

## Technical Commentary

### PREVENTION OF DEPRESSIVE SYMPTOMS IN SCHOOLCHILDREN: A Research Update

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Recent research suggests that cognitive vulnerabilities implicated in adult depression are relevant to depression in children, at least by middle childhood. For example, a pessimistic explanatory style is associated with depressive symptoms in children and has been found to predict depressive symptoms in some studies (for reviews, see Gladstone & Kaslow, 1995; Joiner & Wagner, 1995). Intervention programs that target these cognitive vulnerabilities are effective in treating and preventing depression symptoms and episodes (Clarke et al., 1995; Gillham, Reivich, Jaycox, & Seligman, 1995; Lewinsohn, Clarke, & Rohde, 1994). Clarke and colleagues found a prevention effect that lasted through 12 months of follow-up. Little is known about the even longer-term benefits of such programs. Do children who participate in these programs continue to benefit throughout their school years, or do the effects dissolve with time?

In 1995, we reported long-term follow-up results of a school-based program designed to prevent depressive symptoms (Gillham et al., 1995). In this study, 69 fifth and sixth graders who participated in the prevention group were compared with a control group of 49 children. The children completed an assessment battery that included the Children's Depression Inventory (CDI; Kovacs, 1985) and the Children's Attributional Style Questionnaire (CASQ; Kaslow, Tannenbaum, & Seligman, 1978) before the program, following the program, and every 6 months thereafter for 2 years. The prevention group reported significantly fewer depressive symptoms throughout the 2-year follow-up period. Children in the prevention group were also less likely to report moderate to severe symptoms. Explanatory-style scores became more optimistic in the prevention group, and there was evidence that improvements in explanatory style, in part, mediated the program's effect on depressive symptoms.

We have since completed our final follow-up. Sixty-nine of these children (37 from the prevention group and 32 from the control group) completed questionnaires 2 1/2 years after the program, and 67 children (40 from the prevention group and 27 from the control group) completed questionnaires at the 3-year follow-up. To examine the possibility of differential attrition, we ran a series of analyses comparing prevention- and control-group children who left the study on demographic variables and questionnaire scores obtained at baseline. No significant differences were found.

Our results indicate the prevention program's effect on explanatory style persisted (see Table 1). A repeated measures analysis of covariance (ANCOVA) predicting explanatory style for negative events (CASQ composite negative, or CN, scores) at the 30- and 36-month assessments revealed a significant effect of condition,  $F(1, 50) = 10.12, p < .01$ . Additional ANCOVAs demonstrated that the difference in explanatory style was significant at both assessment points,  $F(1, 60) = 4.30, p < .05$ ,

Table 1. Group differences in explanatory style (mean composite negative, CN, scores)

Assessment	Prevention group	Control group
	Mean (SD)	Mean (SD)
Baseline	7.49 (2.63) ( <i>n</i> = 67)	8.28 (2.76) ( <i>n</i> = 47)
12 months	7.09 (2.88) ( <i>n</i> = 57)	9.03 (3.08) ( <i>n</i> = 38)
24 months	7.77 (3.50) ( <i>n</i> = 50)	10.05 (3.11) ( <i>n</i> = 32)
30 months	7.30 (3.35) ( <i>n</i> = 34)	9.76 (3.20) ( <i>n</i> = 29)
36 months	7.51 (3.33) ( <i>n</i> = 37)	10.21 (3.57) ( <i>n</i> = 26)

and  $F(1, 60) = 7.91, p < .01$ , at the 30- and 36-month follow-ups, respectively. Baseline explanatory style was covaried in these analyses.

In contrast, the program's effect on depressive symptoms diminished with time (see Table 2). We conducted a repeated measures ANCOVA (with baseline depression score covaried) predicting depressive symptoms at the follow-ups and found no significant effect of condition. This failure to find an effect was not due solely to reduced power (because of decreased sample size). The gap between the two groups in mean CDI scores lessened at the longer-term follow-ups. The prevention and control groups also did not differ in reports of moderate to severe levels of depressive symptoms (CDI scores above 14).

The consequences of optimistic versus pessimistic explanatory styles should be most apparent when individuals confront adversity. In order to evaluate the program's effect on depressive symptoms in children experiencing negative events, we reran the CDI analyses for children scoring at or above the median on a negative-life-events scale (Coddington, 1972). No significant effect of condition was found.

In summary, our results suggest that the depression prevention program's benefit on depressive symptoms faded after 2 years. In contrast, the effect on explanatory style was maintained. Because our study has ended, we do not know whether this difference in explanatory style will translate into prevention of subsequent depressive symptoms.

It is intriguing that the prevention and control groups differed in explanatory style but not depressive symptoms. Further, although depressive symptoms decreased in the control group from the 24- to 36-month follow-ups, explanatory style remained fairly stable. These discrepancies suggest that explanatory style does not mediate the program's effect on depressive symptoms and may not be a risk factor for depressive symptoms in early adolescence. This conclusion is also supported by the initial results of the prevention program. Although depressive symptoms decreased significantly from preintervention to postintervention in the prevention group relative to the control group,

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**Table 2.** Group differences in depressive symptoms: Scores on the Children's Depression Inventory

Assessment	Prevention group		Control group	
	Mean (SD)	Percentage scoring above 14	Mean (SD)	Percentage scoring above 14
Baseline	9.1 (6.68) (n = 67)	24	10.1 (6.92) (n = 46)	24
12 months	6.4 (4.74) (n = 54)	7	9.5 (6.81) (n = 31)	29
24 months	9.1 (7.08) (n = 49)	22	13.3 (9.12) (n = 34)	44
30 months	9.3 (7.89) (n = 37)	22	10.5 (7.48) (n = 32)	31
36 months	7.7 (6.11) (n = 40)	18	9.2 (7.48) (n = 27)	22

the improvement in explanatory style for negative events (CASQ CN score) was not significant until the 12-month follow-up. A significant postintervention effect was found for only one dimension (negative stable) of explanatory style (Gillham et al., 1995; Jaycox, Reivich, Gillham, & Seligman, 1994).

Although disappointing, these results may provide clues as to how best to promote psychological well-being during childhood and adolescence. After 2 1/2 years, children may have forgotten many of the skills they learned in the program. The intervention lasted 10 weeks, and we did not have any other contact with the children, except for the assessments. At the final assessment point, children in our sample were nearing the completion of the eighth and ninth grades. Our findings may indicate that a booster program could be helpful, particularly if it occurs around the transition to high school. An alternative possibility, of course, is that the skills covered in the program may have become less relevant to the children as they matured. Although this theory is plausible, we do not believe it is correct. The skills taught in the intervention have been demonstrated to reduce depressive symptoms not only in children, as in our work, but also in 18-year-olds (Seligman, Schulman, DeRubeis, & Hollon, 1998) and adults (DeRubeis & Crits-Cristoph, 1998).

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