Internalizing Problems as a Predictor of Change in Externalizing Problems in At-Risk Youth

Matthew Jarrett a, Salma Siddiqui a, John Lochman a & Lixin Qu a

a Department of Psychology, University of Alabama

Internalizing Problems as a Predictor of Change in Externalizing Problems in At-Risk Youth

Matthew Jarrett, Salma Siddiqui, John Lochman, and Lixin Qu
Department of Psychology, University of Alabama

Intervention and prevention programs for children with externalizing problems frequently involve children with co-occurring internalizing problems. Little is known about how these co-occurring internalizing problems predict outcomes, particularly for programs involving cognitive-behavioral strategies. The current study examined how a set of child-related risk factors (including anxiety and depressive symptoms) predicted change in parent- and teacher-reported externalizing problems following a school-based preventative intervention for children at risk for externalizing problems. Participants included 112 preadolescent children (ages 9–12) who participated in a study designed to evaluate the efficacy of the Coping Power Program (Lochman & Wells, 2004). Participants included 81 boys (68%) who were primarily African American (69%) or Caucasian (30%). Regression analyses were conducted to examine predictors of change in parent- and teacher-reported externalizing problems on the Behavior Assessment System for Children (Reynolds & Kamphaus, 1992). Results indicated that greater child depression symptoms (as reported by parent or teacher) were associated with a larger reduction in externalizing behavior problems based on parent or teacher report. This effect was found in both the parent and teacher models and held after controlling for a number of child-oriented baseline variables including baseline aggression. Future research studies should examine whether co-occurring symptoms of depression relate to enhanced changes in externalizing problems following intervention for externalizing problems, particularly when cognitive-behavioral interventions are utilized. In addition, it will be important for studies to examine such effects relative to a control group and/or alternative treatment conditions and to further explore possible mechanisms of change.

INTRODUCTION

Externalizing behavior problems include a range of problematic behaviors such as aggression, defiance, disruptive behavior, and conduct problems (Achenbach, 1991; Campbell, 1995). Once established, these behavior problems are often stable over time and predictive of violence, delinquency, substance use, and other negative outcomes during adolescence and adulthood (Miller-Johnson, Coie, Maumary-Gremaud, Lochman, & Terry, 1999; Windle, 1990). Given the poor prognosis for children with externalizing behavior problems, there has been significant interest in the development of evidence-based prevention and intervention programs for children with externalizing behavior problems. Many of these programs have been parent-focused programs that attempt to improve parent-child relationships or teach behavior management strategies (Eyberg et al., 2001; Patterson, Dishion, & Chamberlain, 1993; Webster-Stratton, 1984, 1994). In contrast, some child-focused programs have also shown evidence for efficacy. Generally, these child-focused programs emphasize skill building in a number of domains such as anger control, coping, and problem-solving skills (Kazdin, Siegel, & Bass, 1992; Lochman & Wells, 1996; Webster-Stratton, Reid, & Hammond, 2004). Finally, some programs have combined both parent- and child-focused elements, and there is evidence to
sugest that there may be larger intervention effects when both parent- and child-focused elements are utilized (Webster-Stratton et al., 2004).

Although these programs are clearly efficacious, few studies have examined predictors of outcomes following these interventions. In particular, only a handful of studies have examined the role of co-occurring symptomatology or comorbid disorders (Beauchaine, Webster-Stratton, & Reid, 2005; Brestan & Eyberg, 1998; Ollendick, Jarrett, Grills-Taquechel, Hovey, & Wolff, 2008). Currently, even the most effective interventions for externalizing problems show efficacy for only about two thirds of the children (Webster-Stratton & Hammond, 1997). Thus, there is substantial interest in factors that may be associated with enhanced outcomes following intervention. Although studies to date have explored factors such as comorbidity, few studies have considered conceptual reasons for why comorbid or co-occurring disorders might predict outcomes following intervention or specific symptom domains that might be more relevant to outcomes. In addition, the majority of research examining comorbidity and/or co-occurring symptomatology as it relates to externalizing behavior outcomes has been for studies examining parent-focused interventions (e.g., parent training). Research on the role of comorbidity or co-occurring symptomatology for child-focused interventions is clearly needed.

Predictors and Moderators of Intervention for Externalizing Problems

Surprisingly, only a handful of studies have examined comorbidity or co-occurring symptomatology as a predictor of outcomes following intervention for externalizing behavior problems. Studies to date have typically involved the examination of comorbidity on a broad level (e.g., whether the presence of one or more additional disorders affects outcomes) or in terms of a class of disorder (e.g., the effect of an “internalizing” disorder on outcomes). In relation to comorbidity broadly, Weiss, Harris, Catron, and Han (2003) examined the efficacy of the Reaching Educators, Children, and Parents prevention program for children experiencing concurrent internalizing and externalizing problems. Overall, the authors did not find comorbidity to be a significant predictor of outcomes. Children who were high in externalizing problems relative to internalizing problems responded the same to intervention as children who were high on internalizing problems relative to externalizing problems. Subsequently, Kazdin and Whiteley (2006) studied comorbidity in two samples of clinically referred children receiving intervention (i.e., parent management training) for oppositional defiant disorder or conduct disorder and found that children with the greatest degree of comorbidity showed the greatest amount of improvement from preintervention to postintervention in comparison to children without a comorbid disorder.

Very few studies have focused on specific co-occurring symptom domains or comorbid disorders (e.g., anxiety and depression). In one of the few studies that examined the effect of internalizing problems, Beauchaine et al. (2005) examined how parent-reported anxiety/depressive symptoms predicted and moderated outcomes. Overall, parent-reported child anxiety/depression was a predictor of outcomes for all interventions. Elevated child anxiety/depression symptoms were associated with enhanced outcomes for externalizing problems across all intervention modalities. In addition, parent-reported child anxiety/depression was also a moderator. For example, the authors reviewed studies that involved parent training, child training, and teacher training for externalizing behavior problems. Children received various combinations of these intervention types. For analytic purposes, groups were created to isolate the specific training element (i.e., groups with parent training vs. groups without parent training, groups with child training vs. groups without child training, groups with teacher training vs. groups without teacher training). The authors found that interventions involving parent training resulted in better 1-year follow-up outcomes than interventions without parent training for children scoring below the sample mean (T = 56) on the Child Behavior Checklist Anxious/Depressed subscale. Overall, the results of the study broadly suggested enhanced outcomes when anxiety/depression is elevated but better long-term response to parent training when anxiety/depression symptoms are below average. These results suggest that the effects of co-occurring anxiety/depression on outcomes may partially depend on the intervention type.

Although these past findings have been valuable, no study was identified that examined symptoms of anxiety and depression separately, and the majority of studies have focused exclusively on intervention programs that involve parent training. Overall, there are limited data on how the presence of child internalizing problems relates to outcomes for child externalizing problems following child-focused interventions (e.g., cognitive-behavioral interventions) for externalizing behavior problems. Finally, it is important to note the absence of any study that has focused on similar variables in prevention programs that target children at risk for externalizing or aggressive behavior problems.

Current Study

The current study sought to examine predictors of outcomes following a prevention program that primarily
uses child-focused intervention components for children at risk for externalizing behavior problems (i.e., the Coping Power Program; Lochman & Wells, 2004). Our central question in the current study was whether anxiety and depression symptoms predicted reductions in externalizing behavior following a targeted prevention program for preadolescent children. We chose to address this question for a variety of reasons. First, anxiety and depression commonly co-occur with externalizing behavior problems (Angold & Costello, 1993; Capaldi, 1991; Marmorstein & Iacono, 2003). Second, since the current intervention is cognitive-behavioral in nature, the role of co-occurring anxiety and depression is particularly important, because cognitive-behavioral therapy is often the intervention of choice for these internalizing disorders (David-Ferdon & Kaslow, 2008; Silverman, Pina, & Viswesvaran, 2008). The presence of co-occurring anxiety and/or depression may predict enhanced externalizing problem outcomes if a child’s externalizing problems are partially driven by a deficit that cuts across both internalizing and externalizing problems (e.g., emotion regulation difficulties). Finally, it should be noted that the age range for our sample is particularly well suited for examining such effects given that children in this age range (i.e., ages 9–12) have the cognitive skills to benefit from cognitive-behavioral interventions.

In selecting predictors for our current study, we sought to examine a variety of child-related variables since we were interested in examining outcomes following a child-oriented intervention. First, we included demographic variables such as race, gender, and socioeconomic status, as these variables are often related to child externalizing problems and/or post-intervention changes in externalizing problems (Brestan & Eyberg, 1998; Capaldi & Stoolmiller, 1999; Lundahl, Risser, & Lovejoy, 2006). Age was not included in the current analyses, due to the limited age variability in our sample (i.e., ages 9–12). Although we did not have a pure measure of cognitive functioning, we chose to include a variable reflecting whether a child had a repeated grade as a school-related behavioral and cognitive risk factor. In relation to symptomatology, we included a measure of preintervention aggression (Dodge & Coie, 1987) to determine if the level of preintervention aggression predicted outcomes following intervention for externalizing behavior problems. Finally, we included our primary variables of interest for the current study: preintervention parent- and teacher-reported measures of anxiety and depression symptoms.

In line with past studies, we predicted that higher levels of anxiety and depression would predict greater reductions in parent- and teacher-reported externalizing problems. We also predicted that repeating a grade would be related to fewer changes in externalizing problems. Given the mixed literature on demographic variables such as gender and race (Brestan & Eyberg, 1998; Conduct Problems Prevention Research Group, 2002; Hawkins, von Cleve, & Catalano, 1991), we did not have specific predictions for these variables.

METHOD

Participants

Participants were children recruited for an intervention study designed to evaluate the efficacy of the Coping Power intervention for at-risk youth (for additional information, see Lochman, Boxmeyer, Powell, Roth, & Windle, 2006). Participants were selected based on teacher ratings of children who were in the top 30% for aggressive behavior among fourth grade students (Dodge & Coie, 1987). Children came from seven elementary schools in urban and suburban areas of Alabama. Although the original study involved a treatment group and a control group, the present study is based on the treatment group only ($n = 112$). Of the study sample members, 67.5% were male. The majority of the participants identified themselves as African American (69%). Thirty percent were Caucasian, and 1% were of another race or ethnicity. Thirty percent of the sample had repeated a grade at least once. Participants came from predominantly working-class or low middle-class families (Hollingshead Index; $M = 27.89$, $SD = 13.61$).

The Coping Power Program

Lochman, Wells, and Lenhart (2008) developed a multicomponent preventive intervention for aggressive children that includes 34 intervention sessions for children delivered over 15 months. In addition, 16 parent sessions are delivered over the same period. The program is based on the contextual social-cognitive model (Lochman & Wells, 2002a) with a focus on the cognitive processes involved in a child’s response to interpersonal conflicts or frustrations with environmental obstacles (see Larson & Lochman, 2002). The Coping Power Program (CPP) has been found to be effective in reducing rates of substance use and proactive aggression and improving social competence and teacher-reported behavior problems (Lochman & Wells, 2002b). Studies investigating the efficacy and effectiveness of the intervention have indicated in two separate samples that the CPP produces lower rates of delinquent behavior and substance use at postintervention and 1-year follow-up in comparison to a randomly assigned control condition.

The current study is based upon an abbreviated version of the CPP that included 24 child group sessions and 10 parent group sessions (Lochman, 2006). This version of the program has shown evidence for efficacy
in the form of greater changes on child externalizing problems (via the Behavior Assessment System for Children Externalizing Problems construct) in the treatment condition relative to a control group (Lochman et al., 2006). Parent group attendance was generally very low (i.e., 68% attended fewer than half of the parent sessions; 28% attended no sessions). The mean number of Coping Power parent sessions attended was 3.76 ($SD = 3.58$; range $= 0–10$). Thus, the current intervention is primarily a child-focused intervention with some limited parenting components given the low rate of attendance. Each child and parent group was co-led by two members of the research team; the child groups were conducted at the participating elementary schools with five to six children in each group and focused on teaching coping and problem-solving skills as well as strategies for enhancing social relationships and resisting peer pressure. The parent group included parents and primary caregivers of the target children and focused on teaching behavior management skills and improving family problem solving, communication, and cohesion. Children had an attendance level of 93%. The child-focused portion of the intervention started at the beginning of the school year and terminated at the end of the school year. In relation to attrition, all children completed the intervention protocol, although some parent and teacher informants did not complete postintervention measures (teacher attrition: $n = 4$, 3%; parent attrition: $n = 11$, 9%).

Measures

**Aggression screener (Dodge & Coie, 1987).** The six items on this measure evaluate total aggression as well as reactive and proactive aggression. Parents used a 5-point Likert scale from 1 (never) to 5 (almost always), indicating how frequently each item applied to their child. Three items represent reactive aggression (“overreacts angrily to accidents,” “when teased, strikes back,” and “blames others in fights”), and three items represent proactive aggression (“threatens or bullies others,” “gets others to gang up on a peer,” and “uses physical force to dominate others”). The reliability of this version of the scale has been supported in prior studies (e.g., Dodge, Lochman, Harnish, Bates, & Pettit, 1997; Vitaro, Brendgen, & Tremblay, 2002). Vitaro et al. (2002) reported high internal consistency for these constructs ($\alpha = .83$ for reactive aggression, $\alpha = .82$ for proactive aggression). Total aggression was used for aggression screening purposes for the current study ($\alpha = .84$ at preintervention).

**Behavior Assessment System for Children (Reynolds & Kamphaus, 1992).** Parents completed the BASC Parent Rating Scale (BASC–PRS), and teachers completed the BASC Teacher Rating Scale (BASC–TRS) by rating how often they observe the child engaging in various behaviors on a 4-point scale ranging from never to always. The Externalizing Problems Composite scale was used to assess changes in externalizing behaviors. This scale is a composite of three scales—Aggressive Behavior, Conduct Problems, and Hyperactivity. The Externalizing Problems Composite had strong internal consistency ($\alpha = .96$ at both pre- and postintervention). Outcomes were assessed by subtracting the Time 2 score from the Time 1 score for both parents and teachers. Thus, positive change scores reflect improvement in the Externalizing Problems Composite, whereas negative change scores reflect an increase in the Externalizing Problems Composite. Time 1 depression and anxiety were also assessed using the BASC Depression and Anxiety scales. Reliability was very high for parent ratings of Depression ($\alpha = .84$) and Anxiety ($\alpha = .79$) as well as teacher ratings of Depression ($\alpha = .84$) and Anxiety ($\alpha = .78$) at preintervention.

**Family history and demographic form.** Parents completed a family history and demographic form that assessed general background information about the child and his or her family. This form included indicated child race and gender, variables that were used in the current study. The Hollingshead Index was calculated based on parental educational level and occupation as a measure of socioeconomic status (Hollingshead, 1975) and was included in the current study. Finally, this form also asked whether a child had ever repeated a grade, and this variable was also used in the current study as a school-related behavioral and cognitive risk factor.

**Procedure**

Following informed consent and assent, parent and child measures were completed in the participants’ homes or the researchers’ offices, depending on parent preference. In most cases, the parent reporter was the child’s biological parent (93.3%). The initial baseline data collection for parent- and child-reported information took place during the summer prior to the students’ fifth-grade year. Teacher-reported baseline data consisted of pencil-and-paper rating scales of the children’s behavior that were collected a few months after students began their fifth-grade year. For teacher-reported data, Time 2 data collection took place at the end of the students’ fifth-grade year (i.e., at the end of the intervention). For parents and children, Time 2 data collection took place during the summer following students’ fifth-grade year (roughly 1 year after the initial assessment and shortly after the end of the intervention).
Table 1 includes means, standard deviations, and correlations among study variables. Regression analyses were utilized to examine predictors of change in the parent- and teacher-reported Externalizing Problems Composite on the BASC. Table 2 displays the results of linear regression analyses for parent and teacher outcomes. In our regression analyses, we also explored multicollinearity diagnostics such as tolerance and the variation inflation factor (VIF). We used Allison’s (1999) definition for problematic multicollinearity (i.e., VIF > 2.5 and tolerance < .40). All values of tolerance and VIF were in the acceptable range.

Although we originally planned to include Time 1 BASC Externalizing Problems as a predictor, we encountered problems with multicollinearity. When regression models were run with pretreatment BASC Externalizing Problems and BASC Depression as predictors, BASC Depression had elevated multicollinearity statistics that are considered problematic based on expert recommendations (Allison, 1999; recommendation of requiring all predictors to have a VIF ≤ 2.5 and tolerance > .40). These statistics were elevated in both the parent and teacher models. Given this multicollinearity issue, we chose to pursue gain scores rather than repeated measures analysis of covariance, because repeated measures analysis of covariance would require that pretreatment BASC Externalizing Problems be included in the model. Using gain scores allowed us to use a substitute measure for pretreatment externalizing problems as a predictor of the average change in BASC Externalizing Problems. It should be noted that the aggression screener measure was significantly associated with BASC Externalizing Problems (.44 for teachers, .28 for parents) but not significantly associated or as strongly associated with parent or teacher depression (.09 for parents and .27 for teachers; this latter correlation is significant). When models were run using the gain score approach with the screener measure for Time 1 aggression, multicollinearity diagnostic statistics were not in a problematic range.

The current study examined the role of internalizing problems such as anxiety and depression symptoms in predicting changes in externalizing problems following a prevention program for children at risk for externalizing behavior problems. A strength of the current study was an examination of anxiety and depression as separate predictors, an approach that has not been used in past studies. In addition, the current study also utilized additional child-related predictors to understand the unique predictive effects of child anxiety and depression. Although most studies in this research area have involved children in the clinical range for externalizing problems, the current study involved intervention with children at risk for these problems. Finally, the current study was unique in that it involved a child-focused intervention that was cognitive-behavioral in nature. This approach is in contrast to most other studies in this research area, which have involved primarily parent management training for externalizing behavior problems.

The primary finding from the current study was that parent- and teacher-reported child depression was
TABLE 2
Predicting Change in BASC Externalizing Problems Composite

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>df</th>
<th>Predictor</th>
<th>$B$</th>
<th>$SE$</th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
<th>CI ($\beta$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parent Externalizing Change Score</td>
<td>89</td>
<td>Intercept</td>
<td>2.41</td>
<td>5.72</td>
<td>0</td>
<td>.42</td>
<td>.67</td>
<td>-.12 to .26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender</td>
<td>1.66</td>
<td>2.06</td>
<td>.08</td>
<td>.81</td>
<td>.42</td>
<td>-.12 to .28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Race</td>
<td>-2.88</td>
<td>2.16</td>
<td>-.14</td>
<td>-1.33</td>
<td>.19</td>
<td>-.33 to .07</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SES</td>
<td>-0.04</td>
<td>0.07</td>
<td>-.06</td>
<td>-0.51</td>
<td>.61</td>
<td>-.27 to .16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repeat Grade</td>
<td>.32</td>
<td>0.99</td>
<td>.02</td>
<td>.15</td>
<td>.88</td>
<td>-.18 to .21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 Aggression Screener</td>
<td>.05</td>
<td>.20</td>
<td>.03</td>
<td>.23</td>
<td>.82</td>
<td>-.18 to .23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Teacher Anxiety</td>
<td>-.23</td>
<td>.40</td>
<td>-.09</td>
<td>-0.59</td>
<td>.56</td>
<td>-.35 to .19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Teacher Depression</td>
<td>-.29</td>
<td>.30</td>
<td>-.14</td>
<td>-0.97</td>
<td>.33</td>
<td>-.42 to .14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Parent Anxiety</td>
<td>-.07</td>
<td>.22</td>
<td>-.04</td>
<td>-0.30</td>
<td>.76</td>
<td>-.28 to .21</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Parent Depression</td>
<td>.57</td>
<td>.27</td>
<td>.30</td>
<td>2.14</td>
<td>.04</td>
<td>-.02 to .57</td>
</tr>
<tr>
<td>Teacher Externalizing Change Score</td>
<td>94</td>
<td>Intercept</td>
<td>1.24</td>
<td>9.41</td>
<td>0</td>
<td>.13</td>
<td>.90</td>
<td>-.18 to .19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender</td>
<td>-1.15</td>
<td>3.46</td>
<td>-.03</td>
<td>-0.33</td>
<td>.74</td>
<td>-.23 to .17</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Race</td>
<td>-6.47</td>
<td>3.68</td>
<td>-.17</td>
<td>-1.76</td>
<td>.08</td>
<td>-.39 to .02</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SES</td>
<td>.06</td>
<td>.13</td>
<td>.05</td>
<td>.46</td>
<td>.65</td>
<td>-.17 to .27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Repeat Grade</td>
<td>.64</td>
<td>3.54</td>
<td>.02</td>
<td>.18</td>
<td>.86</td>
<td>-.18 to .22</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 Aggression Screener</td>
<td>-.13</td>
<td>.34</td>
<td>-.04</td>
<td>-0.39</td>
<td>.69</td>
<td>-.25 to .16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Teacher Anxiety</td>
<td>-.93</td>
<td>.67</td>
<td>-.19</td>
<td>-1.38</td>
<td>.17</td>
<td>-.47 to .08</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Teacher Depression</td>
<td>1.95</td>
<td>.50</td>
<td>.36</td>
<td>3.92</td>
<td>.01</td>
<td>-.27 to .84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Parent Anxiety</td>
<td>.08</td>
<td>.36</td>
<td>.03</td>
<td>.24</td>
<td>.81</td>
<td>-.21 to .27</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Time 1 BASC Parent Depression</td>
<td>-.30</td>
<td>.42</td>
<td>-.09</td>
<td>-0.70</td>
<td>.48</td>
<td>-.35 to .17</td>
</tr>
</tbody>
</table>

Note: Change scores $= T_1 - T_2$. Gender: 1 = male, 0 = female. Race: 1 = African-American, 0 = Other. Repeat Grade: Child repeated grade = 1, child did not repeat grade = 0. Positive change scores reflect improvement in the Externalizing Problems Composite, whereas negative change scores reflect an increase in the Externalizing Problems Composite. BASC = Behavior Assessment System for Children; SES = socioeconomic status.

*Significant coefficients at $p < .05$.
It should be noted that preintervention aggression was not associated with changes in externalizing behavior problems, suggesting that changes were not affected by aggression severity. In addition, whether a child repeated a grade was not a significant predictor, a finding that differed from our initial hypothesis. Socioeconomic status also did not predict outcomes. One possibility for this lack of effect may be due to the fact that studies that have found socioeconomic status to be a predictor have primarily been studies that involve parent training (Lundahl, Risser, & Lovejoy, 2006), which may relate to factors such as intervention adherence. In the current study, intervention adherence for child-oriented intervention components was high (i.e., 93% of children completed all sessions), so socioeconomic status may be less of a predictor of outcomes for child-oriented interventions that involve cognitive-behavioral therapy in a school-based setting. Finally, race and gender were also not significant predictors. Given the diverse nature of our sample in terms of ethnicity and gender, our findings may be applicable for similar intervention protocols utilized with alternative populations or in alternative settings. Overall, children’s reductions in externalizing behavior by the end of the Coping Power Program were similar for boys and girls, for children with different racial and socioeconomic status, for children with different levels of baseline aggression, and for children who had been retained versus children not retained.

In summary, results suggest that co-occurring depression may be an important variable to consider in future cognitive-behavioral intervention and prevention trials for children with externalizing behavior problems. If our findings do reflect a treatment effect, one possible mechanism for this finding is that children with depressive symptoms and externalizing problems may have broad deficits in emotion regulation which may manifest as both symptoms of depression (e.g., difficulty regulating sadness and irritability) and externalizing behavior problems (e.g., difficulty regulating anger). Because Coping Power teaches social-emotional skills and emotion regulation strategies, it may equip the child with new skills by modifying their cognitive distortions, problem-solving capabilities, and ability to regulate emotions (Lochman, Powell, Boxmeyer, Ford, & Minney, in press). For children with higher levels of preintervention depression symptoms, it may be that broad emotion regulation difficulties contribute to their externalizing problems in addition to or instead of dysfunctional parent–child relationships. Of interest, Beauchaine et al. (2005) found that below-average anxiety/depression symptoms were associated with enhanced response to parent training. Children with more significant mood regulation problems may benefit more from cognitive-behavioral interventions than parent management training. Although speculative, this hypothesis could be explored in future prevention and intervention studies for externalizing behavior problems that could examine moderation (i.e., differential response to a set of interventions) rather than prediction. It is important that these future studies include control group analyses in order to make stronger conclusions about causality. An alternative hypothesis that should be briefly noted is that our results could also be explained by the possibility that youth who are engaging in externalizing behavior are more amenable to change if they feel bad, either about their behavior or about the consequences of it (getting in trouble, etc.). Future studies should seek to measure beliefs about externalizing behavior problems in order to better address this latter hypothesis.

Implications for Research, Policy, and Practice

Results indicate that co-occurring depressive symptoms in children may be an important factor to consider when selecting an intervention program for a child with externalizing problems. For example, as previously noted, the presence of such symptoms may suggest the need for a more child-focused cognitive-behavioral intervention program rather than a parent training approach (at least for children in the 9–12 age range). At the same time, parenting components are likely to be an important part of intervention for children with externalizing behavior problems given their role in the development and maintenance of such problems (Capaldi, 1991; Pettit & Bates, 1989) and potential influences on the development of both problem areas (Compton, Snyder, Schrepferman, Bank, & Shortt, 2003).

Limitations of the current study include reliance on parent and teacher report of child depressive symptoms. Child report of depressive symptoms would have strengthened our findings. Another perceived limitation may be that the Coping Power Program does not translate to interventions that most clinicians would provide in individual therapy in a clinic setting. At the same time, the strategies taught in Coping Power can also be adapted to individual sessions as well (Lochman et al., 2008). Our analyses also did not include a comparison condition. It is unclear whether our findings are specific to the intervention or whether such a finding would also be found in untreated children or in an alternative intervention approach such as parent training. Future studies that involve control groups and multiple treatment conditions are needed to answer such a question. Another limitation of the study was that the high correlation between BASC Depression and BASC Externalizing Problems caused problems in relation to multicollinearity in our initial regression models. In turn, we had to utilize an alternative measure.
of Time 1 aggression in our regression models. It should be noted, though, that this measure was significantly correlated with Time 1 BASC Externalizing Problems.

Finally, although we have speculated on the reasons for our findings, our current study was unable to examine possible mechanisms of change. Future research is needed to better understand why co-occurring symptoms may relate to changes in problem behaviors following intervention using designs that can examine mediational processes of change (LaGreca, Silverman & Lochman, 2009; Lochman & Wells, 2002a).

REFERENCES


Hollingshead, A. B. (1975). Four factor index of social status. Unpublished manuscript, Department of Sociology, Yale University, New Haven, CT.


