

SPECIAL SECTION: CHANGING PRACTICE, CHANGING SCHOOLS

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This section called "Changing Practice, Changing Schools" will feature reviews of either intervention or training programs that reflect innovative, psychologically based, empirically supported approaches to solving problems of practice. We envision this section as one that considers more systemic methods for meeting the needs of children, families, schools and communities and one that clearly communicates the variety of skills and expertise that school psychologists bring to their settings.

School-based Prevention of Depression and Anxiety Symptoms in Early Adolescence: A Pilot of a Parent Intervention Component

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The Penn Resiliency Program for Children and Adolescents is owned by the University of Pennsylvania. The University of Pennsylvania has licensed this program to Adaptiv Learning Systems. Dr. Shatté is employed part-time by Adaptiv, and Drs. Reivich, Shatté, and Seligman own stock in Adaptiv and could profit from the sale of this program.

The Penn Resiliency Program for Children and Adolescents is available for use in research. Requests for the curriculum should be made to Jane Gillham at the e-mail address below.

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Previous studies suggest that school-based cognitive-behavioral interventions can reduce and prevent depressive symptoms in youth. This pilot study investigated the effectiveness of a cognitive-behavioral depression prevention program, the Penn Resiliency Program for Children and Adolescents (the PRP-CA), when combined with a parent intervention component. Forty-four middle school students and their parents were randomly assigned to the enhanced PRP (the PRP-CA plus parent program) or control conditions. Students completed measures of depression and anxiety symptoms at baseline and 2 weeks, 6 months, and 1 year after the intervention ended. The combined version of the PRP significantly reduced symptoms of depression and anxiety during the follow-up period. Children assigned to the intervention condition were less likely than controls to report clinical levels of anxiety symptoms. Findings suggest that school-based cognitive-behavioral interventions that include parents may prevent depression and anxiety symptoms in early adolescence.

Depressive disorders and symptoms are quite common in youth. As many as one in five adolescents suffer from unipolar depression by the end of high school (Lewinsohn, Hops, Roberts, & Seeley, 1993), and as many as one in 11 suffer from depression by the end of middle school (Garrison, Schluchter, Schoenbach, & Kaplan, 1989). At any point in time, ten to 19% of adolescents report moderate to high levels of depressive symptoms (Gotlib, Lewinsohn, & Seely, 1995; Nolen-Hoeksema, Girgus, & Seligman, 1986). Elevated depressive symptoms are associated with many of the same negative outcomes as depressive disorders. For example, children and adolescents with elevated depressive symptoms are more likely than their peers to have academic difficulties, smoke cigarettes, abuse other substances, and attempt suicide (Covey, Glassman, & Stetner, 1998; Garrison, Addy, Jackson, McKeown, & Waller, 1991). Adolescents with elevated depressive symptoms are similar to their clinically depressed peers on measures of social impairment (Gotlib et al., 1995). Thus, the treatment and prevention¹ of depressive disorders and symptoms are both important goals.

COGNITIVE-BEHAVIORAL TREATMENT AND PREVENTION OF DEPRESSION

Cognitive-behavioral therapy (CBT) can be effective in treating adult depression (Strunk & DeRubeis, 2001) and shows promise in treating

1. Throughout this article, the term "intervention" is used to refer to both treatment (i.e., programs designed to reduce existing disorders or symptoms) and prevention programs (i.e., programs that are designed to prevent the increase in disorders or symptoms over time). For a more detailed discussion, see Gillham, Shatté, and Freres, 2000.

depression in youth (for reviews see Kaslow & Thompson, 1998; Reinecke, Ryan, & DuBois, 1997). Most of the existing CBT programs for depressed youth are provided as group interventions. Although these programs typically intervene with students only, Stark, Brookman, and Frazier (1990) have developed a multicomponent intervention that includes a cognitive-behavioral group intervention for students in addition to parent training and consultation with school personnel.

Over the past decade, several research groups have begun to investigate the possibility that cognitive-behavioral group interventions may also prevent depression in youth. Like cognitive-behavioral treatment programs, existing prevention programs target negative thoughts and maladaptive cognitive styles that are linked to depression in adults and children (Beck, 1976; Ellis, 1962). The interventions typically include cognitive-restructuring and problem-solving techniques. Group leaders teach participants that beliefs and interpretations affect emotional and behavioral responses to events. Participants are encouraged to identify their beliefs, particularly negative interpretations of events and catastrophic beliefs about the future, and to evaluate these beliefs by generating evidence for and against them and by considering alternatives. Behavioral and problem-solving skills often include assertiveness and relaxation, and sometimes include perspective-taking and other types of social skills training. Most of the existing programs are manualized group interventions that meet for five to 15 sessions.

Many of these prevention programs are school-based interventions that can be delivered by school psychologists, teachers, or counselors during or after school (e.g., Gillham, Reivich, Jaycox, & Seligman, 1995; Merry, McDowell, Hetrick, Bir, & Muller, 2004; Petersen, Leffert, Graham, Alwin, & Ding, 1997; Shochet et al., 2001; Spence, Sheffield, & Donovan, 2003), although some are designed for delivery by clinicians in health care settings (Clarke et al., 2001). These interventions have the potential to reach large numbers of youth, which could be of enormous benefit, since depression is usually underdiagnosed and undertreated in youth (Hirschfeld et al., 1997; Rohde, Lewinsohn, & Seeley, 1991). In addition, these programs could be useful tools for schools that are taking on increasing responsibility for the diagnosis, treatment, and prevention of mental health problems in young people (Miller, DuPaul, & Lutz, 2002).

Preliminary findings suggest that cognitive-behavioral programs can prevent elevated depressive symptoms and depressive disorders from occurring in older adolescents (for recent reviews see Essau, 2004; Gillham et al., 2000; Horowitz & Garber, 2006; Ingram, Odom, & Mitchusson, 2004). To date, the best prevention results have been obtained by Clarke and colleagues using a modified version of the Coping

with Depression course with at-risk adolescents. This intervention significantly and substantially prevented the onset of depressive disorders in 13 to 18 year olds who reported high but subclinical levels of symptoms (Clarke et al., 1995, 2001). In one study, controls were three times more likely than prevention participants to develop depressive disorders during the 15-month follow-up period (Clark et al., 2001).

The handful of interventions developed for children and younger adolescents has produced mixed results. Some programs have produced short-term benefits that have not endured for more than a few months, which limits their utility as preventive interventions (e.g., Petersen et al., 1997; Spence et al., 2003). Findings for other programs have not been extensively replicated or have failed to replicate consistently. The Resourceful Adolescent Program (RAP), a school-based prevention program developed by Shochet and colleagues (2001), significantly reduced symptoms of depression and hopelessness through a 10-month follow-up period among 12- to 15-year-old students in Brisbane, Australia. These findings were recently replicated by Merry and colleagues (Merry, McDowell, Wild, Bir, & Cunliffe, 2004), who found the RAP to be more effective than a placebo intervention at reducing and preventing depressive symptoms among 13- to 15-year-old students in New Zealand. It will be important to see if these results continue to replicate, especially as the intervention is extended to other diverse populations.

Studies of the Penn Resiliency Program for Children and Adolescents (PRP-CA), another school-based prevention program, have produced promising but mixed results. An initial study of the PRP-CA with a predominantly Caucasian suburban sample revealed significant prevention of depressive symptoms through 2 (but not 3) years of follow-up among fifth and sixth graders who reported elevated depressive symptoms, family conflict, or both. Controls were twice as likely as the PRP participants to report moderate to severe depressive symptoms at the 2-year follow-up (Gillham et al., 1995; Gillham & Reivich, 1999; Jaycox, Reivich, Gillham, & Seligman, 1994). Recently, the PRP-CA has been evaluated with more diverse samples. For example, among at-risk children in Beijing, China, a Chinese version of the PRP-CA prevented depressive symptoms through a 6-month follow-up (Yu & Seligman, 2002). However, a study of the PRP-CA as a universal intervention with inner-city African American and Latino samples produced mixed results. The PRP-CA significantly prevented depressive symptoms in the Latino sample, but not in the African American sample (Cardemil, Reivich, & Seligman, 2002). Three research groups have attempted to replicate the PRP-CA's effects on depressive symptoms with youth in Australia. In a study by Quayle, Dzuirawiec, Roberts, Kane, and Ebsworthy (2001), the PRP-CA reduced depressive symptoms at a

6-month follow-up period among 11- to 12-year-old students at a private all-girls school in Western Australia. However, Roberts, Kane, Thomson, Bishop, and Hart (2003) and Pattison and Lynd-Stevenson (2001) failed to replicate the PRP-CA's effect on depressive symptoms among students in rural Australia.

Although the study by Roberts and colleagues (2003) did not replicate the PRP-CA's effects on depressive symptoms, the intervention significantly reduced anxiety symptoms through the 8-month follow-up. Given the substantial overlap between depression and anxiety, and in cognitive-behavioral techniques used to address them, programs that prevent symptoms of one disorder are likely to prevent symptoms of the other. The prevention of anxiety symptoms may be especially important in childhood and early adolescence when anxiety often precedes and predicts the development of depression (Kovacs, Gatsonis, Paulauskas, & Richards, 1989).

INCLUDING PARENTS IN DEPRESSION PREVENTION PROGRAMS

The goal of the present study was to pilot a parent component to the PRP-CA. Given the mixed findings for the PRP-CA and for depression prevention in early adolescence in general, we were interested in developing a stronger intervention. Several studies suggest that, at least in part, children learn interpretive and coping styles from their parents and caregivers. For example, children's explanatory styles are significantly correlated with parents' explanatory styles, particularly parents' explanatory styles for child-related events (Garber & Flynn, 2001). Parents who attribute their children's problems to factors that are stable, global, and due to the child are more likely to have children who make pessimistic attributions for problems, which in turn could increase children's depression and anxiety. Therefore, we reasoned that the PRP-CA might yield stronger effects if parents learned to use the PRP-CA skills in their own lives, thus providing a model for their children.

Teaching parents the PRP-CA skills also could reduce or help to prevent parental depression, interrupting the transmission of depression from parent to child. Parental depression is a strong risk factor for childhood depression (Beardslee, Versage, & Gladstone, 1998; Downey & Coyne, 1990), and several family factors that are often associated with parental depression appear to be risk factors for depression in children, including marital and family conflict (Downey & Coyne, 1990), low levels of parental care or support (Parker, 1993), and high levels of parental protectiveness, intrusiveness, and criticism (Asarnow, Goldstein, Thompson, & Gurthrie, 1993; Parker, 1993). Therefore, interventions

that improve cognitive styles, enhance coping skills, improve parenting skills, or reduce depression in parents could have substantial effects in preventing depression in children.

Surprisingly, few empirically evaluated depression prevention programs include parent components. One notable exception is an outpatient intervention developed by Beardslee and colleagues (1997) for families in which one or both parents suffer from unipolar or bipolar depression. This intervention consists of six to ten clinician-facilitated parent and family sessions. Intervention goals include improving family communication, teaching children about depressive disorders, and helping children to understand that they are not to blame for their parents' symptoms or behavior. Beardslee and colleagues compared their family intervention to a brief lecture intervention in a study of 36 families (with 52 children between the ages of 8 and 15). Both interventions sought to inform parents about risk factors for depression, to educate parents about the effects that depression can have on relationships within the family, and to improve communication among family members. Participants in the family intervention condition received treatment as described above, and participants in the lecture condition attended two small group lectures for parents. Relative to the lecture intervention, the family intervention improved children's understanding of their parents' affective disorders, communication with their parents, and global functioning. Approximately 9% of the children in the family intervention condition were diagnosed with depressive disorders over the 12-month follow-up period, as compared to 25% of children in the lecture condition. Although this difference was large, it was not statistically significant, likely reflecting the limited power due to the small sample size. No significant differences were found for depressive symptoms.

The first evaluation of the RAP described earlier also included a parent component (Shochet et al., 2001). Participants in this study were assigned to one of three conditions: RAP-adolescent condition, RAP-family condition, and control. Students in both the RAP-adolescent and RAP-family conditions participated in the RAP groups. Parents in the RAP-family condition were invited to participate in a three, 3-hour session parent program held in the evening at their child's school. Groups were led by psychologists. Parent session topics focused on normal adolescent development, strategies for promoting adolescent self-esteem, balancing independence and attachment issues, identifying parental strengths, managing parental stress, promoting family harmony and managing conflict. Contrary to expectations, the RAP-family condition did not produce stronger preventive effects than the RAP-adolescent condition. Parent attendance was poor, however, limiting the power of

the parent group intervention. Parents of 64% of the students did not attend any intervention sessions, and parents of only 10% of students attended all three intervention sessions. Because of the low parental attendance rate, it is difficult to determine from this study whether interventions with parents can help to prevent depression in their children.

In the present study, we piloted a version of the Penn Resiliency Program that included both adolescent and parent components. The major goal of the parent intervention was to teach parents the same skills that their children were learning in PRP-CA so that they could use these skills to cope with adversity in their own lives. We theorized that by teaching parents to challenge their pessimistic cognitions and to think more accurately and optimistically about adversity, parents would be less vulnerable to symptoms of depression and anxiety, and more able to model adaptive interpretations and coping for their children. We examined the impact of the combined adolescent and parent intervention on students' depression and anxiety symptoms over a 12-month follow-up period. We also examined the intervention's effect on high levels of symptoms that may reflect clinically relevant levels of distress.

METHOD

Participants

Letters and consent forms describing the project were mailed to parents of the approximately 470 sixth- and seventh-grade students attending a middle school in the suburban Philadelphia area. The project was described as a study investigating a school-based intervention designed to promote resilience and emotional well-being in young people and a new intervention component for parents. The consent documents included descriptions of the study procedures including screening, randomization, assessments, and interventions. Parents were informed that children with higher levels of depression and anxiety symptoms would be offered spots in the study first and that children with lower levels of symptoms would be offered spots as space permitted. Parents were informed that eligible families would be randomized to the intervention or control condition. They were also informed that the parent intervention component was part of the intervention package; if their child was assigned to the PRP condition, their child would attend the PRP-CA and they would be expected to attend the parent component.

Parents of 74 children (48 boys and 26 girls) signed up for the project. These children completed the Children's Depression Inventory (CDI; Kovacs, 2001) and the Revised Children's Manifest Anxiety Scale (RCMAS;

Reynolds & Richmond, 1985) 1 month prior to the intervention phase (baseline). Twenty families dropped out of the project prior to the selection phase because of scheduling conflicts (the intervention program was offered after school, and these students would not have been able to attend).

We planned to run two children's PRP-CA groups with ten to 12 participants each, with an equal number assigned to the control group. Therefore, we selected the 44 students (31 boys and 13 girls) with the highest levels of symptoms (based on combined baseline CDI and RCMAS Z-scores) and their parents into the study. As expected, children with high levels of symptoms were overrepresented in this sample; however, depression and anxiety scores covered a wide range, from few symptoms to very high levels of symptoms. The final sample contained more boys than girls for two reasons: more boys than girls were signed up for the project and, on average, boys scored higher (though not significantly higher) than girls on the baseline depression measure.

With the exception of the preponderance of boys in the sample, demographic characteristics were similar to those of the school district from which the sample was drawn. The majority of students were Caucasian. Two students were of African American descent, one of Asian descent, and one student identified her race as "other." Parents of 39 students provided information about their marital status. Of these, 23 (59%) were married, one (2.6%) separated, 12 (30.8%) divorced, and three (7.7%) described their marital status as "other." Parents of 32 students provided information about household income. Of these, 15 (47%) reported household incomes above \$100,000, 11 (34%) between \$60,000 and \$99,999, and the remaining 6 (19%) below \$60,000.

Study Conditions

The 44 families who participated in the intervention phase of the project were randomly assigned to one of the two study conditions: the PRP or control. Children assigned to the PRP condition were invited to participate in the PRP-CA. Their parents were invited to participate in the Penn Resiliency Program for Parents (PRP-P). Children and parents in the control condition did not participate in either intervention component. No restrictions were made on families' ability to pursue counseling, therapy, or other psychological interventions outside of the study.

Twenty-two children (15 boys and 7 girls) and their parents were assigned to the intervention condition. Two of these children dropped out of the intervention (one before the groups began and one after two sessions), leaving 20 children who completed the intervention phase. Twenty-two children (16 boys and 6 girls) and their parents were as-

signed to the control condition. Two of these children dropped out of the study between the baseline and post-assessments.

The PRP-CA

The PRP-CA is a manualized, school-based curriculum designed to teach cognitive and problem-solving skills to late elementary and middle school students. The PRP-CA includes two major components. The cognitive-behavioral component is based largely on cognitive-behavioral theories and therapies for depression (Beck, 1976; Ellis, 1962; Seligman, 1991) and teaches participants about Ellis's ABC model of emotion. Participants are taught that when people confront an adversity (A), their beliefs and interpretations (B) have a powerful effect on emotional and behavioral consequences (C). Participants also learn that beliefs and interpretations, particularly those associated with sadness and anxiety, are sometimes biased or inaccurate. Leaders discuss cognitive styles, including pessimistic explanatory styles, and teach students how to evaluate the accuracy of their thoughts by looking for evidence and considering alternative interpretations. Students also learn to apply cognitive restructuring techniques to negative beliefs about the future. The "putting it in perspective" (or "decatastrophizing") technique encourages participants to think about the best and most likely outcomes (in addition to the worst-case scenarios on which they may already be focused). The "Real-Time-Resilience" skill teaches children to dispute negative beliefs in the moment, as they occur. Once this technique is covered, it is practiced frequently throughout the remainder of the program. The second component of the program focuses on a variety of social problem-solving techniques such as assertiveness, decision making, creative brainstorming, and problem solving. Throughout the program, concepts and techniques are introduced through skits and hypothetical examples. Students are then encouraged to apply the skills to their own lives in group discussions and through between-session homework activities and journal reflections. The PRP-CA typically runs for ten to 12 90-minute lessons, but was condensed to eight sessions for this project because of scheduling constraints. A summary of the PRP-CA lessons used in this project can be found in Table 1 (for a more detailed description of the PRP see Freres, Gillham, Reivich, & Shatté, 2002 or Reivich, Gillham, Chaplin, & Seligman, 2005).

Two intervention groups were conducted. These groups met for 90-minute sessions once each week after school for a total of eight sessions. Each group was led by two facilitators who were members of the research team. Three facilitators were research assistants with undergraduate degrees in psychology who received training and supervision

TABLE 1. Penn Resiliency Program. Summary of Child (CA) and Parent (P) Programs

Topic (Lesson #)	Description
Introduction to the Program and the Cognitive Model (CA 1; P 1)	Leaders discuss the link between thoughts and feelings/behaviors. Participants learn that their feelings and behaviors are influenced by their beliefs about the causes, implications, and consequences of events. Parents are encouraged to think about whether there are any negative emotions that they or their children seem to over-experience or get "stuck" in.
Thinking Styles (CA 2; P 2)	Leaders discuss the concept of "thinking styles," including pessimistic and optimistic explanatory styles, and their consequences on emotions and behaviors. Leaders discuss the notion of self-fulfilling prophecies, in which beliefs (e.g., "I'm a failure") lead to behaviors and events (e.g., giving up, failing) that seem to confirm the initial beliefs. Parents identify patterns in their beliefs, particularly in their beliefs about themselves as parents and their beliefs about their children's ability to deal with adversities. Parents are asked to "take on" the perspective of their child and to try to understand how what they say to their child may be misinterpreted and may inadvertently fuel some of the negative emotions described in Lesson 1.
Evaluating Explanations and Interpretations of Events (CA 3; P 2)	Participants learn to evaluate the accuracy of beliefs by looking for evidence and examining alternative explanations for events. Parents are encouraged to model self-disputing for their children by discussing alternative interpretations of events in their own lives. Parents learn how to coach their children through the process of generating alternatives and gathering evidence when children are thinking rigidly about a problem or challenge.
Putting it in Perspective: Evaluating Thoughts about the Future (CA 3 & 4; P 3)	Leaders discuss negative thinking about the future and the consequences of "catastrophizing" on mood and behavior, including problem-solving. Participants identify moments when they "catastrophize." They are encouraged to consider the objective likelihood of these worst case consequences and to imagine the best and most likely outcomes. Parent program leaders facilitate a discussion about how a parent's tendency to assume the worst may generate unnecessary anxiety for the parent and may affect the child's view of the world. Parents are provided with tips for helping their child to generate worst, best and most likely scenarios.
Real-Time Resilience (CA 4; P 4)	Participants learn to evaluate evidence and alternatives to negative beliefs as they occur, in the moment. Participants practice this skill using events and beliefs from their own lives and receive coaching from the leader. Parents share ways in which they are applying the skills in their parenting.

Review of Cognitive Skills (CA 5; P 5)	Leaders review and help participants to practice all of the cognitive skills discussed thus far in the program.
Assertiveness (CA 5 & 6; P 5)	Leaders discuss common styles for dealing with conflict, including passive, aggressive, and assertive styles, and their likely consequences. Leaders also discuss beliefs that may interfere with assertiveness or promote passivity or aggression. Leaders present a multistep approach to assertiveness and encourage participants to practice these steps and to apply them to a real-life situation. Parents are encouraged to model assertiveness and to support their children's use of this skill when appropriate.
Decision Making (CA 6)	Leaders teach participants how to make decisions by thinking about the pros and cons of different options.
Creative Problem-Solving (CA 7)	Leaders teach participants a multistep approach to problem solving that includes identifying goals, generating a variety of possible solutions, enacting a solution, and evaluating the outcome.
Review and Application of Skills in the Future (CA 8; P 6)	Leaders review core skills from the program (ABC model, Thinking Styles, Evaluating Explanations and Interpretations, Putting It in Perspective, Real-Time Resilience, and Assertiveness). Participants practice Real-Time Resilience and Assertiveness. Participants discuss the challenges they are likely to face in the future, particularly the next 6 months, and reflect on how skills covered in the PRP may help them to deal with these challenges.

from senior members of the research team. The fourth facilitator was a senior member of the research team, who has a doctorate in psychology and is one of the developers of the intervention. Different leaders were used for the parent and child groups in order to minimize children's concerns about the confidentiality of their group discussions.

The PRP-P

The PRP-P is a manualized group intervention designed (1) to increase the parents' overall resilience by teaching them the core skills of the PRP-CA (adapted for adults) and (2) to help parents incorporate the skills in their parenting through both modeling and supporting their children's use of the skills. The two parent groups were each led by a senior member of our research team, who are both doctorate-level psychologists and developers of the intervention.

The PRP-P consists of six 90-minute sessions that cover most of the content of the PRP-CA sessions. Each session is divided into two components. The first, and central, component focuses on teaching the parents how to use the skills covered in the PRP-CA. Parents describe challenges that they are confronting in their own lives, and the resilience model is applied to these adversities. The challenges discussed include professional, marital, and parenting issues, as well as adversities that are specific to children who are at risk for depression. The second component addresses how to model the skills and support their children's use of the skills by capitalizing on "teachable moments." In addition, group leaders help the parents to become comfortable in demonstrating their own use of the skill set without being too heavy-handed in their approach (and thereby being perceived as intrusive by their adolescents). A summary of the PRP-P lessons can be found in Table 1.

A small group format was used to facilitate discussion. Parents were informed that both parents were welcome but one parent was expected to attend regularly. In practice, one parent attended for most children. Thus, parent groups typically included ten to 12 participants. In order to maximize participation, parent groups were offered at the child's school on different evenings, and parents were allowed to choose which group they would attend.

Measures

Students completed questionnaires assessing depression and anxiety symptoms prior to the intervention phase (at baseline), and approximately 2 weeks (post-intervention), 6 months and 12 months following the intervention. Depressive symptoms were assessed with the CDI

(Kovacs, 2001), a widely used depression scale that assesses emotional, behavioral, interpersonal, and physical symptoms of depression in youth. Each of the 27 items asks students to indicate which of three statements (e.g., "I am sad once in a while," "I am sad many times," "I am sad all the time.") best describes how they have been feeling in the past 2 weeks. The suicidality item was removed from the questionnaire at the request of school administrators. The total CDI score (minus the suicidality item) was used for this study. Higher CDI scores reflect higher levels of symptoms. The CDI has demonstrated good internal consistency with reliability coefficients ranging from .71 to .89 and correlates with other measures of depression including clinical diagnosis (Kovacs, 2001). A recommended cut-point of 19 (90th percentile, based on the standardization sample) or above on the CDI was used to indicate high (clinically relevant) levels of symptoms (Kovacs, 2001). Two children (9%) from each condition obtained CDI scores of 19 or above at baseline.

Anxiety symptoms were assessed using the RCMAS (Reynolds & Richmond, 1985), a widely used anxiety scale that assesses a variety of anxiety symptoms in youth including physiological anxiety, worrying, social concerns, and concentration difficulties. Each of the 37 items presents students with a statement (e.g., "I worry a lot of the time") and asks them to indicate whether or not it is characteristic of them. The total RCMAS score was used. Higher RCMAS scores reflect higher levels of anxiety symptoms. The RCMAS has demonstrated good internal consistency with reliability coefficients ranging from .75 to .87 and correlates with measures of trait anxiety (Reynolds & Richmond, 1985). A RCMAS score of 20 or above was used to indicate high (clinically relevant) levels of symptoms. A RCMAS score of 20 is above the 90th percentile for boys and above the 84th percentile for girls in early adolescence (Reynolds & Richmond, 1985). Due to an administrative error, one child (in the PRP condition) did not complete the RCMAS at baseline. At baseline, one child (5%) from the PRP group and two (9%) controls obtained RCMAS scores of 20 or above.

We intended to examine the intervention effects on parental symptoms of depression and anxiety. At each assessment point, parents were asked to complete the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988) through the mail. Parent response rates at the post- and follow-up assessments were too low for meaningful analyses to be conducted, however. Questionnaires were completed by parents of 39, 21, 16, and 17 students at the baseline, post-, 6- and 12-month assessments, respectively. Completion rates were similar for the intervention and control conditions.

Statistical Analyses

Power Analyses. Since the primary goal of the project was to pilot the parent intervention, this study followed a small sample. Power analyses indicate that the sample size of 44 is sufficient to detect an effect size of approximately .5 standard deviations (with a one-tailed alpha and a power of .80), which corresponds to a moderate effect size.

Inspection and Transformation of Data. Assumptions of normality of continuous variables (the CDI and RCMAS total scores) were evaluated by examining histograms and calculating skewness and kurtosis for each questionnaire score at each assessment point. CDI scores were skewed at most of the assessments, so square-root transformations were used for these data.

Outcome Analyses. Intervention effects were evaluated based on intent-to-treat analyses that included data from all participants selected into the study who completed the baseline assessment. Because we had clear directional predictions (that the PRP would prevent depression and anxiety symptoms), one-tailed alphas were used.

Intervention effects on continuous variables (depression and anxiety symptoms) were evaluated using Mixed Models (MM) ANOVAs employing the linear mixed models feature in SPSS 12.0 with a Toeplitz covariance structure. Symptom scores during the follow-up period were predicted from intervention condition, with baseline depression and anxiety symptoms covaried. When the MM ANOVAs revealed a significant effect of condition, follow-up univariate ANCOVAs were conducted predicting symptom scores at each follow-up point (separately) from intervention condition, with baseline symptoms covaried. Effect sizes were calculated using the difference (the PRP minus control) in estimated marginal means. For MM ANOVAs, the difference in estimated marginal means was divided by the square root of the covariance estimate, following recommendations from Raudenbush and Xiao-Feng (2001). For ANCOVAs, the difference in estimated marginal means was divided by the pooled standard deviation. Negative effect sizes indicate that the PRP group scores were lower than control scores over the follow-up period.

Intervention effects on categorical variables (analyses of clinically relevant levels of symptoms) were evaluated using Fisher's Exact Test since the expected frequencies for some cells were small. An initial analysis compared the proportion of the PRP and control participants who reported clinical levels of symptoms at any point during the follow-up period. When this analysis revealed a significant effect of condition, additional analyses were conducted comparing the proportions of the PRP

TABLE 2. Depression and Anxiety Symptoms. Raw CDI and RCMAS Means by Condition

Assessment	Intervention		Control	
	CDI Mean (SD)	RCMAS Mean (SD)	CDI Mean (SD)	RCMAS Mean (SD)
Baseline	10.56 (5.99) <i>n</i> = 22	11.67 (4.77) <i>n</i> = 21	11.05 (5.29) <i>n</i> = 22	10.55 (6.39) <i>n</i> = 22
Post	9.02 (6.01) <i>n</i> = 20	8.70 (6.22) <i>n</i> = 20	9.65 (7.90) <i>n</i> = 20	9.15 (7.25) <i>n</i> = 20
6 months	7.32 (6.62) <i>n</i> = 20	6.60 (6.71) <i>n</i> = 20	11.87 (7.65) <i>n</i> = 15	11.33 (8.23) <i>n</i> = 15
12 months	8.31 (9.81) <i>n</i> = 17	6.52 (6.68) <i>n</i> = 17	14.21 (15.41) <i>n</i> = 14	13.43 (10.07) <i>n</i> = 14

and control participants with clinical levels of symptoms at each follow-up point.

RESULTS

Pre-Intervention Scores

No significant pre-intervention differences were found on demographic measures or baseline measures of symptoms (see Table 2). Parents' baseline anxiety and depression symptoms also did not differ significantly by condition.

Attrition

Thirty-one (or 70%) of the original 44 child participants completed the 1-year follow-up assessment. Attrition rates did not differ significantly by condition. Participants who completed the 12-month assessment tended to have higher baseline anxiety scores, $t(41) = 1.77, p < .10$ but did not differ significantly on baseline depression scores or demographic characteristics from those who dropped out of the study. Participants who dropped from the PRP and control conditions did not differ significantly on baseline depression or anxiety scores, or on demographic characteristics.

Attendance

Attendance data were calculated for all families assigned to the intervention condition (including the two students who dropped out of the study during the intervention phase). Students' parents were coded as attending a session if one or both parents attended. On average, parents of the 22 students assigned to the PRP condition attended 3.8 (or 63%) of the parent sessions. Parents of 20 (91%) students attended at least one session. Parents of nine students (41%) attended at least five of the six sessions.

On average, the 22 students assigned to the PRP condition attended 5.5 (or 69%) of the eight PRP-CA sessions. Three students (14%), including the two students who dropped, attended two or fewer sessions. Ten students (45%) attended at least seven of the eight sessions.

Depression and Anxiety Symptoms

Mean depression and anxiety scores are presented in Table 2. A MM ANOVA revealed that students in the PRP condition reported lower levels of depressive symptoms than controls over the follow-up period, $F(1, 34.418) = 3.04, p < .05, ES = -.45$ (95% CI = $-.98$ to $.08$). Follow-up ANCOVAs revealed that the intervention effect was not significant at post-assessment but was significant at the 6- and 12-month follow-ups, $F(1,30) = 4.99, p < .05, ES = -.38$ (95% CI = $-.72$ to $-.03$) and $F(1,26) = 2.98, p < .05, ES = -.32$ (95% CI = $-.69$ to $.06$).

An MM ANOVA revealed that students in the PRP condition also reported lower levels of anxiety over the follow-up period, $F(1,34.233) = 8.76, p < .01, ES = -.76$ (95% CI = -1.28 to $-.24$). Follow-up ANCOVAs revealed that the intervention effect was not significant at post-assessment but was significant at the 6- and 12-month follow-ups, $F(1,30) = 6.11, p < .01, ES = -.42$ (95% CI = -0.77 to -0.07) and $F(1,26) = 8.33, p < .01, ES = -.53$ (95% CI = $-.90$ to $-.15$).

High Levels of Symptoms

Figures 1 and 2 present the proportion of students who reported high levels of depression and anxiety symptoms at each assessment. Across the follow-up period, fewer PRP participants than controls reported high levels of symptoms. Two (10%) of the PRP participants and 6 (30%) of the controls reported high levels of depressive symptoms at some point over the follow-up period. One (5%) of the PRP participants and six (30%) of the controls reported high levels of anxiety at some point over the follow-up period. Although the pattern of results was similar

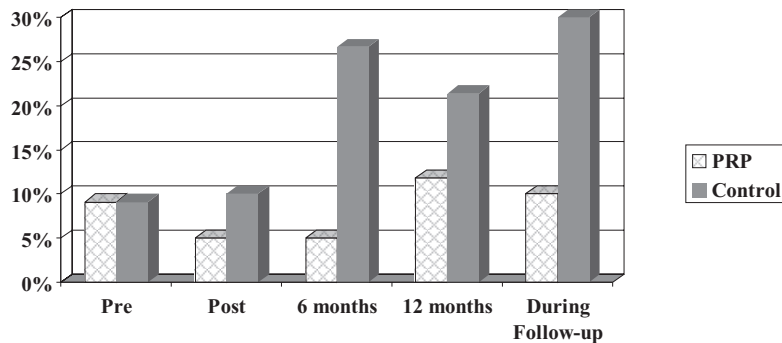


FIGURE 1. Clinically relevant depression symptoms: Proportion with CDI \geq 19

for depression and anxiety, only the effect on anxiety symptoms was statistically significant ($p < .05$, Fisher's Exact Test). Additional analyses revealed that the PRP's effect on high levels of anxiety was marginally significant at the 6-month assessment ($p < .10$, Fisher's Exact Test), but was not significant at the post-assessment or 12-month follow-up.

DISCUSSION

This study piloted a new version of the Penn Resiliency Program that includes an intervention component for parents. This intervention significantly prevented symptoms of depression and anxiety in children over the follow-up period. The intervention effect on anxiety symptoms was large, while the effect on depressive symptoms was in the small to moderate range. Children who participated in the PRP were less likely than controls to report clinically relevant levels of anxiety during the follow-up.

In their review of prevention programs, Greenberg, Domitrovich, and Bumbarger (2001) note that intervention effects sometimes increase with time. This was the case through the 2-year follow-up in the initial PRP-CA study. The intervention effect at the post-assessment was weak relative to the effects at the 12- through 24-month assessments (Gillham et al., 1995). In the present study, the effects of the combined PRP-CA and PRP-P interventions appear to grow between the post- and 6-month assessments. There may be several reasons for this finding. It may take time for participants to learn the PRP-CA skills and apply them effectively in their day-to-day lives. Participants may increase their use of

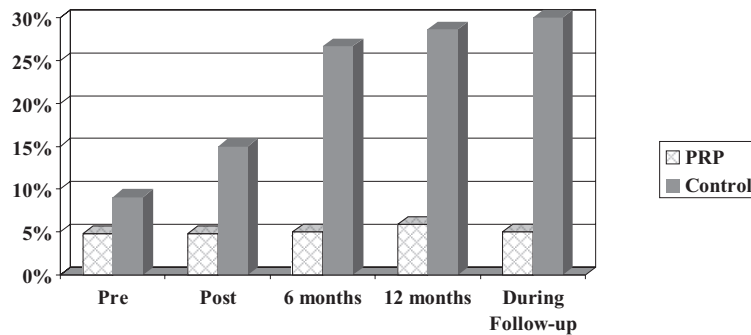


FIGURE 2. Clinically relevant anxiety symptoms: Proportion with RCMAS ≥ 20

cognitive-behavioral and social problem-solving techniques as they find these skills to be useful. Alternatively, differences between the intervention and control participants may become most noticeable when the children confront significant stressors. With regard to the last point, it is important to note that the six-month follow-up occurred in October 2001 (approximately 6 weeks following the terrorist attacks on September 11). It is possible that some of the increase in anxiety and depression symptoms observed in the control group was in response to these events, and that the coping skills learned by parents and children in the PRP interventions helped to reduce their negative impact.

At this point, it is unclear why the PRP had stronger effects on anxiety than depression symptoms in this study. One possible explanation for this difference is that it is easier for parents to detect anxiety symptoms than depression symptoms in their children. Parents may be more likely to model and coach their children in how to use the PRP-CA skills when their children are anxious. Additionally, the stronger effects on anxiety may be a function of the ease with which anti-anxiety skills are learned and mastered compared to the skills that target depression more directly. If these results are replicated, it will be important to evaluate the ease of skills' acquisition and application in future studies, in order to understand differential intervention effects on mood symptoms.

Comparison of the PRP-P with Other School-based Parent Intervention Components

To our knowledge, only one published study has evaluated a parent component to a school-based depression prevention program. The

PRP-P and the RAP family (RAP-F) intervention are both based largely on cognitive-behavioral models of depression and include about 9 hours of material. However, the structure and content of the programs differ in important ways. RAP-F is delivered in three 3-hour sessions while in PRP-P content is delivered across six 90-minute sessions. The RAP-F targets family risk factors for depression such as conflict and perceptions of parental care (Downey & Coyne, 1990; Parker, 1993) and strives to educate parents about adolescent development, to teach techniques for managing stress and conflict, and to promote harmony and positive interactions within the family. In contrast, the PRP-P targets parents' cognitions and coping skills that may be related to depression and anxiety. The major goal of the PRP-P is to teach parents to use the cognitive-behavioral skills in their own lives. Secondary goals are to facilitate parents' modeling of these skills for their children and parents' encouragement of their children's use of these skills.

These secondary goals overlap with those in the parent treatment component developed by Stark and colleagues (1990) for depressed children and adolescents. In that intervention, the depressed student, his/her parents, and a therapist meet once monthly for three sessions. The intervention educates parents about the skills covered in the children's sessions and teaches parents to identify expressions of negative thinking in their children and to help their children think more realistically. In addition, the intervention promotes positive behavior management strategies and encourages parents to assist their children with the completion of therapeutic homework. An important difference is that the PRP-P intervention also strives to teach parents to use the cognitive-behavioral skills in their own lives.

Attendance

The school administrators and counselors with whom we work indicated that it is often a struggle to obtain good attendance for parenting groups offered through the district. Consistent with this, the RAP-F program reported poor parental attendance, with only a minority of parents attending any of the intervention sessions despite considerable efforts to boost parent attendance (Shochet et al., 2001). Though far from perfect, parent attendance was better in our study suggesting that the PRP-P may be a viable intervention component.

Differences in program structure may have facilitated parent attendance in the PRP-P. It is possible that the 3-hour RAP-F sessions were more daunting to parents or that it was harder for parents to free up this much time on any given evening. The small group and interactive format in the PRP-P may have increased parents' feelings of responsibility

for attending sessions and may have made the sessions feel rewarding and supportive.

It is also possible that the RAP-F and the PRP-P attendance rates reflect differences in the studies' participants. Only 16% of families who received information about the current study chose to enroll, while close to 90% of families chose to enroll in the RAP study. Thus, our sample was more selective and may have included a larger proportion of highly motivated parents. In addition, parents in our study were more affluent and may have had fewer stressors with which to contend than RAP participants who were of low to middle socioeconomic status. The differences in enrollment and attendance require further study to ensure that these programs are well attended and meet the needs of those who enroll.

Student attendance was not perfect in our study, with students receiving approximately 70% of the intervention on average. This likely reflects the difficulty in conducting interventions after school when students are less motivated to attend or have competing extracurricular activities. Our previous research indicates that attendance rates are much higher when interventions are offered during the school day (e.g., Cardemil et al., 2002).

Limitations

There are several limits to the current study, most notably the small sample size. A second limitation is that the intervention groups were led by members of the research team. School teachers and counselors can be trained to deliver the children's PRP component effectively (Chaplin et al., 2006), but the parent component has not been evaluated with school staff as intervention providers. We have just begun a large-scale evaluation of this program, and it will be important to see if the preliminary findings reported here are replicated with this larger sample and when both child and parent intervention groups are led by school psychologists, teachers, and counselors. This large-scale study will evaluate the effects of the PRP-CA and PRP-P interventions on depressive and anxiety symptoms and disorders in children.

A third limitation is that it is not possible to determine from this pilot study how much of the intervention effect is due to the parent component. In our new study, we are comparing the PRP adolescent program to the combined intervention (that includes both adolescent and parent components) and to a usual care control. This design will allow us to determine the additive effect of the parent intervention component. We also will assess intervention effects on parents' depression and anxiety symptoms, cognitive styles, and caregiving behaviors, and so will be able to evaluate some of the potential mediators of the program's effect.

A fourth limitation is that clinical diagnoses of depression and anxiety were not assessed at baseline. Thus, it is possible that some of the students who participated suffered from clinical depression or anxiety and that intervention effects reflect treatment rather than prevention for those participants. In our current work with a higher-risk sample of sixth and seventh graders in the same school, we have found that approximately 4% of participants score in the clinical range on a structured interview assessing depressive and anxiety disorder diagnoses. Extrapolating from these findings, we believe that, at most, one or two students in the current study would have been diagnosed with depressive or anxiety disorders at baseline, so that, for the most part, the observed intervention effects do not reflect treatment of existing disorders.

A final limitation is the homogeneity of our sample. Most children were Caucasian and lived in an affluent community. The children's component to the PRP has been evaluated with children from a variety of racial and socioeconomic backgrounds (e.g., Cardemil et al., 2002; Yu & Seligman, 2002). However, it will be important for future studies to evaluate the parent component with more diverse samples.

Summary and Implications for School-based Intervention

Although preliminary, we believe the findings from this pilot are promising. They suggest that cognitive-behavioral interventions, like the PRP, that include parent components may be effective in reducing and preventing depression and anxiety in youth. Such interventions are especially important given the prevalence of these disorders. Recent research suggests that in a typical secondary school with 1,000 students, 50 to 200 may be suffering from anxiety disorders and more than 50 may be suffering from clinical depression (Doll, 1996). Many more students are at risk for developing such disorders or suffer from high but subclinical levels of symptoms that also interfere with their day-to-day functioning. The vast majority of these students do not receive adequate treatment (Doll, 1996; Hirschfeld et al., 1997; Rohde et al., 1991). Such findings have led several psychologists, educators, and public health experts to call for expanding the role of schools in the treatment and prevention of mental health problems (e.g., Doll, 1996; Gutkin, 1995; Pfeiffer & Reddy, 1998; Reeder et al., 1997). Interventions like the PRP, that can be incorporated into the curriculum and delivered to groups of students by school psychologists and other staff, may be an important component of this expansion.

To date, depression prevention programs for youth have rarely included parents. This is surprising given the substantial link between parental depression and childhood depression and the evidence that par-

ents play a key role in the development of cognitive and problem-solving abilities. Parents also have the ability to influence children long after interventions end. We hope that future research will focus on parents, educators, and other caregivers as valuable resources in preventing depression in youth. Our research on the PRP for parents reflects an early step along this path.

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