counselors' sustained use of the CP child component and of the CP parent component 2 years after training, but for these analyses the counselors' sustained use in the first year after training was also entered as a predictor. Thus, the regression analyses (again using stepwise elimination procedures) indicated which variables predicted increases or decreases in sustained use across time. Results are presented in Table 5.

For the prediction of counselors' increases (from the first to the second year after training) in their sustained use of the CP child component, the stepwise-reduced model with seven predictors was statistically significant, $F(4,27) = 10.19$, $p < 0.001$. The three significant predictors of counselors'

increases in sustained use of the child component in this model were higher levels of conscientiousness, lower levels of teacher support, and greater reductions in teacher-rated aggression for their group. The stepwise-reduced model with two predictors was also statistically significant, $F(2,23) = 8.29$, $p < 0.01$. The nonsignificant trend predictor of counselors' increases in sustained use of the program in this regression model was the counselors' perception at the end of training that the program had been efficacious.

For the prediction of counselors' increases (from the first to second year after training) in sustained use of the CP parent component, the stepwise-reduced model with seven predictors was statistically significant, $F(3,28) = 7.19$, $p < 0.01$. Two nonsignificant trend predictors of counselors' increases in their sustained use of the parent component were higher levels of agreeableness and greater reductions in teacher-rated conduct problems for their group. The stepwise-reduced model with two predictors was also statistically significant, $F(2,23) = 3.72$, $p < 0.04$, but neither of the predictors were significant or had nonsignificant trend effects ($p < 0.10$).

Discussion

Despite the recognized need and importance for understanding whether and how real-world staff sustain their use of EBPs

Table 5 Four Multiple regressions: counselor-level predictors of counselors' use of coping power in second year after training, controlling for first year use

Predictor Variable	DF	Parameter Estimate	Standard Error	<i>t</i>	<i>p</i>
Coping Power Child Component					
With full sample					
Intercept	1	−0.306	0.709	−0.43	ns
First Year Sustained Use	1	0.926	0.175	5.30	0.000
Conscientious	1	0.045	0.017	2.59	0.015
Teacher Support	1	−0.220	0.073	−3.03	0.005
Experience of Aggression Reduction	1	0.066	0.024	2.81	0.009
With subsample ^a					
Intercept	1	−0.285	0.406	−0.70	ns
First Year Sustained Use	1	0.654	0.209	3.13	0.005
Perceived CP Effectiveness	1	0.166	0.092	1.80	0.085
Coping Power Parent Component					
With full sample					
Intercept	1	−1.375	0.860	−1.60	ns
First Year Sustained Use	1	0.664	0.187	3.56	0.001
Agreeable	1	0.045	0.023	1.96	0.060
Experience of Conduct Problem Reduction	1	0.100	0.058	1.73	0.095
With subsample ^a					
Intercept	1	−0.752	0.590	−1.27	ns
First Year Sustained Use	1	0.409	0.337	1.21	ns
Planned Use of CP	1	0.203	0.123	1.66	0.111

CP Coping Power

^aSubsample only of those participants who had full data on these variables. The predictors in the models were those that remained after stepwise elimination of nonsignificant predictors. The initial model with the full sample had seven counselor-level predictors, and the initial model with the subsample had two counselor-level predictors.

following training, limited definitive evidence has been available (Han and Weiss 2005), and none in the area of specific targeted prevention programs in school settings. The current findings are the first to extend our understanding of sustained use of indicated school-based prevention programs in several central ways, by examining sustained use longitudinally for 2 years following the initial period of training and supervised implementation of a specific school-based program, and by identifying counselor characteristics and experiences that predict counselors' sustained use of an EBP. Counselors' successful experiences in the use of the program during training and their conscientiousness emerged as particularly important counselor characteristics that predicted their sustained use of the program.

Do School Counselors Continue to Use the Coping Power Program in Subsequent Years?

A first and basic question is whether the counselors used the program after training at all. The current results indicate that most school counselors continue to use elements of CP, although few are using the program's full child and parent

components. Counselors are making decisions to adapt the program to meet constraints in their own settings, and while some degree of adaptation can be appropriate and in fact desirable (e.g., Goldstein et al. 2012), the current study cannot address the appropriateness of the adaptations. Instead, the study indicates how much sustained use occurred, and demonstrates that most real-world school counselors who have received structured training in the use of the program (e.g., Lochman et al. 2009) continue to make use of components of the program in subsequent years. Overall, counselors are using more of the program's child components than parent components. This is not surprising, as it is easier for school counselors to implement the program with children during the school day; in some schools, it was not clear that parent intervention was a mandated duty for counselors, and it was clearly more difficult for counselors to meet with parents during the counselors' typical hours. Although use of just the CP child component has led to positive reductions in children's externalizing behavior problems at school at a one-year follow-up in earlier research, inclusion of the parent component is important for producing longer term effects on children's substance use and delinquency (Lochman and

Wells 2004). The counselors' limited ability to use CP with parents likely limits the program's effects on later serious antisocial behaviors in the community.

Despite the expectation that counselors would progressively decline in their use of the program elements across time (e.g., Elias and Kamarinos 2003), the rates of use actually had mean increases. Although the increases were not statistically significant, counselors tended to use more of the child component in the second year after training. This is an important indication that the program elements became incorporated into counselors' intervention skill sets.

Counselor Perceptions of Program Effectiveness and Actual Teacher-Rated Behavior Changes during the Training Period

The most consistent predictors of high levels of sustained use of the program and of actual increases in the use of the program in the years following training involved indicators that the program had been successful for them during the training period. We found that the ability to predict future use from counselors' perceptions of program effectiveness was augmented in the second year after training by the actual level of teacher-rated behavior change that had occurred among counselors' children during the training period 2 years earlier. The counselors' perceptions of the program's effectiveness had been moderately correlated with teachers' ratings of changes in children's aggression ($r=0.44$) and conduct problems ($r=0.35$). Thus, counselors' perceptions of program effectiveness were based in part on how much children changed by the end of the training year. However, counselors' perceptions also may have included other elements of children's responsiveness, such as how much they seemed to learn and use new skills during the group sessions. The predictive power of children's actual behavior change indicates that counselors may have attended to children's classroom behavior changes, based likely on feedback from teachers at the time, and the counselors' experience with the groups' actual behavior improvement was a predictor of their actual and increasing use of the program.

Although it is easiest in this longitudinal follow-up to assume that counselors' experience of successful behavior change in their first use of the program predicted their later use, the actual relation between the counselors' experience with children's behavior change and later program use may be somewhat more complex. Counselors who have stronger beliefs about the program's likely efficacy, and thus have greater likelihood of continuing to use program elements, may place more effort in implementing the program, and hence their ongoing effort may have stronger influence in creating behavior change. Although there is temporal ordering in our prediction analyses, the direction of causal influence is less clear.

Counselors' Personality Traits as Predictors of Sustained Use

A second, quite different, type of counselor characteristic also emerged as a reliable indicator of their later program use. The counselors' personality traits, notably their conscientiousness, predicted their patterns of increasing their use of the CP child component during the 2 years following training. In the earlier dissemination study, counselors' conscientiousness, along with their agreeableness, had predicted higher quality of implementation of CP (Lochman et al. 2009). More conscientious counselors are organized, thorough, and planful, and these characteristics may facilitate their later persistent use of CP child components. Conscientious counselors are likely to be self-disciplined and to pay close attention to details and the schedules they plan. If they value a task, they are likely to complete it. Though not statistically significant, counselors' agreeableness, indicating greater flexibility and emotional regulation, also tended to predict counselors' increasing use of the CP parent component.

Perceived Teacher and Principal Program Support during the Initial Training Period

Counselors' perceptions of the support they received from others in their schools to implement CP, at the time of their initial training, had complex relations to their later use of the program. Greater perceived teacher support was associated with greater use of the CP parent component 2 years following training, and with their initial use of the CP child component; thus, counselors' perceptions of working among supportive teachers has some beneficial effects. Findings about the importance of teacher support in counselors' program use is consistent with prior research that has found school-level characteristics (Lanza et al. 2010) and support (Tibbits et al. 2010), including teacher support (Forman et al. 2009), affect outcomes of preventive interventions. Teacher support likely has both functional and social support effects. At the functional level, more supportive teachers likely have better monitoring of children's behavior and can provide more reinforcement of children's emerging intervention-related social and behavioral skills. At the social support level, counselors can perceive that supportive teachers value their intervention work. The way that teacher-reported behavior change in children affected counselors' sustained program use strengthens the conclusion that teachers' support and feedback can have a profound influence on counselors' program use across time.

However, perceived teacher support became inversely related to later increasing use of the CP child component. Counselors appeared to rely on their perceptions of teacher support for the program in their use of the program shortly after training, but their experiences with the effectiveness of the program became stronger predictors of their use as time passed. In a similar way, but likely for a different reason,

principal support was inversely related to counselors' use of the CP child component 2 years after training. The inverse relation of principal support may have occurred in part because the levels of perceived principal support overall were quite high, as principals provided permission for the program to take place in their schools.

Counselors' Expectations to Use the Program as Predictors of Actual Program Use

A final counselor characteristic that served to predict their later use of the CP parent component was the cognitive expectations they had formed at the end of the training period to use the program in subsequent years. In the Theory of Planned Behavior of Ajzen (1991), an individual's behavioral intention is an indication of that person's readiness to perform a given behavior, and the individual's behavioral intention is based on their attitude toward the behavior (using CP program elements, in this case) and their perceived control over that particular behavior. The counselors' ratings of their plans to use CP in future years are clearly predictive of their efforts to implement the arguably demanding CP parent component in the following years.

Limitations

The sample size for the counselors was small and limited the power of the analyses. The use of counselor self-reports of sustained use of the program was also a limitation, as counselor self-reports may overestimate actual use rates. In addition, the low internal consistency of the agreeableness variable, perhaps because of the high mean score and limited variability of this construct within this sample of counselors, limited its utility in the current analyses.

Implications

Several implications for sustained use of preventive interventions are evident. First, consistent with prior recommendations (e.g., Tibbits et al. 2010), the results of this study underscore the critical importance of stimulating teacher support for an indicated prevention program like CP. Meetings with teachers should be actively arranged during the planning and implementation of this type of school-based prevention program to stimulate and reinforce teacher support of the program efforts. Second, trainers should help counselors to be aware of the actual behavioral changes children are displaying, both from the pre-post BASC scores and from the weekly behavioral goal attainment. This could be done by providing graphed results indicating the changes in the children's behavior during the training period. Then the counselors could be asked to indicate how they explicitly planned to use the program in the following year. Third, the personality features of counselors

could potentially require attention during training. Training could be expanded to enhance specific behavioral correlates of counselors' conscientiousness. Although it is not likely that a personality trait like conscientiousness can be readily changed, because of its stability, but one could focus on elements of conscientiousness like planning strategies and goal setting. For example, conscientiousness is measured by how prepared someone is, how much attention they pay to details, and much they follow a schedule, and counselors could be directly reinforced for such behaviors during the training period.

Summary

The current study indicates that real-world school counselors can display sustained use of indicated preventive interventions like CP in the 2 years after training. Higher levels of sustained use of the program are evident initially when counselors receive more teacher support. In later years, their sustained and increasing use of the program was predicted by having conscientious personality traits, by their perceptions at the end of the training period that the program was effective, and by greater behavioral improvement by their children.

Acknowledgments The completion of this study was supported by a grant, awarded to the first author, from the National Institute on Drug Abuse (R01 DA016135)

Conflict of Interest Dr. Lochman and Wells are coauthors on the manual for the Coping Power Program published by Oxford University Press. There are no other disclosures for the other authors.

References

- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50, 179–211.
- Armitage, C. J., & Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40, 471–500.
- Casper, E. S. (2008). Using implementation intentions to teach practitioners: Changing practice behaviors via continuing education. *Psychiatric Services*, 59, 747–752.
- Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO personality inventory (NEO-PI-R) and NEO five-factor inventory (NEO-FFI) professional manual*. Odessa: Psychological Assessment Resources, Inc.
- DeRousie, R. M., & Bierman, K. L. (2012). Examining the sustainability of an evidence-based preschool curriculum: The REDI program. *Early Childhood Research Quarterly*, 27, 55–65.
- Dodge, K. A., Greenberg, M. T., Malone, P. S., & Conduct Problems Prevention Research Group. (2008). Testing an idealized dynamic cascade model of the development of serious violence in adolescence. *Child Development*, 79, 1907–1927.
- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes

- and the factors affecting implementation. *American Journal of Community Psychology*, 41, 327–350.
- Elias, M. J., & Kamarinos, P. (2003). *Sustainability of school-based preventive, social-emotional programs: A model site study*. Toronto: Presentation at the Annual Meeting of the American Psychological Association.
- Forman, S. G., Olin, S. S., Hoagwood, K. E., Crowe, M., & Saka, N. (2009). Evidence-based intervention in schools: Developers' views of implementation barriers and facilitators. *School Mental Health*, 1, 26–36.
- Goldstein, N. E. S., Kemp, K. A., Leff, S. S., & Lochman, J. E. (2012). Guidelines for adapting manualized interventions for new target populations: A step-wise approach using anger management as a model. *Clinical Psychology: Science and Practice*, 19, 385–401.
- Han, S. S., & Weiss, B. (2005). Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology*, 33, 665–679.
- Klimes-Dougan, B., August, G. J., Chih-Yuan, S. L., Realmuto, G. M., Bloomquist, M. L., Horowitz, J. L., & Eisenberg, T. L. (2009). Practitioner and site characteristics that relate to fidelity of implementation: The early risers prevention program in a going-to-scale intervention trial. *Professional Psychology: Research and Practice*, 40, 467–475.
- Kokko, K., Tremblay, R. E., Lacourse, E., Nagin, D. S., & Vitaro, F. (2006). Trajectories of prosocial behavior and physical aggression in middle childhood: Links to adolescent school dropout and physical violence. *Journal of Research on Adolescence*, 16, 403–428.
- Langley, A. K., Nadeem, E., Kataoka, S. H., Stein, B. D., & Jaycox, L. H. (2010). Evidence-based mental health programs in schools: Barriers and facilitators of successful implementation. *School Mental Health*, 2, 105–113.
- Lanza, S. T., Rhodes, B. L., Nix, R. L., Greenberg, M. T., & Conduct Problems Prevention Research Group. (2010). Modeling the interplay of multilevel risk factors for future academic and behavior problems: A person-centered approach. *Development and Psychopathology*, 22, 313–335.
- Lochman, J. E., & Wells, K. C. (2002a). Contextual social-cognitive mediators and child outcome: A test of the theoretical model in the coping power program. *Development and Psychopathology*, 14, 945–967.
- Lochman, J. E., & Wells, K. C. (2002b). The coping power program at the middle school transition: Universal and indicated prevention effects. *Psychology of Addictive Behavior*, 16, S40–S54.
- Lochman, J. E., & Wells, K. C. (2003). Effectiveness of the coping power program and of classroom intervention with aggressive children: Outcomes at a 1-year follow-up. *Behavior Therapy*, 34, 493–515.
- Lochman, J. E., & Wells, K. C. (2004). The coping power program for preadolescent aggressive boys and their parents: outcome effects at the 1-year follow-up. *Journal of Consulting and Clinical Psychology*, 72, 571–578.
- Lochman, J.E., Wells, K.C., & Lenhart, L.A. (2008). *Coping Power child group program: Facilitator guide*. New York: Oxford.
- Lochman, J. E., Powell, N., Boxmeyer, C., Qu, L., Wells, K., & Windle, M. (2009). Implementation of a school-based prevention program: Effects of counselor and school characteristics. *Professional Psychology: Research and Practice*, 40, 476–497.
- Lochman, J. E., Boxmeyer, C., Powell, N., Qu, L., Wells, K., & Windle, M. (2012). Coping Power dissemination study: Intervention and special education effects on academic outcomes. *Behavioral Disorders*, 37, 192–205.
- Lochman, J. E., Wells, K. C., Qu, L., & Chen, L. (2013). Three-year follow-up of coping power intervention effects: Evidence of neighborhood moderation? *Prevention Science*, 14, 364–376.
- Lochman, J. E., Baden, R. E., Boxmeyer, C. L., Powell, N. P., Qu, L., Salekin, K. L., & Windle, M. (2014). Does a booster intervention augment the preventive effects of an abbreviated version of the coping power program for aggressive children? *Journal of Abnormal Child Psychology*, 42, 367–381.
- Lyon, A. R., Frazier, S. L., Mehta, T., Atkins, M. S., & Weisbach, J. (2011). Easier said than done: Intervention sustainability in an urban after-school program. *Administration and Policy in Mental Health and Mental Health Services Research*, 38, 504–517.
- Reynolds, C. R., & Kamphaus, R. W. (1992). *BASC: Behavior assessment system for children manual*. Circle Pines: American Guidance Service, Inc.
- Schoenwald, S. K., Sheidow, A. J., & Letourneau, E. J. (2004). Toward effective quality assurance in evidence-based practice: Links between expert consultation, therapist fidelity, and child outcomes. *Journal of Clinical Child and Adolescent Psychology*, 33, 94–104.
- Tibbits, M. K., Bumbarger, B. K., Kyler, S. J., & Perkins, D. F. (2010). Sustaining evidence-based interventions under real-world conditions: Results from a large-scale diffusion project. *Prevention Science*, 11, 252–262.
- Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, 132, 249–268.
- Wells, K.C., Lochman, J.E., & Lenhart, L.A. (2008). *Coping Power parent group program: Facilitator guide*. New York: Oxford.
- Wingspread Conference. (2004). Wingspread declaration on school connections. *Journal of School Health*, 74, 233–234.