

Preventing Co-Occurring Depression Symptoms in Adolescents with Conduct Problems

The Penn Resiliency Program

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ABSTRACT: Children who exhibit elevated levels of conduct problems are at increased risk for developing co-occurring depression symptoms, especially during adolescence. This study tests the effectiveness of a manualized after school intervention (the Penn Resiliency Program [PRP]) for the prevention of depression symptoms among a subset of middle-school-aged students who exhibited elevated levels of conduct problems, but not depression symptoms, at the start of the study. Longitudinal analyses demonstrate that the program successfully prevented elevations in depression symptoms across early- to mid-adolescence compared to no-intervention controls.

KEYWORDS: prevention; intervention; conduct problems; depression; adolescence

Conduct problems and depression symptoms often co-occur, especially in the adolescent years. Much attention has been paid to elaborating developmental pathways that result in this dual expression of symptoms. One explanation takes the form of a failure model of depression, whereby childhood disruptive behavior interferes with key domains of functioning, such as academic achievement and interactions with parents and peers.¹ Under this model, the child encounters more negative experiences and fewer positive ones, and the salience of these repeated failures intensifies in adolescence, a time when social and academic functioning have increased weight relative to childhood.

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This preponderance of failures in important domains is associated with later depression symptoms, in addition to continued conduct problems.^{1,2}

The present study attempts to elaborate on the mechanisms involved in the development of depression symptoms from earlier externalizing symptoms. The Penn Resiliency Program (PRP) is a 12-session after school intervention originally designed to prevent depression symptoms in middle-school-aged students. The sessions stress techniques in emotional regulation, cognitive abilities, and social skills. A key component of the intervention involves teaching the participants to cognitively challenge inaccurate, negative self-perceptions and interpretations of experiences, such as arguing with a friend or getting into trouble at school. Evidence suggests that the program is efficacious in preventing psychopathological symptoms.³

If children with elevated conduct problems have more negative experiences, then interventions like PRP that specifically target depressotypic interpretations of these experiences may be particularly efficacious in preventing depression symptoms in children who display higher levels of externalizing symptoms.

METHOD

All families enrolled in three suburban middle schools were invited to participate in a study of an intervention designed to teach coping and problem-solving skills to children. A total of 718 families consented to the study. Participants of consenting families were stratified by gender, grade, and depression symptom levels within each school and then randomly assigned to either the intervention or control conditions. A total of 231 students were assigned to a third condition where they received an alternative intervention, but this group is not considered here (for a full account of the project's methodology see Ref. 4). Of the remaining 466 families, 294 (63.1%) provided data on depressive symptoms and externalizing symptoms at baseline and data on depressive symptoms during at least one postintervention assessment, thereby allowing for their inclusion in the mixed models (MM) ANCOVA analyses described below. This was a primarily white (76.9%), middle-class sample. The mean age of the participants was 12.04 years (std. = 0.96 years). There were roughly equal numbers of male (170, 57.8%) and female participants, and 153 (52.0%) of the families had been randomly assigned to the intervention condition. Analyses were conducted to ensure that intervention and control participants who completed the follow-up assessments were similar on preintervention variables. ANOVA and chi-square analyses showed no significant differences among the conditions (PRP, control) on any preintervention demographic or outcome variable.

Participants and their parents completed questionnaire packets prior to the start of the intervention (baseline), at the conclusion of the 12-week intervention period, and again every 6 months through 3 years following the intervention. To gauge depression symptoms, participants completed the Children's

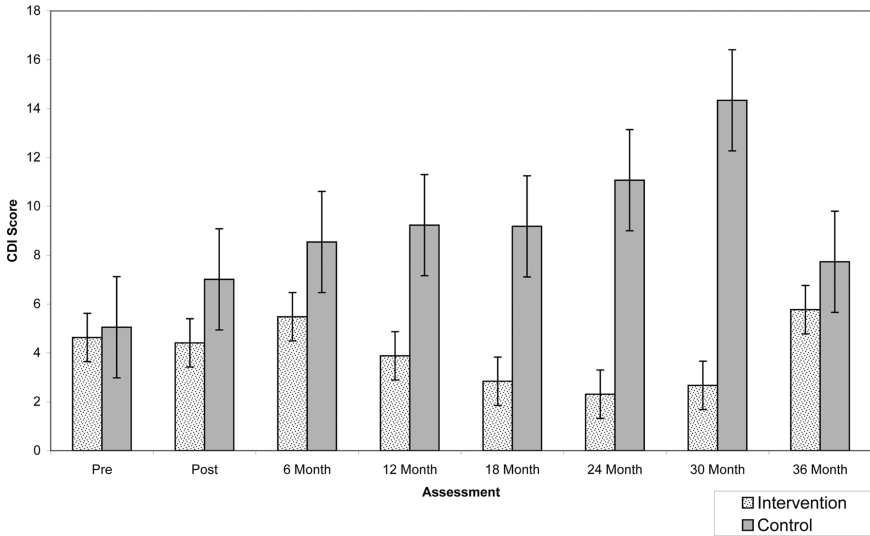


FIGURE 1. Depression symptoms among pure externalizers.

Depression Inventory (CDI).⁵ Parents completed the Child Behavior Checklist (CBCL/4–18),⁶ which provides externalizing scores that reflect each participant's level of conduct problems. All symptom score variables violated normality assumptions and were square root transformed. Untransformed means are presented in FIGURE 1 for ease of interpretation.

ANALYSES AND RESULTS

Participants were first divided into symptom groups based on their levels of symptom expression at baseline. Cut points were set at previously established cutoffs for each measure: 13 or above for the CDI to denote moderate to severe depression symptoms^{4,5} and at or above the 80th percentile for the externalizing scale of the CBCL to indicate significant conduct problems.⁶ This produced four groups: low symptom (low depression and externalizing, $n = 167$; 83 control, 84 intervention); pure externalizers (low depression, high externalizing $n = 56$; 24 control, 32 intervention); pure depression (moderate-high depression, low externalizing $n = 42$; 22 control, 20 intervention); and co-occurring (moderate-high depression, high internalizing $n = 29$; 12 control, 17 intervention). Chi-square analyses reveal that symptom groups significantly differed with respect to household income ($\chi^2 [15] = 37.73, P < 0.01$). All analyses were rerun covarying income; this produced similar results. The composition of these groups did not significantly differ with respect to age, gender, condition assignment, and race. Also, symptom group assignment did not

predict the number of sessions attended in the intervention condition, suggesting a comparable (if not equal) intervention dose between symptom groups. All analyses employed an intent-to-treat approach.

In line with failure models of depression, we anticipated that the program would be especially effective in preventing depression symptoms in the participants who exhibited high levels of externalizing symptoms at baseline, but have not yet developed depression symptoms. To test this hypothesis, we completed an MM ANCOVA predicting depression symptoms from intervention condition and symptom group assignments at baseline through the final assessment at 36 months postintervention, covarying initial depression scores. This MM ANCOVA yielded a significant result for the condition by symptom group interaction, suggesting that PRP's effect on depressive symptoms varied by symptom group, $F(3, 277) = 6.852, P < 0.001$. Follow-up MM ANCOVAs were run separately for each symptom group. In the pure externalizers group, a significant intervention effect was found, $F(1,52) = 8.563, P < 0.01$. No significant intervention effects were found in the other three symptom groups.

Finally, it is important to point out that many participants in the original study were excluded from these analyses as their parents did not provide CBCL data at baseline. An additional MM ANOVA with condition assignment predicting depression symptoms in these participants ($n = 142$) demonstrates that the program was efficacious for these participants as well, $F(1,130) = 13.447, P < 0.001$. This indicates that while the program seems to work particularly well for those assigned to the pure externalizers group, it also benefits most participants with regard to symptom expression, as has been shown in several studies.^{3,7}

DISCUSSION

While the PRP intervention is generally beneficial to all participants, these findings suggest that it is especially efficacious in preventing depression symptoms in young adolescents who already express significant levels of conduct problems. Framed in terms of failure model theories on the development of depression, these results suggest that the intervention is buffering the negative impact of high levels of externalizing symptoms at the start of adolescence, possibly through the challenging and reframing of depressotypic beliefs about and interpretations of the increased number of negative experiences that accompany conduct problems.

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