

# **Effective interventions for the prevention and treatment of depression in adolescent girls**

*A review of relevant research*

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# Background

Results from the 2004 Minnesota Student Survey served as the catalyst for interest in the topic of depression prevention and treatment for adolescent girls. The results for Ramsey County indicated higher prevalence of depressive symptoms among females than males, and the prevalence was especially high for females in the ninth grade (Minnesota Student Survey 2004). Among ninth graders, a higher percentage of females than males reported feeling sad most or all of the time (23% vs. 11%); feeling that they were under almost more stress or pressure than they could take (16% vs. 10%); feeling quite a bit or extremely discouraged or hopeless, so much so that they wondered if anything was worthwhile (20% vs. 15%); feeling nervous, worried, or upset most or all of the time (22% vs. 13%); and being somewhat or very dissatisfied with their personal life (31% vs. 19%) during the past 30 days. Suicidal ideation was also higher among females than males: 28 percent of females and 15 percent of males reported considerations of suicide, and 11 percent of females and five percent of males reported attempting suicide during the last year.

These findings are consistent with other research. Epidemiological studies have shown a rise in depression around age 13 to 15, and being a female adolescent is a particularly important risk factor for depression (Horowitz & Garber, 2006). The associated costs of child and adolescent depression are considerable and include increased risk of depression recurrence, substance abuse, academic problems, cigarette smoking, high-risk sexual behavior, physical health problems, impaired social relationships, and a thirty-fold increased risk of completed suicide (Horowitz & Garber, 2006). Prevention of adolescent depression is crucial for minimizing these costs. Given evidence that risk factors for depression differ by gender and that girls respond differently than boys to different types of interventions (Reivich, 1996, as cited in Horowitz & Garber, 2006), there is a need for effective depression interventions designed specifically for girls.

## *Search procedures*

In conducting the literature search for this review, Wilder Research staff initially focused on recent (2000+) evaluations of interventions designed for adolescent girls with depression. Only one girl-specific program was identified, the Go Grrrls Program (LeCroy 2004a, 2004b). However, this program was subsequently excluded from the review because it was not specifically a depression prevention intervention, but rather a broad intervention addressing several domains. Although the program was shown to produce short-term positive effects on peer esteem, the ability to recognize and ask for

help, positive sense of self (LeCroy 2004a), body image, and self-efficacy (LeCroy 2004b), the program did not significantly reduce depression.

As a result, the literature search was broadened to include recent (2000+) evaluations of interventions for adolescents in general that have evidence for their effectiveness in preventing and/or reducing depression. The search was limited to evaluations employing rigorous methodologies (typically randomized, controlled trials). Preference was given to evaluations that compared outcomes by gender and to interventions that had been replicated and evaluated more than once.

In addition, the search was limited to *replicable* interventions that could potentially be implemented by the Wilder Foundation. Interventions were included if they could be appropriately implemented in school- or community-based settings. Preference was given to secondary and tertiary preventive interventions, given their potentially greater feasibility and efficiency. However, two of the better known primary preventive programs with promising evidence for effectiveness were also included because they could likely be used as secondary/tertiary interventions with minimal, if any, modification.

A number of databases were searched, including PsycInfo, ArticleFirst, Electronic Collections Online, ERIC, Medline, Periodical Abstracts, SIRS, Wilson Select Plus, WorldCat, EBSCO MegaFile, and the Wilder Research library database. The search terms varied slightly by database, but were essentially the following: depression AND (girl+ or female+) AND (adolescen\* OR teen\* OR youth) AND (program\* OR intervention+), 2000-2007. A general Internet search using the same search terms was also conducted. In addition, some websites were searched directly, including NIMH, SAMHSA model programs, Promising Practices Network, Child Trends, Social Programs that Work, Center for Mental Health in Schools, and Center for Mental Health Services. The reference lists of included studies were also examined for other potentially useful sources.

In addition, the following reviews and meta-analyses were consulted:

Horowitz, J.L. & Garber, J. (2006). The prevention of depressive symptoms in children and adolescents: A meta-analytic review. *Journal of Consulting and Clinical Psychology, 74, 3*, 401-415.

Merry, S., McDowell, H., Hetrick, S., Bir, J., & Muller, N. (2004). Psychological and/or educational interventions for the prevention of depression in children and adolescents (Review). *The Cochrane Database of Systemic Reviews, 2*, np.

## ***Organization of the review***

This review begins with a summary section covering what works, strategies with inconclusive results, what doesn't work, limitations of evaluations, and issues to consider. The summary section is followed by a discussion of the interventions with evidence for effectiveness, including program descriptions and study results. The review is concluded with a section on future directions.

# Summary

There is a lack of evaluation studies of depression interventions designed specifically for girls despite the associations between female gender and heightened risk, differential risk factors, and differential response to interventions. Although we were unable to find evaluations of gender-specific programs, a few of the evaluations compared program outcomes by gender. One study found that girls benefited more from the intervention than boys (Gillham et al., 2006a), while other studies found no significant differences by gender (Spence et al., 2003; Merry et al., 2004). A study comparing girls in all-girls groups to girls in co-ed groups found significantly better attendance and significantly lower hopelessness at post-intervention among girls in the all-girls groups. However, co-ed groups were equally effective at reducing depressive symptoms (Chaplin et al., 2006). The study also found that attendance was associated with larger reductions in hopelessness for girls, but not boys (Chaplin et al., 2006). In addition, two interventions were conducted in all-girls samples and shown to be effective (Quayle et al., 2001; Kowalenko et al., 2005).

Depression interventions for adolescents most commonly take the approach of cognitive-behavioral group therapy. The basic premise of cognitive-behavioral therapy is that our thoughts impact our emotions, which in turn impact our behavior. Cognitive-behavioral approaches typically teach cognitive restructuring skills, which assist participants in identifying and challenging their negative, unconstructive thoughts. Other common elements of cognitive behavioral group therapy include “the focus on specific and current actions and cognitions as targets for change, structured intervention sessions, repeated practice of skills, use of rewards and contracts, homework assignments, and a relatively small (typically under 20) number of therapy sessions” (Rhode et al., 2005, p. 221).

Evaluations of the interventions included in this review provide evidence for their effectiveness, with intervention effect sizes that were generally small to moderate. Although the interventions produced generally positive results in the short-term, the intervention effects tended to diminish by the later follow-ups. Without the maintenance of results at follow-up, it is possible that post-intervention results are more indicative of a transient time-specific effect than of a true prevention effect.

Future directions for research include the examination of longer-term outcomes, the inclusion of active comparison conditions (i.e., placebo-controlled trials), the investigation of the value of booster sessions and parent components, the examination of differential outcomes by gender, and the development and evaluation of gender-specific programs.

## ***What works***

The following approaches have solid research evidence for their effectiveness:

***Cognitive-behavioral therapy.*** Interventions that incorporate components of cognitive-behavioral therapy have been shown to produce significant reductions in depression.

***Multi-faceted.*** Effective interventions are multi-faceted, addressing more than one potential cause of depression (for example, responses to stress, negative cognitions, family conflict, etc.).

***Strength-based.*** The interventions with strong evidence for effectiveness can be described as strength-based approaches. Although problem behaviors are identified, these approaches build on the adolescents' strengths rather than focusing on deficits. Overall, the experience of participating in the intervention is very positive.

***Teach strategies.*** Effective interventions equip adolescents with strategies to overcome unconstructive thoughts and behaviors. Participants are taught problem solving skills and/or positive coping skills.

***High implementation fidelity.*** Intervention effects tend to be stronger when the intervention is implemented with high fidelity and integrity, or in other words, when the facilitators achieve excellent adherence to the intervention protocol (e.g., Gillham et al., 2006a).

***Booster sessions.*** Several evaluators recommend offering booster sessions for maintaining results (Spence et al., 2003; Chaplin et al., 2006; Gillham et al., 2006a; Rohde et al., 2004; Clarke et al., 2001). However, only one study examined the effectiveness of booster sessions (Clarke et al., 1999). Although booster sessions did not significantly reduce recurrence, they were shown to accelerate recovery.

## ***Strategies with inconclusive results***

***Level of intervention.*** There is considerable debate in the literature regarding which level of intervention is most effective. *Primary* prevention interventions target whole populations and are aimed at “precluding the occurrence of depression in large samples or at reducing the overall incidence of depression in the population” (Ingram et al., 2004, p. 206). Primary prevention interventions are also called *universal* interventions. *Secondary* prevention interventions aim to “prevent or diminish the onset of symptoms in high-risk individuals” (Ingram et al., 2004, p. 207). Secondary prevention interventions can be further classified as either *selective*, targeting “members of a subgroup of a population whose risk is deemed to be above average” (Horowitz & Garber, 2006, p.



401), or *indicated*, targeting “individuals who manifest subclinical signs or symptoms of a given disorder” (Horowitz & Garber, 2006, p. 401). *Tertiary* prevention interventions focus on “preventing relapses and recurrences of depression” (Ingram et al., 2004, p. 207) and are sometimes referred to as treatment rather than prevention.

There are benefits and disadvantages associated with each level. Universal interventions avoid stigmatization (Shochet et al., 2001; Essau 2004). In comparison to secondary and tertiary interventions, universal interventions tend to have higher participation rates, lower dropout rates, and increased reach (Shochet & Ham, 2004; Essau 2004), catching those who would otherwise be undiagnosed, and preventing healthy youth from moving into the at-risk range (Shochet et al., 2001; Spence et al., 2003). On the other hand, universal interventions are often expensive, and there can be considerable implementation difficulties (Shochet et al., 2001). There is also concern that high-risk participants do not receive the level of exposure (duration or intensity) in universal interventions that they need to alter their pathological developmental pathway (Greenberg et al., 1999, as cited in Barrett & Turner, 2001). Furthermore, evaluation results indicate that participants who benefit the most in universal interventions are those who begin with initially elevated symptoms of depression (Shochet et al., 2001; Spence et al., 2003), leading some researchers to conclude that targeted interventions (i.e., secondary and tertiary) may be more efficient, practical, and beneficial in the long run (Horowitz & Garber, 2006).

Research comparing levels of intervention is inconclusive: some of the research suggests that targeted interventions are more efficient and effective than universal interventions, while other studies found similar effects for both types of intervention (Horowitz & Garber, 2006; Merry et al., 2004; Sheffield et al., 2006). Overall there appears to be more evidence in favor of targeted interventions (Horowitz & Garber, 2006).

Nevertheless, the broadest preventive impact and efficiency would likely be achieved by approaches that are *multilevel*, including both universal and selective interventions (Spence et al., 2003, p. 11) and those that match patients to appropriate *levels of care* (Lewinsohn et al., 1998).

***Attendance.*** Some studies suggest an association between higher attendance and positive outcomes, including greater recovery (Clarke et al., 1999), larger decreases in hopelessness for girls (Chaplin et al., 2006), and larger reductions in depressive symptoms at follow-up (Gillham et al., 2006a). However, other studies testing the effect of program attendance on recovery found no significant dose effects (Clarke et al., 2001; Clarke et al., 2002; Rohde et al., 2004), and significant intervention effects have been observed despite the low attendance of some participants (Quayle et al., 2001). Perhaps the detection of intervention effects despite low attendance reflects a placebo (or serendipitous treatment) effect, whereby the experience of being involved in a study produces a short-term

improvement irrespective of the intervention. This possibility underlines the need for placebo-controlled trials in which the control group participates in a program of similar format that does not contain the components presumed to be effective.

**Gender.** Evaluation findings are inconsistent regarding the effectiveness of interventions by gender (Merry et al., 2004; Chaplin et al., 2006).

### ***What doesn't work***

**Parent component.** Given the family-based risk factors for depression (i.e., genetically determined components, highly depressogenic home environments, dysfunctional interaction patterns, poor differentiation of self, etc.), it is expected that including family involvement in the intervention will enhance the program's effects. However, contrary to expectations, the evaluations in which outcomes were compared for adolescents who participated alone versus those whose parents also participated showed no incremental benefit of the parent component (Clarke et al., 1999; Shochet et al., 2001; Nauta et al., 2003). Poor attendance among parents can make it difficult to assess the impact of this component (Shochet et al., 2001). It is also possible that, while involving parents is indeed important, the interventions that include a parent component have not incorporated the necessary components or do not take the most effective approach in involving parents.

### ***Limitations of evaluations***

Factors that limited confidence in evaluation results included:

- Low initial recruitment rates and self-selection prior to randomization (due to the requirement of obtaining informed consent) are two factors that can bias the results and limit their generalizability.
- Sample sizes tend to be small.
- Attendance rates are often low.
- Studies often experience a large loss of participation over the course of the follow-up period (i.e., high attrition). Results reflect only those who are retained in the sample, and this is especially problematic if dropouts differ significantly from those retained.
- Most studies use self-reported measures of depression only; few use actual diagnoses. Likewise, most studies report changes in depression scores only, not the incidence of depressive disorder (Merry et al., 2004a).

- The control condition is usually not an active comparison condition (i.e., placebo control), and research has shown that the placebo effect is high in studies of depression (Merry et al., 2004a). In other words, it is common to find beneficial effects following treatment that occur in response to serendipitous or non-specific treatment effects (e.g., induced by the therapeutic environment and the participant's expectations) but which cannot be attributed to the specific treatment itself. As a result of this possibility, program impacts might be overstated. Placebo-controlled trials help overcome this issue. In a placebo-controlled trial, the control group also takes part in a treatment program, which is similar to the intervention in format but which does not contain the components presumed to be effective. When beneficial effects are observed among the placebo-control participants, this provides an indication that part of the intervention effect might also be due to non-specific effects rather than to the treatment itself.
- The follow-up periods are often of short duration, so little is known about long-term outcomes.
- The larger universal studies tend to randomly assign schools, not individuals, yet the analysis is conducted at the individual level. In other words, the unit of analysis (individuals) is inconsistent with the unit of assignment (schools), and this inconsistency can lead to false findings of statistical significance.
- Although some studies use intent-to-treat analysis (i.e., including all participants regardless of whether they complete the intervention), other studies only use completer analysis (i.e., including only the participants who complete the intervention), and this can bias the results.

### *Issues to consider*

- Offering an intervention to a targeted group of youth within a larger population raises the potential ethical concern of stigmatization (i.e., participants being labeled and treated differently by peers). Efforts can be made to minimize stigmatization, such as “carefully describing the program to the entire school community and stressing positive aspects of the program” (Kowalenko et al., 2002, p. 27).
- In order to maximize participant attendance and engagement, careful consideration should be given to the time of day at which the intervention is offered and the location.
- Randomized, controlled trials often confront the ethical issue of postponing or withholding treatment from the control group participants. A short-term wait-list control can be used to minimize this concern. However, from a research standpoint,

this greatly limits evaluation findings because outcomes can only be compared in the short-term.

- Because the overall rate of depression is low, it can be difficult to detect changes, especially in the small samples typical of this research.
- It is important to examine results over the long-term for two reasons. In the case that a positive effect is observed at post-intervention, it is essential to examine the long-term outcomes to determine whether the effect persists. On the other hand, if no effect is observed at post-intervention, it is essential to examine the long-term outcomes in case intervention effects surface at a later follow-up (i.e., latency effect, delayed effect, “sleeper” effect). One reason this can happen is that it may take time for program participants to adopt and integrate the concepts learned for use in their daily lives.
- In general, efficacy studies yield better results than effectiveness studies. In other words, interventions tend to achieve good results when they are offered in highly controlled environments and are delivered by members of the research team (or experienced practitioners who receive training and ongoing supervision) to a selective group of clients. On the other hand, intervention effects are less well-established when the interventions are offered in normal field conditions (i.e., real world settings) and are delivered by practitioners (who receive little or no guidance from program developers) to a broad range of clients.
- In order to achieve the best possible results with an intervention, it is important to monitor and ensure excellent implementation fidelity, or adherence to the intervention protocol.

## 1. Summary of program descriptions

Program <sup>a</sup>	Guiding theory/ conceptual framework	Components	Format	Level of inter- vention <sup>b</sup>	Target population	Setting	Facilitators
PRP	Cognitive-behavioral therapy	cognitive restructuring, optimistic explanatory (thinking) style, challenging beliefs (evaluating accuracy of beliefs, generating more optimistic alternatives, producing counter-evidence, putting it in perspective), resilience, assertiveness, negotiation, coping	12 90-minute sessions delivered in groups of about 10-12 youth	Primary and secondary	Ages 10-14	School-based; primary care setting	Members of the research team, school personnel, experienced mental health practitioners
CWD-A	Cognitive-behavioral therapy	mood monitoring, social skills, pleasant activities, relaxation, constructive thinking, communication, negotiation and problem solving, conflict resolution, maintenance of gain	16 two-hour sessions conducted over eight weeks in groups of up to 10 adolescents	Tertiary	Actively depressed adolescents, ages 13-18	School-based; primary care setting; department of juvenile justice	Trained therapists
CWS-A			15 one-hour sessions delivered to groups of 6-10 adolescents	Secondary	Adolescents at-risk for future depression, ages 13-18	Primary care setting	
ACE	Cognitive-behavioral therapy, interpersonal skills, group theory, psycho-educational	realistic thinking (link between thinking and feeling, challenging unrealistic thinking), social skills training, recognizing achievement and rewarding self, assertiveness skills, dealing with conflict, interpersonal negotiation skills, problem solving	8 90-minute sessions conducted once per week with groups of 8-10 youth	Secondary and tertiary	Adolescents who are actively depressed or who are at-risk for future depression, ages 12-15	School-based	Co-led by a school counselor and an adolescent mental health worker

<sup>a</sup> Penn Resiliency Program (PRP), Adolescent Coping With Depression Course (CWD-A), Adolescent Coping With Stress Course (CWS-A), Adolescents Coping with Emotions (ACE), Problem Solving For Life (PSFL), Resourceful Adolescent Program (RAP)

<sup>b</sup> Levels of intervention: **Primary** prevention interventions target whole populations and are aimed at “precluding the occurrence of depression in large samples or at reducing the overall incidence of depression in the population” (Ingram et al., 2004, p. 206). Primary prevention interventions are also called **universal** interventions. **Secondary** prevention interventions aim to “prevent or diminish the onset of symptoms in high-risk individuals” (Ingram et al., 2004, p. 207). Secondary prevention interventions can be further classified as either **selective**, targeting “members of a subgroup of a population whose risk is deemed to be above average” (Horowitz & Garber, 2006, p. 401), or **indicated**, targeting “individuals who manifest subclinical signs or symptoms of a given disorder” (Horowitz & Garber, 2006, p. 401). **Tertiary** prevention interventions focus on “preventing relapses and recurrences of depression” (Ingram et al., 2004, p. 207).

1. Summary of program descriptions (continued)

Program <sup>a</sup>	Guiding theory/ conceptual framework	Components	Format	Level of inter- vention <sup>b</sup>	Target population	Setting	Facilitators
PSFL	Cognitive-behavioral therapy	cognitive restructuring, life problem solving skills, positive problem solving orientation, optimistic thinking styles	8 sessions conducted once per week during a 45-50-minute class period with groups of 25-35 youth	Primary	Ages 12-14	School-based	Trained teachers
RAP	Cognitive-behavioral therapy, interpersonal therapy	cognitive restructuring (linking behavior, body clues, self-talk, and emotions), stress management, problem solving, building personal support networks, preventing and managing conflict, taking the perspectives of others, building self-esteem, keeping calm, thinking resourcefully, putting it all together	11 sessions conducted once per week during a 45-50-minute class period with groups of up to 15 youth	Primary	Ages 12-15	School-based	Trained teachers or other school personnel

<sup>a</sup> Penn Resiliency Program (PRP), Adolescent Coping With Depression Course (CWD-A), Adolescent Coping With Stress Course (CWS-A), Adolescents Coping with Emotions (ACE), Problem Solving For Life (PSFL), Resourceful Adolescent Program (RAP)

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# Discussion

This section describes effective programs and their study results. For additional information, please consult Figure A1 (summary of programs reviewed) and Figure A2 (summary of program evaluations) in the appendix.

## *Descriptions of effective programs and study results*

### **Penn Resiliency Program**

The Penn Resiliency Program (PRP) was developed in 1990 by a group of researchers at the University of Pennsylvania (Gillham, Jaycox, Reivich, Seligman, & Silver, 1990). The goals of PRP are to prevent and reduce depressive symptoms by building resilience, teaching effective problem solving, and promoting optimistic thinking and adaptive coping skills. These goals are accomplished with PRP's manual-based curriculum consisting of 12 90-minute sessions designed for girls and boys ages 10-14 and delivered in groups of about 10-12 youth (Reivich et al., 2006). The content of the program consists of two modules: cognitive-behavioral and social problem solving. Participants are taught how their negative beliefs affect their emotions and behavior. They learn cognitive restructuring techniques that help them to identify their negative beliefs and to challenge them by examining the evidence, thus building their capacity to more accurately evaluate situations. Participants also learn effective coping mechanisms and techniques for decision-making, assertiveness, negotiation, and relaxation. These skills are introduced and practiced through skits, group discussions and activities, hypothetical examples, cartoons, stories, games, and worksheets. In addition, the youth are encouraged to do brief homework assignments and write journal reflections between sessions.

PRP was designed to be school-based and is most often implemented as an after school program or during regular school time. However, the program has also been implemented in a primary care setting. The program has served both as a universal (targeting a whole population) and as a secondary/indicated (targeting high-risk youth) intervention. Program facilitators have included PRP developers and other members of the research team, including graduate and post-graduate psychology students, as well as school personnel and experienced mental health practitioners who received intensive training in the approach and ongoing supervision.

After evaluating the program, the PRP developers designed additional components in hopes of extending the effects of the intervention. A parent version of PRP (PRP-P) was designed to accompany the program for children and adolescents. PRP-P consists of six 90-minute sessions, typically delivered at the child's school during the evening. The goal

of the parent program is two-fold: (1) to teach the parents how to build their own resilience by using the skills covered in the adolescent intervention, and (2) to teach the parents how to model the skills and support their children's use of the skills.

The program developers also designed booster sessions, which are held with parents and adolescents during the years following the intervention. The goal of booster sessions is to maintain the intervention effects by reviewing the skills learned in PRP.

PRP is a well-evaluated program, with at least 14 controlled studies of its effectiveness (Reivich et al., 2006). Studies have generally been limited by low initial recruitment rates, small sample sizes, high attrition, and in some cases, poor attendance. Nevertheless, the results overall are positive and suggest that PRP significantly reduces symptoms of depression and anxiety. Furthermore, the effects appear to be long-lasting, enduring for two years or more in some cases (Reivich et al., 2006; Gillham et al., 2006a). The strongest support for the program is provided in cases where the program was delivered and evaluated by members of the PRP research team (i.e., efficacy), whereas the program's impact is less clear when delivered in normal field conditions by practitioners not affiliated with the research team (i.e., effectiveness).

- A study of PRP delivered as a universal school-based intervention to an all-girls Australian sample showed significantly fewer depressive symptoms and significantly higher self-worth among girls who received the intervention in comparison to the control group at 6-month follow-up (Quayle et al., 2001).
- A study comparing the effectiveness of PRP for girls in all-girls versus co-ed groups indicated that the all-girls group produced significantly better attendance and significantly lower hopelessness at post-intervention (Chaplin et al., 2006). However, the two intervention conditions did not differ for depressive symptoms. Both conditions significantly reduced depressive symptoms in comparison to the control group, and co-ed PRP had a significant effect for both boys and girls (ibid).
- A study of PRP's effectiveness in a primary care setting showed a significant improvement in explanatory style and reduction in depressive symptoms for girls but not boys and a significant preventive effect among high-, but not low-, symptom patients (Gillham et al., 2006a). In addition, strong effects were associated with higher attendance and higher intervention fidelity (ibid).
- In some cases, studies have shown a latency effect, whereby the program's effect was not significant at post-intervention but was significant at follow-up (Gillham et al., 2006b; Quayle et al., 2001). These findings suggest that it may take time for program participants to adopt and integrate the concepts learned for use in their daily lives.



## **Adolescent Coping with Depression Course**

The Adolescent Coping With Depression Course (CWD-A) is a manual-based group treatment intervention designed for actively depressed adolescents (i.e., tertiary prevention). The goal of the program is to reduce depressive symptoms and prevent future recurrence by equipping adolescents with effective coping skills and strategies to deal more effectively with adversity. The program is based on cognitive-behavioral formulations of depression. Participants are taught to recognize their depressotypic thoughts and behaviors and to replace them with more constructive cognitions. Likewise, participants learn how to correct behaviors that are disruptive and acquire behaviors that are positive. Some of the skills taught include mood monitoring; increasing social skills; increasing pleasant activities; decreasing anxiety through relaxation; reducing depressogenic conditions through constructive thinking; improving communication, negotiation, problem solving, and conflict-resolution skills; and planning for the future. The material is presented in 16 two-hour sessions conducted over eight weeks in groups of up to 10 adolescents (ages 13-18). The sessions are led by trained therapists, and some of the teaching methods include direct instruction, hypothetical examples, role-playing, cartoons, workbook activities and quizzes, and homework assignments.

The intervention also includes a parent component consisting of nine two-hour sessions. The primary goals of involving parents are (1) to foster parental understanding, support, and reinforcement by describing the material covered in the adolescent sessions and (2) to teach parents the communication and problem-solving skills taught in CWD-A so that parents and children are equipped with comparable terminology and techniques (Lewinsohn et al., 1998).

In addition, individualized booster sessions reviewing the skills determined to be of most need were provided to the family and/or adolescent at four-month intervals during the two-year period after treatment.

CWD-A has been evaluated in several well-controlled trials with above average implementation fidelity (i.e., excellent adherence to the treatment protocol). Overall the results are favorable, indicating statistically significant and clinically relevant preventive effects for adolescents who are actively depressed at program entry. However, it should be noted that one or more of the program developers (Clarke, Lewinsohn, and Hops) served as author on each of the reports discussed. Replication by independent evaluators is needed to strengthen the evidence.

- Results from a randomized, controlled trial of CWD-A's effectiveness in a sample of actively depressed adolescents (Clarke et al., 1999) indicated no significant differences between adolescents who completed the intervention alone versus those whose parents attended the parent component. Both intervention conditions yielded significantly

higher recovery rates and significantly reduced self-reports of depression in comparison to the wait-list control, with moderate effect sizes. Booster sessions were found to accelerate recovery among participants who remained depressed at post-intervention. However, booster sessions did not prevent recurrence during the follow-up period.

- Clarke and colleagues (2002) conducted a randomized, controlled trial to evaluate the effectiveness of CWD-A when delivered in a primary care setting (HMO clinic offices) to a sample of actively depressed adolescent offspring of depressed parents. Adolescents in both the participant and control groups were allowed to receive regular HMO care outside of the intervention. Using intent-to-treat analyses (i.e., including all participants regardless of whether they completed the intervention), the researchers found no incremental benefit of CWD-A over the usual care received. The researchers presented some potential explanations to account for this unexpected finding. First, the results may have been obscured by characteristics that made the study more of an effectiveness, versus efficacy, trial (i.e., the large HMO setting, the allowance of comorbid conditions, and the comparison of two potentially active treatments). Second, the sample may have been less responsive to treatment due to the genetically determined components and increased depressogenic home environments germane to offspring of depressed parents.
- A randomized, controlled trial examined the effectiveness of CWD-A versus a life skills/tutoring control condition among a sample of depressed adolescents with comorbid conduct disorder who were recruited from a county juvenile justice department (Rohde et al., 2004). In comparison to adolescents in the life skills/tutoring control condition, CWD-A participants demonstrated significantly higher depression recovery rates, significantly reduced self-reports of depression, and significantly improved social functioning at post-intervention. However, group differences in recovery were not significant at 6- and 12-month follow-up. No significant differences were observed in conduct disorder either at post-treatment or during follow-up, leading the researchers to recommend that interventions for comorbid populations focus directly on each specific disorder.

### **Adolescent Coping With Stress Course**

The Adolescent Coping With Stress Course (CWS-A) is an abbreviated version of CWD-A designed as a group prevention intervention for adolescents at risk for future depression (i.e., secondary prevention). The program consists of 15 one-hour sessions delivered by trained therapists to groups of 6-10 adolescents (ages 13-18). CWS-A is commonly cited in the literature as the intervention that has yielded the strongest results as compared to other cognitive-behavioral depression prevention programs (Merry et al. 2004a; Gillham et al. 2006a; Gillham et al. 2006b). However, it should be noted that

CWS-A has only been evaluated twice (Clarke et al., 1995, 2001), and the program developers were involved in both evaluations. Although the results were very positive, replication by independent evaluators is needed to provide further evidence of the program's effectiveness.

- Clarke and colleagues (2001) conducted a randomized, controlled trial to evaluate the effectiveness of CWS-A. The intervention was delivered in a primary care setting (HMO clinic offices) to a sample of adolescent offspring of depressed parents (N=94, 60% female). The adolescents exhibited subsyndromal depressive symptoms but no active episodes (i.e., high risk). The results provided indication of a significant preventive effect for several outcome variables, including depression, suicide symptoms, and functioning. The size of the effect was large, representing a reduction in the risk of developing depression by more than five times that of the control group. The significant preventive effect persisted at the 18- and 24-month follow-ups, however at a diminished level, suggesting that the program's effect had faded over time.

### **Adolescents Coping with Emotions**

Adolescents Coping with Emotions (ACE) is a school-based intervention that targets adolescents (ages 12-15) who are actively depressed or who are at high risk for depression (Wignall, Gibson, Bateman, & Rapee, 1998, 2000). The program aims to prevent or reduce the development of depression, and other potential problems, by teaching more effective problem-solving techniques and coping strategies to improve adolescents' resilience. The conceptual framework on which the program is based combines elements of cognitive-behavioral therapy, interpersonal skills, group theory, and psycho-educational approaches. The main components include "the link between thinking and feeling, challenging unrealistic thinking, realistic thinking in the face of conflict, social skills training, recognizing achievement and rewarding self, learning assertiveness skills, dealing with conflict, interpersonal negotiation skills and problem solving" (Kowalenko et al., 2005, p. 500). The manual-based curriculum consists of eight 90-minute sessions conducted once per week during regular school time with groups of 8-10 students. Program content is delivered via a mix of interactive educational methods, including discussion, role playing, workbook exercises, structured group activities, multi-media materials, and games. ACE involves collaboration between schools and community mental health services, as sessions are co-led by a school counselor and an adolescent mental health worker. Session leaders attend an intensive two-day training as well as bi-weekly supervision sessions.

Evaluation outcomes provide evidence for the short-term effectiveness of ACE in reducing depression among actively depressed and high-risk girls. However, the program's impact over the long-term has not yet been examined.

- During the development of the program, a small pilot study was conducted to evaluate the program's potential (Hannan et al., 2000). The study examined the outcomes of 19 students (ages 10-12) with depressive symptoms who participated in the program, which was facilitated by a member of the research team. The study did not include a no treatment control condition and was further limited by a low initial recruitment rate and small sample size. Nevertheless, the results suggested that the program had good promise. Significant reductions in depressive symptomatology and externalizing behaviors were observed at post-intervention. Additional reductions in depression and anxiety were observed over the 6-month follow-up; however, the reductions were not statistically significant.
  
- The effectiveness of ACE was evaluated in a short-term wait-list control trial. The study used a quasi-cluster allocation approach, by which schools were assigned to the intervention or wait-list control groups based on enrollment and gender composition. Although both genders participated in the study, there were too few boys in the control group (due to the insistence of one boys' school on being in the intervention condition) to allow for an analysis of their outcomes. As a result, the analysis focused on the 82 female participants. (It should be noted that, while the unit of allocation was schools, the unit of analysis was individual students. This inconsistency in units could lead to false findings of statistical significance.) A comparison of outcomes at post-intervention showed significantly lower depression scores among ACE participants in comparison to the control group. Results also indicated significant reductions in non-productive coping strategies and negative automatic thoughts, coupled by significant improvements in positive problem solving coping strategies. The findings were not only statistically significant but also clinically significant. Among the adolescent females who began with elevated symptoms of depression, a significantly lower percentage of ACE participants remained at the clinical level (50%) in comparison to the control group (81.5%). Positive outcomes, including the reduction in depressive symptoms and improvement in coping strategies and automatic thoughts, were maintained for ACE participants at 6-month follow-up. However, data on the control group was not available for comparison at follow-up because these students were on a short-term wait list and were offered the program after just 10 weeks.

### **Problem Solving For Life**

The Problem Solving For Life (PSFL) program is a universal classroom-based prevention intervention that was developed by a team of researchers at the University of Queensland in Australia (Spence, Sheffield, Donovan, & Price, 1997, as cited in Essau, 2004). PSFL is designed to be implemented by trained teachers during regular school time with adolescents ages 12-14. The manual-based curriculum consists of eight sessions conducted

once per week during a 45-50-minute class period with groups of 25-35 youth. The goal of PSFL is to help adolescents develop life problem solving skills, positive problem solving orientation, and optimistic thinking styles. Program content – a combination of cognitive restructuring and problem solving skills training – is delivered through “didactic sessions; cartoons; individual, small group, and whole class interactive exercises and activities; home-tasks; and diary keeping” (Spence et al., 2003, p. 6). The teachers are provided with supporting materials for each session, including “resource book, overheads, background notes, handouts, cartoons, puzzle pieces, and posters” (ibid, p. 6).

Evaluations of PSFL provide evidence for the program’s effectiveness at post-intervention. The program is especially beneficial for adolescents with initially higher levels of depressive symptoms. However, the positive outcomes observed at post-intervention were not maintained over the long-term.

- The effectiveness of PSFL was evaluated in a sample of 1500 students ages 12-14 who attended 16 participating high schools in Australia (Spence et al., 2003). After matching the schools in pairs according to funding source and size of enrollment, the schools were randomly assigned to either PSFL or a monitoring control condition. (It should be noted, however, that the analysis was based on individual students rather than schools, and this inconsistency in units could potentially lead to false findings of statistical significance.) The results showed a reduction in depression scores from pre- to post-intervention for high-risk participants in general; however, the reduction was significantly greater in PSFL than in the control group. Among the high-risk participants, those in PSFL demonstrated significantly greater improvement in problem solving in comparison to those in the control group, and this improvement was a reflection of significantly larger reductions in negative problem solving orientation and avoidant problem solving strategies. This effect persisted across the 12-month follow-up. Among low-risk participants, those in PSFL demonstrated a small but significant decline in depression scores from pre- to post-intervention, whereas depression scores increased for the control group. Low-risk participants in PSFL also demonstrated significantly greater reductions in negative problem solving orientation and in impulsive and avoidant problem solving strategies as compared to the low-risk control group participants. These findings highlight the potential for universal interventions to prevent increasing levels of depression among adolescents who may be overlooked by secondary interventions. However, the program’s impact on reducing depression did not persist, as there were no significant differences in incidence rates of depression over the 12-month follow-up for either the low- or high-risk participants. Additional results suggest an association between improvements in problem solving and reductions in depression. The program was especially beneficial for adolescents with initially higher levels of depressive symptoms. There were no significant differences in reduction of depression by gender or socioeconomic status.

- A continuation of the initial evaluation examined program outcomes at 2-, 3-, and 4-year follow-ups (Spence et al., 2005). The results indicated that the positive outcomes observed at post-intervention for PSFL participants were not maintained over time.

### **Resourceful Adolescent Program**

The Resourceful Adolescent Program for Adolescents (RAP-A) was developed by a team of researchers at Griffith University in Brisbane, Australia (Shochet, Holland, & Whitefield., 1997). RAP-A is a manual-based universal intervention that is most commonly delivered by trained teachers or other school personnel during regular school time to groups of up to 15 adolescents ages 12-15. The program lasts for one school term with 11 sessions conducted once per week during a 45-50-minute class period. The overall goal is to assist students in developing positive coping strategies that will help them maintain or recover positive self-esteem and a sense of self when they face stressful situations (Shochet et al., 2002; Shochet & Ham, 2004). This is accomplished through RAP-A's strength-based approach, which helps adolescents build on their existing personal strengths and develop additional skills, strategies, and resources. "The Three Little Pigs" children's story is used as a theme throughout the course; participants identify and develop personal resource "bricks" to build strength and resilience. Sessions cover a combination of elements from cognitive-behavioral and interpersonal therapies, including stress management, problem solving, cognitive restructuring, building personal support networks, preventing and managing conflict, and taking the perspectives of others (Shochet & Ham, 2004). The skills learned are practiced in group activities, and each participant receives a workbook.

A companion program for parents, the Resourceful Adolescent Parent Program (RAP-P; Shochet et al., 1998), was designed to address family-based risk factors for adolescent depression. RAP-P is a universal intervention offered through schools to all parents of a cohort of youth. Aims of the strength-based program are "to help parents boost their own self-esteem, differentiation, and self-management skills; reduce their own negative emotional reactivity to their adolescents; boost their adolescents' self-esteem; and reduce and manage their adolescents' negative emotional reactivity to them" (Shochet et al., 2002, p. 221). Program content is based on a combination of elements from systems theory (intergenerational effects of parents' differentiation of self), cognitive-behavioral theory (stress management, cognitive restructuring, management and prevention of conflict), and social learning theory (facilitators model active listening, validating, positive reinforcement, and showing empathy). The program is also psychoeducational, providing information on normal adolescent development to help increase parents' understanding, acceptance, and support of their adolescent. The material is delivered in three workshop sessions lasting two to three hours each. Teaching methods include

direct instruction, small group discussions, and large group summary sessions. A video tape version of the program is also available.

Evaluations of RAP have established the program's efficacy in the short and medium term. Additional research is needed to determine results over the longer term. Other areas to examine include the program's effectiveness in normal field conditions, the value of the companion program for parents, and the cost-effectiveness of offering RAP to a universal sample as compared to other prevention efforts that target indicated and selective samples.

- In the first efficacy trial of RAP (Shochet et al., 2001), students ages 12-15 were randomly assigned to one of two intervention conditions: the adolescent intervention (RAP-A) or the adolescent intervention plus parental participation in a companion program (RAP-P). In order to avoid potential treatment contamination problems, the control group consisted of the previous year's cohort from the same school. Results showed no significant differences between the RAP-A and RAP-P conditions; however, the analysis was limited by very low parental attendance. Participants in both intervention conditions reported "significantly lower levels of depressive symptomatology and hopelessness at post-intervention and 10-month follow-up" in comparison to the control group (ibid., p. 303). RAP was especially beneficial for adolescents who began the program with moderately elevated symptoms of depression and hopelessness. Among these adolescents, the percentage who moved into the healthy category by follow-up was 75 percent of RAP participants versus 41 percent of the control group. In addition, RAP prevented students who were initially healthy from developing depressive symptoms, providing indication of the potential public health benefits of universal interventions. Among adolescents who were healthy prior to the intervention, only 1.2 percent of RAP participants developed subclinical- or clinical-level symptoms by follow-up as compared to 10.1 percent of the control group.
- Researchers conducted a randomized, placebo-controlled trial of RAP-Kiwi, an adapted version of RAP used with adolescents in New Zealand (Merry et al., 2004). The sample consisted of 392 students ages 13-15 who were randomly assigned to either the intervention (RAP) or a placebo program of similar format but not containing the elements presumed to be active. The trial was single-blinded in that the participants did not know which of the two programs was the active intervention, while the teachers who facilitated the groups did know. Results at post-intervention indicated a significantly larger reduction in depression scores for RAP in comparison to the placebo. (It is worth noting that the placebo group also experienced a reduction in depression scores, despite the expected increase in this age group. This finding indicates a response to the placebo and underlines the importance of including an

active comparison group.) The results also provided some evidence that the effect persisted to 18 months; however, this was found for only one of the two depression measures. The effect did not significantly differ by gender, ethnicity, or school. Students rated the program as reasonably enjoyable and useful, while teachers desired more flexibility in program delivery.

### ***Future directions***

The concept of gender-specific programming is just beginning to take hold in this area of research. It would be worthwhile to keep abreast of the research, as evaluations of the first girls programs will likely be published in the near future. For example, the Penn Resiliency Program is piloting a girls program based on the PRP curriculum that addresses gender-related risk factors, such as body image and rumination. In addition, a handbook of prevention and intervention programs for adolescent girls is coming out in spring of 2007 (LeCroy & Mann, in press).

In the meantime, it may be worthwhile to consider modifying the curriculum of an established evidence-based intervention by incorporating lessons addressing gender-related risk factors and the unique challenges faced by adolescent girls.



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# Appendix

## A1. Summary of programs reviewed

Program <sup>a</sup>	Components	Reference	Format	Parent component	Facilitators/training	Implementation fidelity
RAP	cognitive restructuring (linking behavior, body clues, self-talk, and emotions), stress management, problem solving, building personal support networks, preventing and managing conflict, taking the perspectives of others, building self-esteem, keeping calm, thinking resourcefully, putting it all together	Shochet et al., 2001	Eleven 50-min sessions conducted once per week during regular school time with groups of 8-12 youth	Three 3-hour workshop sessions for parents conducted at 3-week intervals	Experienced clinicians or graduate psychology students trained in the approach (25 hours of training)	Integrity checks completed by self-monitoring and/or independent observers.  89.3% average integrity across 9 rated sessions
		Merry et al., 2004	Eleven sessions conducted once or twice per week (depending on school) during regular school time	No parent component	Teachers trained in the approach (2.5 day training) who met with a research team member weekly	Teachers completed an integrity checklist weekly
PSFL	cognitive restructuring, life problem solving skills, positive problem solving orientation, optimistic thinking styles  Teaching methods: didactic sessions; cartoons; individual, small-group, and whole-class interactive exercises and activities; home tasks; diary keeping	Spence et al., 2003	Eight 45-50-min sessions conducted once per week during regular school time with groups of 25-35 youth	No parent component	Teachers trained in the approach (6 hours of training)	Teachers completed an evaluation form after each session, indicating whether they had completed each component.
		Spence et al., 2005				

**A1. Summary of programs reviewed (continued)**

<b>Program<sup>a</sup></b>	<b>Components</b>	<b>Reference</b>	<b>Format</b>	<b>Parent component</b>	<b>Facilitators/training</b>	<b>Implementation fidelity</b>
PRP	cognitive restructuring, optimistic explanatory (thinking) style, challenging beliefs (evaluating accuracy of beliefs, generating more optimistic alternatives, producing counter-evidence, putting it in perspective), resilience, assertiveness, negotiation, coping strategies (controlled breathing, muscle relaxation, formulating positive visual images), social skills training, decision making, social problem solving	Chaplin et al., 2006	Twelve 90-min sessions conducted once per week after school with groups of 9-14 youth	No parent component	School personnel or research assistants trained in the approach (week-long training) who received ongoing supervision from program developers	Supervisors reviewed session recordings and provided immediate feedback
		Gillham et al., 2006a	Twelve 90-min sessions conducted in a primary care setting	No parent component	Therapists trained in the approach (intensive 3-day training) who received ongoing supervision from a program developer	64% - 95% integrity across 4 rated sessions
		Gillham et al., 2006b	Eight 90-min sessions conducted once per week after school with groups of 10-12 youth	Six 90-min sessions conducted at school during evenings with groups of 10-12 parents	Members of the research team who received training and supervision from senior members	not indicated
		Quayle et al., 2001	Eight 40-min sessions conducted in school once per week with groups of 12 youth	No parent component	Post-graduate clinical psychology students trained in the approach (30 hours of training) who were supervised on a fortnightly basis by a registered psychologist	Facilitators documented the content covered during each session

## A1. Summary of programs reviewed (continued)

Program <sup>a</sup>	Components	Reference	Format	Parent component	Facilitators/training	Implementation fidelity
CWD-A / CWS-A	mood monitoring, social skills, pleasant activities, relaxation, constructive thinking, communication, negotiation and problem solving, conflict resolution, maintenance of gain	Clarke et al., 2001	Fifteen 1-hour sessions conducted at HMO clinic offices with groups of 6-10 youth	Three informational meetings for parents	Therapist with masters degree trained in the approach	95.9% therapist compliance across 15 rated sessions
		Clarke et al., 1999	Sixteen 2-hour sessions conducted over 8 weeks with groups of up to 10 youth	Eight 2-hour sessions once per week for parents	Therapists trained in the approach (40 hours of training) who attended weekly supervision meetings	90.5% therapist compliance across 72 rated sessions
		Clarke et al., 2002	Sixteen 2-hour sessions conducted over 8 weeks with groups of 6-10 youth	Three informational meetings for parents	Therapist with masters degree trained in the approach	90.8% therapist compliance across 12 rated sessions
		Rohde et al., 2004	Sixteen 2-hour sessions conducted over 8 weeks with groups of 7-14 youth	Two optional group meetings for parents	Mental health professionals (with at least a master's degree) trained in the approach (60 hours of training) and student helpers	91% therapist compliance across 27 rated sessions
ACE	realistic thinking (link between thinking and feeling, challenging unrealistic thinking), social skills training, recognizing achievement and rewarding self, assertiveness skills, dealing with conflict, interpersonal negotiation skills, problem solving  Teaching methods: interactive education, discussion, structured group activities, role playing, exercises	Hannan et al., 2000	Eight 90-minute sessions conducted once per week during regular school time with groups of 8-10 students	No parent component	Member of the research team	Some clinical supervision was provided by a senior member of the research team
		Kowalenko et al., 2005			Co-led by a school counselor and an adolescent mental health worker	Bi-weekly supervision sessions

<sup>a</sup> Penn Resiliency Program (PRP), Adolescent Coping With Depression Course (CWD-A), Adolescent Coping With Stress Course (CWS-A), Problem Solving For Life (PSFL), Resourceful Adolescent Program (RAP), Adolescents Coping with Emotions (ACE)

## A2. Summary of program evaluations

Program <sup>a</sup>	Reference	Level of intervention <sup>b</sup> / sample	Study design	Comparison condition	Measures <sup>c</sup>	Results	Assessment schedule
RAP	Shochet et al., 2001	Primary/universal intervention, N=260, 53% female, age 12-15	Cohort-based randomized controlled trial	No intervention comparison, previous year cohort at same school, usual school curriculum	CDI, RADS, BHS	Adolescents in either of the intervention conditions (RAP with child component only or RAP with child and parent components) “reported significantly lower levels of depressive symptomatology and hopelessness at post-intervention and 10-month follow-up, compared with those in the comparison group.”	baseline, post intervention, follow-up at 10 months
	Merry et al., 2004	Primary/universal intervention, N=392, age 13-15	Placebo-controlled trial, intent-to-treat analysis	Control group received placebo similar to RAP in time and structure but without the components assumed to be active	RADS, BDI	“Immediately after the intervention, depression scores were reduced significantly more by RAP-Kiwi than by placebo” and the analysis confirmed significant clinical benefit. “Group differences in depression scores averaged across time to 18 months were significant on RADS but not on BDI-II.”	baseline; post intervention; follow-ups at 6, 12, and 18 months



## A2. Summary of program evaluations (continued)

Program <sup>a</sup>	Reference	Level of intervention <sup>b</sup> / sample	Study design	Comparison condition	Measures <sup>c</sup>	Results	Assessment schedule
PSFL	Spence et al., 2003	Primary/universal intervention, students selected from 16 high schools, N=1500, 53% female, age 12-14	Random assignment of schools, controlled trial	No intervention comparison, monitoring control condition	BDI, ADIS-C, LIFE, CBCL-Youth Report, CAFAS, SPSI-RSF, CASQ-R, LER, CSRFFI family conflict subscale	“Participants with initially elevated depression scores (high risk) who received the intervention showed a significantly greater decrease in depressive symptoms and increase in life problem-solving scores from pre- to post intervention compared with a high-risk control group. Low-risk participants who received the intervention reported a small but significant decrease in depression scores over the intervention period, whereas the low-risk controls reported an increase in depression scores. The low-risk group reported a significantly greater increase in problem-solving scores over the intervention period compared with low-risk controls. These results were not maintained, however, at 12-month follow-up.”	baseline, post intervention, follow-up at 12 months
	Spence et al., 2005					BDI, ADIS-C, LIFE, CBCL-Youth Report, CAFAS, SPSI-RSF, CASQ-R	“Adolescents who completed the teacher-administered cognitive-behavioral intervention did not differ significantly from adolescents in the monitoring-control condition in terms of changes in depressive symptoms, problem solving, attributional style, or other indicators of psychopathology from preintervention to 4-year follow-up. Results were equivalent irrespective of initial level of depressive symptoms.”

## A2. Summary of program evaluations (continued)

Program <sup>a</sup>	Reference	Level of intervention <sup>b</sup> / sample	Study design	Comparison condition	Measures <sup>c</sup>	Results	Assessment schedule
PRP	Chaplin et al., 2006	Primary/universal intervention, N=208, age 11-14	Randomization stratified by grade, sex, and depressive symptom level; controlled trial	No intervention comparison, usual care	CDI, HSC, CASQ	“Girls groups were better than co-ed groups in reducing girls’ hopelessness and for session attendance rates but were similar to co-ed groups in reducing depressive symptoms. Co-ed groups decreased depressive symptoms, but this did not differ by gender.”	baseline, post intervention, follow-up at 12 months
	Gillham et al., 2006a	Secondary/ indicated intervention targeting at-risk youth with elevated (subsyndromal) depressive symptoms, N=271, 53% female, age 11-12	Randomization stratified by gender and depressive symptom level, controlled trial	No intervention comparison, usual care, intent-to-treat analysis	CASQ, CDI, clinical diagnoses from HMO records	“Over the 2-year follow-up, PRP improved explanatory style for positive events. PRP’s effects on depressive symptoms and explanatory style for negative events were moderated by sex, with girls benefiting more than boys. Stronger effects were seen in high-fidelity groups than low-fidelity groups. PRP did not significantly prevent depressive disorders but significantly prevented depression, anxiety, and adjustment disorders (when combined) among high-symptom participants.”	baseline; post intervention; follow-ups at 6, 12, 18, and 24 months
	Gillham et al., 2006b	Secondary/ indicated intervention targeting youth with high levels of depressive symptoms, N=44, 30% female, age 11-13	Randomized controlled trial	No intervention comparison, usual care	CDI, RCMAS	PRP combined with a parent intervention component “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.”	baseline, post intervention, follow-ups at 6 and 12 months
	Quayle et al., 2001 (The Optimism Program, adapted from the Penn Prevention Program)	Primary/universal intervention, N=47, 100% female, age 11-12	Randomized controlled trial	No intervention comparison, wait-list/usual care educational program	CDI, CASQ, CLQ, SPPC	“Results showed fewer depressive symptoms and more positive self-worth in the intervention group compared to the control group at 6-month follow-up.”	baseline, post intervention, and follow-up at 6 months

## A2. Summary of program evaluations (continued)

Program <sup>a</sup>	Reference	Level of intervention <sup>b</sup> / sample	Study design	Comparison condition	Measures <sup>c</sup>	Results	Assessment schedule
CWD-A / CWS-A	Clarke et al., 2001	Secondary/ indicated intervention targeting at-risk (subsyndromal symptoms) offspring of depressed parents in an HMO, N=94 (45 intervention, 49 control), 60% female, age 13-18	Randomized controlled trial, intent-to-treat analysis	No intervention comparison, usual care from HMO	CBCL, K- SADS-E, CES-D, HAM-D, GAF	The researchers detected “significant treatment-by-time (program) effects for the CES-D and the GAF scores. Survival analysis of incident major depressive episodes during a median 15-month follow-up found a significant advantage for the experimental condition (9.3% cumulative major depression incidence) compared with the usual-care control condition (28.8%).”	baseline, post intervention, follow-ups at 12 and 24 months
	Clarke et al., 1999	Tertiary intervention targeting actively depressed adolescents, N=123 randomized, N=96 completed (71% female), age 14- 18	Randomized controlled trial	No intervention comparison, wait- list control	K-SADS-E, LIFE, HAM- D, GAF, BDI, CBCL	“Acute CBT groups yielded higher depression recovery rates (66.7%) than the waitlist (48.1%), and greater reduction in self-reported depression. Outcomes for the adolescent-only and adolescent + parent conditions were not significantly different... The booster sessions did not reduce the rate of recurrence in the follow-up period but appeared to accelerate recovery among participants who were still depressed at the end of the acute phase.”	baseline, post intervention, follow-ups at 12 and 24 months

## A2. Summary of program evaluations (continued)

Program <sup>a</sup>	Reference	Level of intervention <sup>b</sup> / sample	Study design	Comparison condition	Measures <sup>c</sup>	Results	Assessment schedule
CWD-A / CWS-A (continued)	Clarke et al., 2002	Tertiary intervention targeting actively depressed adolescents of depressed parents in an HMO, N=88 (41 intervention, 47 control), age 13-18	Randomization by block procedure, controlled trial, intent to treat analysis	No intervention comparison, usual care from HMO	F-SADS, CBCL, K-SADS-E, CES-D, HAM-D, GAF	“Using intent-to-treat analyses, the authors were unable to detect any significant advantage of the CBT program over usual care, either for depression diagnoses, continuous depression measures, nonaffective measures, or functioning outcomes. Group CBT does not appear to be incrementally beneficial for depressed offspring of depressed parents who are receiving other mental health care.”	baseline, post intervention, follow-ups at 12 and 24 months
	Rohde et al., 2004	Tertiary intervention targeting actively depressed adolescents with comorbid conduct disorder, N=93, age 13-17	Randomized controlled trial	Control group participated in a life skills training and tutoring program	HAM-D, BDI, CBCL, CGAS, SAS-SR, LIFE, K-SADS-E	“Major depressive disorder recovery rates post-treatment were greater in CWD-A (39%) compared with life skills/tutoring control (19%). CWD-A participants reported greater reductions in BDI-II and HAM-D scores and improved social functioning post-treatment. Group differences in major depressive disorder recovery rates at 6- and 12-month follow-up were nonsignificant, as were differences in conduct disorder both post-treatment and during follow-up.”	baseline, post intervention, follow-ups at 6 and 12 months

## A2. Summary of program evaluations (continued)

Program <sup>a</sup>	Reference	Level of intervention <sup>b</sup> / sample	Study design	Comparison condition	Measures <sup>c</sup>	Results	Assessment schedule
ACE	Hannan et al., 2000	Secondary/ indicated intervention targeting adolescents with high levels of depressive symptoms, N=19, age 10-12	Small pilot study	The study did not include a no intervention comparison	CDI, RCMAS, CBCL	“Significant reductions in symptoms of depression, anxiety and externalizing behaviour were found and maintained for six months.”	screening, baseline, post intervention, 6-month follow-up
	Kowalenko et al., 2005	Secondary/ indicated and tertiary intervention targeting adolescents at high-risk for depression and actively depressed adolescents, N=82, 100% female, age 13-16	Short-term wait-list control trial with quasi-cluster allocation of schools to experimental condition	No intervention comparison, short-term wait-list control (began receiving intervention after 10 weeks), completers and intent-to-treat analyses	CDI, CATS, ACS	“At post-intervention, female ACE participants reported significantly reduced depressive symptoms and significantly improved coping skills compared with the control group. Using cognitive-behavioral and interpersonal techniques, the ACE program diminished depressive symptoms and increased coping skills in girls screening at-risk for depression.”	

<sup>a</sup> Penn Resiliency Program (PRP), Adolescent Coping With Depression Course (CWD-A), Adolescent Coping With Stress Course (CWS-A), Problem Solving For Life (PSFL), Resourceful Adolescent Program (RAP), Adolescents Coping with Emotions (ACE)

<sup>b</sup> Levels of intervention: **Primary** prevention interventions target whole populations and are aimed at “precluding the occurrence of depression in large samples or at reducing the overall incidence of depression in the population” (Ingram, Odom, & Mitchusson, 2004, p. 206). Primary prevention interventions are also called **universal** interventions. **Secondary** prevention interventions aim to “prevent or diminish the onset of symptoms in high-risk individuals” (Ingram, Odom, & Mitchusson, 2004, p. 207). Secondary prevention interventions can be further classified as either **selective**, targeting “members of a subgroup of a population whose risk is deemed to be above average” (Horowitz & Garber, 2006, p. 401), or **indicated**, targeting “individuals who manifest subclinical signs or symptoms of a given disorder” (Horowitz & Garber, 2006, p. 401). **Tertiary** prevention interventions focus on “preventing relapses and recurrences of depression” (Ingram, Odom, & Mitchusson, 2004, p. 207).

<sup>c</sup> Achenbach Child Behavior Checklist (CBCL); Schedule for Affective Disorders and Schizophrenia for School-Age Children, Epidemiological Version (K-SADS-E); Center for Epidemiologic Studies-Depression Scale (CES-D); Hamilton Depression Rating Scale (HAM-D); Global Assessment of Functioning scale (GAF); Longitudinal Interval Follow-up Evaluation (LIFE); Beck Depression Inventory (BDI); Family Schedule for Affective Disorders and Schizophrenia (F-SADS); Children’s Global Adjustment Scale (CGAS); Social Adjustment Scale—Self-Report (SAS-SR); Reynolds Adolescent Depression Scale (RADS); Beck Hopelessness Scale (BHS), Anxiety Disorders Interview Schedule for Children (ADIS-C), Child and Adolescent Social and Adaptive Functioning Scale (CASAFS), Social Problem-Solving Inventory-Revised Short Form (SPSI-RSF), Children’s Attributional Style Questionnaire-Revised (CASQ-R), Life Events Record (LER), Colorado Self-Report of Family Functioning Inventory (CSRFFI), Hopelessness Scale for Children (HSC), Revised Children’s Manifest Anxiety Scale (RCMAS), Loneliness and Social Dissatisfaction scale (CLQ), Self-Perception Profile for Children (SPPC), Children’s Automatic Thoughts Scale (CATS), Adolescent Coping Scale (ACS)