Effectiveness Trial of an Indicated Cognitive–Behavioral Group Adolescent Depression Prevention Program Versus Bibliotherapy and Brochure Control at 1- and 2-Year Follow-Up

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Objective: The main goal of this study was to evaluate the long-term effects of a brief group cognitive–behavioral (CB) adolescent depression indicated prevention program through 2-year follow-up, relative to CB bibliotherapy and brochure control, when high school personnel recruited students and delivered the program. *Method:* Three hundred seventy-eight adolescents (*M* age = 15.5, *SD* = 1.2; 68% female, 72% White) with elevated self-assessed depressive symptoms who were randomized to CB group, CB bibliotherapy, or educational brochure control were assessed at pretest, posttest, and 6-, 12-, 18-, and 24-month follow-up. *Results:* By 2 years postintervention, CB group participants showed significantly lower major depressive disorder (MDD) onset versus CB bibliotherapy (10% vs. 25%, respectively; hazard ratio = 2.48, *p* = .006), but the incidence difference relative to brochure controls (17%) was nonsignificant; MDD incidence for bibliotherapy and brochure controls did not differ. Although CB group participants showed lower depressive symptoms at posttest versus brochure controls, there were no effects for this outcome or for social adjustment or substance use over 2-year follow-up. Moderator analyses suggested that participants with higher baseline depressive symptoms showed greater long-term symptom reductions in the CB group intervention versus bibliotherapy. *Conclusions:* The evidence that a brief CB group intervention delivered by real-world providers significantly reduced MDD onset versus CB bibliotherapy is potentially encouraging. However, the lack of MDD prevention effects relative to brochure control and lack of long-term symptom effects (though consistent with results from other depression prevention trials), suggest that the delivery of the CB group should be refined to strengthen its effectiveness.

What is the public health significance of this article?
This study is the first to compare 2 CB adolescent depression prevention interventions with a minimal intervention control in real-world settings. The brief CB group program appeared more effective in preventing adolescent MDD than a bibliotherapy approach, but was not superior to an educational brochure, suggesting that more refinements are needed to effectively deliver evidence-based prevention outside of tightly controlled research trials.

Keywords: depression, prevention, cognitive–behavioral, adolescents, effectiveness

Major depressive disorder (MDD) is a common, recurrent, and impairing condition that predicts future suicide attempts, academic failure, interpersonal problems, unemployment, substance abuse, and delinquency (Klein, Torpey, & Bufferd, 2008). However, less than 40% of adolescents with MDD receive treatment (Cummings & Druss, 2011), and community-delivered treatments are often

less effective (Weersing, Iyengar, Kolko, Birmaher, & Brent, 2006). Thus, it is crucial to develop prevention programs for this major public health problem (Jorm, 2014).

More than 20 interventions have been developed to prevent depression in adolescents and children, and more than 70 studies have evaluated their efficacy and effectiveness (Callahan, Liu, Purcell, Parker, & Hetrick, 2012; Merry et al., 2011), with cognitive–behavioral (CB) prevention interventions for adolescents having the largest evidence base (Christensen, Pallister, Smale, Hickie, & Calear, 2010; Stice, Shaw, Bohon, Marti, & Rohde, 2009). CB prevention programs have significantly reduced depressive symptoms relative to assessment-only control groups in universal trials with unselected adolescents (e.g., Spence, Sheffield, & Donovan, 2003), selective trials targeting youth at elevated risk for depression (e.g., Seligman, Schulman, & Tryon, 2007), and indicated trials targeting youth with elevated depressive symptoms (e.g., Clarke et al., 2001; Stice, Rohde, Seeley, & Gau, 2008). A small subset of studies have collected diagnostic data,

finding that CB interventions significantly reduced risk for future onset of MDD in some trials (Clarke et al., 2001; Garber et al., 2009; Stice et al., 2008) but not others (e.g., Gillham, Hamilton, Freres, Patton & Gallop, 2006; Seligman et al., 2007). Meta-analytic reviews suggest that the average effects from depression prevention trials are typically small in magnitude (e.g., average pre–post intervention effect for universal, selective, and indicated programs, $d = .12, .30,$ and $.23$, respectively; Horowitz & Garber, 2006).

Stice and colleagues developed a brief (four-session) manualized indicated CB group prevention program delivered by research clinicians focusing solely on reducing negative thoughts and increasing pleasant activities, as a brief program would facilitate dissemination (Stice, Burton, Rohde, & Bearman, 2007). Adolescents with elevated depressive symptoms ascertained by a standardized screener were recruited because elevated depressive symptoms are one of the most potent risk factors for future adolescent MDD (Lewinsohn et al., 1994; Stice, Hayward, Cameron, Killen, & Taylor, 2000). The CB group intervention produced greater depressive symptom reductions than waitlist controls at posttest and 1-month follow-up but not at 6-month follow-up. However, the program generally did not produce greater effects than four alternate or placebo interventions (supportive-expressive group, CB bibliotherapy, expressive writing, journaling), prompting us to expand the program from four to six sessions.

Stice and colleagues (2008) then initiated a large randomized efficacy trial comparing this prevention program with two active interventions that contained aspects of the CB group intervention (i.e., a supportive-expressive group that provided nonspecific therapeutic factors, and CB bibliotherapy that provided CB change concepts), and a brochure control condition with 341 adolescents with elevated depressive symptoms. Relative to brochure controls (13.1%), participants in all three active interventions showed significantly lower MDD onset over 6-month follow-up (6.8% in the CB group; 6.7% in the supportive-expressive group; 2.5% in CB bibliotherapy; differences between these three conditions were nonsignificant). CB group participants also showed significantly greater depressive symptom reductions than supportive-expressive group, CB bibliotherapy, and brochure control participants at posttest, though only the effect with brochure controls was significant at 6-month follow-up. CB group participants showed greater improvements in social adjustment and lower substance use through 6-month follow-up than those in all three other conditions. Regarding long-term effects, depressive disorder (major/minor) onset over 2-year follow-up was significantly higher for brochure controls (23%) than both CB group (14%; $OR = 2.2$) and CB bibliotherapy (3%; $OR = 8.1$) participants, which did not differ (disorder onset rate in the supportive-expressive group was 15%, which did not differ from other conditions). CB group participants showed significantly lower depressive symptoms than brochure control participants at 1-year follow-up and versus CB bibliotherapy participants at both 1- and 2-year follow-up, though not relative to supportive-expressive group participants (Stice, Rohde, Gau, & Wade, 2010). Thus, this CB group intervention reduced initial symptoms and risk for future MDD episodes, though both supportive-expressive group therapy and CB bibliotherapy also produced some long-term effects.

Bibliotherapy has advantages over face-to-face interventions, including ease of use, low cost, low staffing demands, and greater privacy. CB bibliotherapy has outperformed assessment-only control conditions for the treatment of depression in adolescents and adults (Gregory, Schwer-Canning, Lee, & Wise, 2004). Ackerson, Scogin, McKendree-Smith, and Lyman (1998) found that CB bibliotherapy ("Feeling Good" by David Burns, which was used in the present study) produced greater depressive symptom reductions relative to assessment control for adolescents with moderate depressive symptoms through 1-month follow-up. Although many depression self-help books exist, "Feeling Good" is the only form of depression bibliotherapy that meets the criterion of "probably efficacious treatment" (Malouff & Rooke, 2007).

Based on the encouraging efficacy trial findings, a large randomized effectiveness trial was initiated, contrasting the brief CB group prevention program to both a CB bibliotherapy condition and brochure control in 378 adolescents with elevated self-assessed depressive symptoms. Testing whether interventions found to produce significant effects in tightly controlled efficacy trials also produce results under real-world conditions is an essential step to wide-scale dissemination, and schools have been recognized as important venues for mental health promotion efforts (Weist et al., 2003). CB group participants showed a significantly lower risk for MDD onset (0.8%) than both CB bibliotherapy (6.3%) and brochure control (6.5%; hazard ratio [HR] = 8.1 and 8.3, respectively) through 6-month follow-up (Rohde, Stice, Shaw, & Brière, 2014). CB group participants also reported lower depressive symptoms than brochure control at posttest ($p = .03, d = .29$), but not by 6-month follow-up; differences between CB group and bibliotherapy conditions on depressive symptoms were nonsignificant. Contrary to significant secondary outcome effects in the efficacy trial, the CB group did not produce significant effects for social adjustment or substance use.

The present report focuses on the long-term effects of this innovative effectiveness trial of the brief CB group prevention intervention. Evidence standards strongly recommend that prevention programs be evaluated at long-term follow-up to assess whether outcomes persist or decay over time (e.g., Flay et al., 2005). The first aim was to test whether CB group participants continued to show lower MDD onset through 2 years follow-up, compared with both CB bibliotherapy and brochure control, as this is the most important outcome for a depression prevention trial. This CB group program is the briefest intervention found to significantly prevent the onset of MDD, and it is important to evaluate whether its effects maintain beyond 6-months follow-up. Given the significant MDD prevention effects by 6-month follow-up for the CB group compared with both an active and minimal intervention condition, we hypothesized that the CB group would continue to produce significantly lower MDD onset by 2-year follow-up relative to both CB bibliotherapy and brochure control conditions. To our knowledge, only one previous selective/indicated depression prevention effectiveness trial in schools has been conducted that included follow-up data of 1 year or longer (Arnarson & Craighead, 2011); a 14-session CB prevention resulted in significantly lower first incidence of MDD or dysthymia versus assessment-only controls at 1-year follow-up (3.9% vs. 21.0%) in adolescents recruited based on either elevated depressive symptoms or negative attributional style.

The second aim was to test whether CB group participants showed lower depressive symptoms at long-term follow-up versus CB bibliotherapy or brochure controls. The third aim tested comparable long-term differences on the secondary outcomes of social adjustment and substance use. Though symptom level differences were nonsignificant by 6-month follow-up and no effects were found for either adjustment or substance use, it has been suggested (Pössel, Horn, Groen, & Hautzinger, 2004) that the benefits of a prevention program may not be evident immediately but could emerge months or years later once a substantial proportion of adolescents have experienced a stressful life event (i.e., a "sleeper" effect). Consistent with this possibility, effects emerging only at longer term follow-up have been reported previously in depression treatment trials (e.g., Muratori, Picchi, Bruni, Patarnello, & Romagnoli, 2003; Riper et al., 2014). Further, reporting the 2-year course of symptoms and secondary outcomes of adolescents who received some form of depression prevention intervention is important descriptively.

The fourth study aim was to test whether baseline depressive symptoms moderated the long-term effects of the CB group intervention on reductions in depressive symptoms, compared with either bibliotherapy or brochure control. The moderating effect of eight baseline measures (depressive symptoms, negative attributional style, substance use, negative life events, parental support, peer support, age, and gender) on depressive symptom change at posttest and 6-month follow-up was previously examined in this data set (Brière, Rohde, Shaw, & Stice, 2014). Only one potential moderator—baseline depressive symptoms—interacted with condition and time, such that elevated baseline depressive symptoms amplified the posttest (but not 6-month follow-up) effect of CB bibliotherapy versus brochure controls for those with elevated baseline symptoms, but had no effect for those who began the study with average or low baseline symptoms. Although baseline depression symptoms moderated the effects of the CB group prevention program at posttest but not 6-month follow-up, we thought it important to test whether this moderator was still affecting intervention response at longer term follow-up because it is the most consistently observed moderator of CB depression prevention programs (Brière et al., 2014; Jaycox, Reivich, Gillham, & Seligman, 1994; Spence et al., 2003).

Method

Participants and Procedures

Participants were 378 high school students (68% female) between 13 and 19 years of age ($M = 15.5$; $SD = 1.2$) at pretest. The sample was composed of 6% Hispanics, 2% Asian Americans, 1% African Americans, 72% Caucasians, 1% Native American, and 18% who specified other or mixed heritage. Maximal parental educational was 39% high school graduate or less; 26% some college; 22% college graduate; 13% graduate degree. Rates of race/ethnicity and adult education levels closely reflected the county from which participants were recruited.

Participants were recruited between 2009 and 2011 from five high schools using a streamlined process in which school staff sent letters to all students inviting them to participate in a study evaluating two interventions aimed at helping adolescents reduce sadness and promote emotional well-being; the mailing also contained a one-page depression screener based on the Center for Epidemiologic Studies-Depression Scale (Radloff, 1977). Students who endorsed two or more items were encouraged to call the research office to schedule an eligibility interview. Written consent was obtained from students and (if minors) parents.

Potential participants (see Figure 1) completed a pretest assessment with research staff to obtain baseline data and ensure that they did not have a current diagnosis of MDD or acute suicidal ideation (the two exclusion criteria, which were both determined by the diagnostic interview). If a student met an exclusion criterion, project staff spoke with the student and parents to contract for safety, reiterate the importance of seeking treatment, and provide referrals. Eligible participants were randomly assigned, within blocks created by gender and school, by the project coordinator using computer-generated random numbers to either (a) the CB group ($n = 126$), (b) CB bibliotherapy ($n = 128$), or (c) the brochure control ($n = 124$).

Participants completed a survey and diagnostic interview at the school at pretest, posttest, and at 6-, 12-, 18-, and 24-month follow-ups. Participants received $25 per assessment. Assessors, who were blind to condition, had at least a bachelor's degree in psychology and received 40 hr of diagnostic interview training, and were required to achieve and maintain kappa agreement ratings of .80 (assessed in a randomly selected 10% of taped interviews). The Oregon Research Institute Institutional Review Board approved this study.

CB Group Depression Prevention Intervention

The CB group program content was the same as the intervention evaluated in the efficacy research (Stice et al., 2008), but the manual (available upon request) was expanded to provide facilitators more scripted text. The six weekly 1-hr sessions began with a review of concepts and (after Session 1) review of home practice assignments. Each session had sections devoted to thought identification and cognitive restructuring and to increasing pleasant activities. Single-gender groups of five to nine participants ($M = 6.0$) were conducted at schools. If a student missed a session, the facilitator attempted to conduct a brief (10 to 15-min) make-up session with that adolescent before the next group session. Sessions were facilitated by school counselors, nurses, and teachers (11 women and two men) who received training and supervision. Sessions were audiotaped and half were randomly selected for review by the first and third authors for treatment adherence and competence, based on previously developed 10-point scales. Average adherence ($M = 7.0$, $SD = 0.7$) and competence ($M = 7.1$, $SD = 0.7$) ratings suggested that all key concepts were presented with good adherence and therapist competence. CB group participants attended an average of 5.3 sessions ($SD = 0.9$; 48% attended all six sessions), and 94% of those who missed a session received an individual make-up session. Additional details regarding the intervention, facilitator training and supervision, and intervention delivery are provided in Rohde et al. (2014).

CB Bibliotherapy Intervention

Participants in the CB bibliotherapy condition were given the book *Feeling Good* (Burns, 1980), which provides CB techniques for preventing and reducing negative moods; it is written at a high-school reading level. Participants were told,
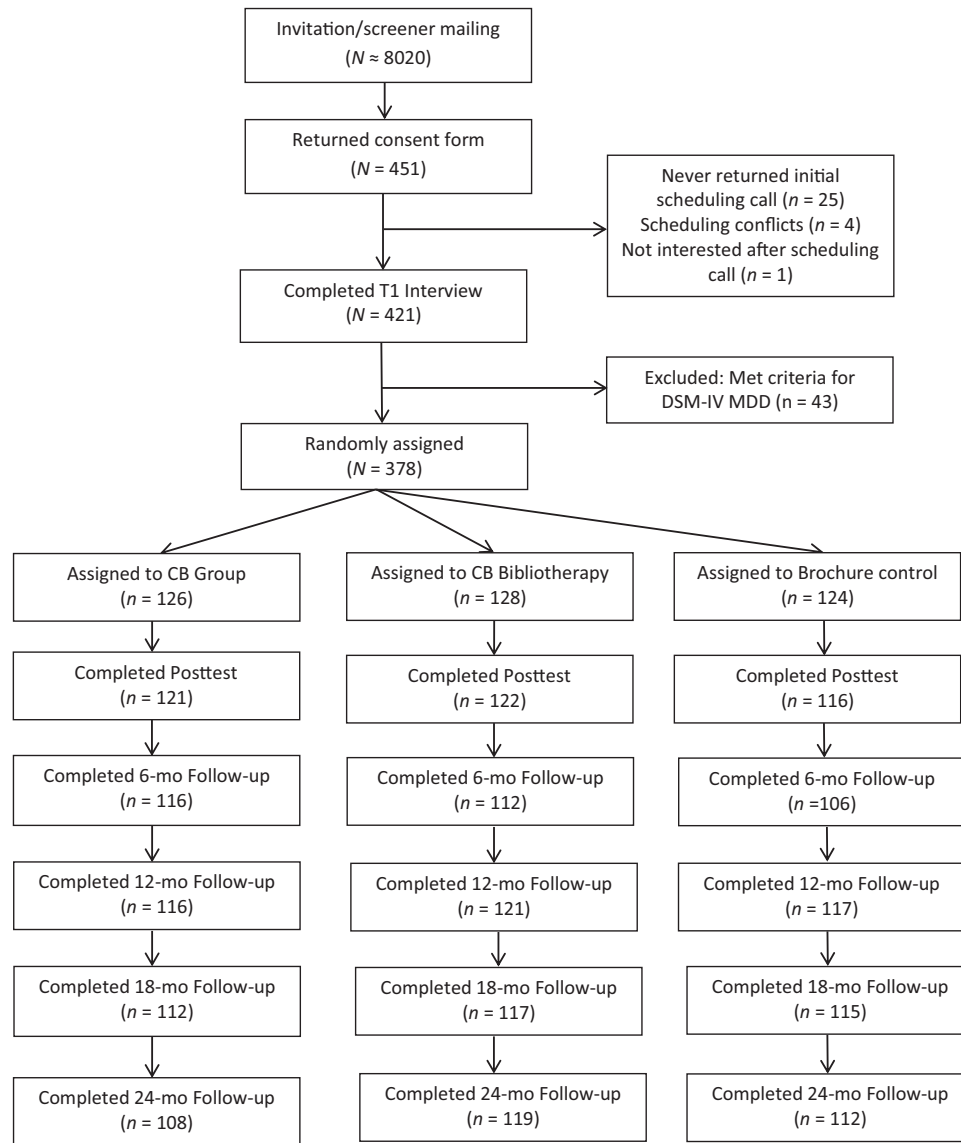
Figure 1. Information regarding participant enrollment, randomization to intervention, and assessment rates through follow-up.

This book has been shown to be helpful to some individuals who are feeling sad or depressed. This copy is yours to keep, so feel free to write or highlight in it as you read. We encourage you to use this as a self-help resource.

School clinicians were asked to make two brief reminder phone calls encouraging participants to read the book and complete the exercises. Use of the book by CB bibliotherapy participants was low (e.g., at 2-year follow-up, 26% indicated they read at least half the book, 42% read less than a quarter, and 32% did not read any), though the amount of the book read did not correlate with depressive symptom change over follow-up.

Brochure-Only Control Condition

Participants were given a National Institute of Mental Health (2001) brochure that describes MDD and recommends treatment for depressed youth ("Let's Talk About Depression") as well as information about local treatment options (which was provided to participants in all conditions).

Measures

Depressive symptoms and diagnosis. Sixteen questions assessing *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; American Psychiatric Association, 2000) MDD symptoms were drawn from the Schedule for Affective Disorders and Schizophrenia for School-Age Children (K-SADS; Puig-Antich & Chambers, 1983), a semistructured diagnostic interview. Participants reported the severity of each symptom over the past 12 months (at pretest) or since the last interview (at all subsequent assessments) using a 4-point response format. Responses were used to determine whether youth met criteria for MDD and were

averaged to form a continuous symptom composite. The K-SADS has shown test–retest reliability ($\kappa = .99$), interrater reliability at the level of items ($\kappa = .98$) and diagnoses ($\kappa = 1.00$), interitem correlation (ICC $= .99$), and to be sensitive to detecting the effects of depression prevention programs (Rohde et al., 2014).

Social adjustment. Social adjustment in school, work, peer, spare time, and family domains was assessed using 17 items from the Social Adjustment Scale-Self Report for Youth (Weissman, Orvaschel, & Padian, 1980). The 17-item version has shown internal consistency ($\alpha = .77$), 1-week test–retest reliability ($r = .83$), and sensitivity to detecting prevention intervention effects (Stice et al., 2008; $\alpha = .74$ at pretest).

Substance use. Substance use was measured with 10 items from Stice, Barrera, and Chassin (1998). Adolescents reported the frequency of intake during the past 6 months of alcohol, frequency of heavy drinking (five or more drinks), frequency of times drunk, and frequency of marijuana, stimulants, downers, inhalants, and hallucinogen use. Items used 6-point response scales ranging from *never* to *3–7 times a week*, and were averaged to form a use measure, which was transformed to better approximate normal distributions. This scale has shown 1-year test–retest reliability in community samples ($r = .72$), predictive validity for substance abuse symptoms (Stice et al., 1998), and sensitivity to detecting prevention intervention effects (Stice et al., 2008; $\alpha = .79$ at pretest).

Data Analysis

Preliminary analyses examined variable distributions, comparability of participants across conditions, and potential biases associated with attrition or the receipt of adjunctive mental health treatment. To maximize statistical power and reduce potential bias by ignoring missing data, we used multiple imputations to replace missing values (Graham, 2009) using the IVEware program (Raghunathan, Solenberger, & Van Hoewyk, 2002). Observed and imputed data were compared to identify extreme departures that might suggest problems with the imputations (Abayomi, Gelman, & Levy, 2008). Missing data points were replaced with imputed data in 20 data sets, which were analyzed separately. Model parameters and standard errors were combined following Rubin (1987), as implemented in SAS PROC MIANALYZE (SAS Institute Inc., 2011). Two-tailed tests were conducted throughout.

Aim 1 (MDD incidence) was examined using Cox proportional hazard regression models. For comparison with past literature, we also report condition effects on incidence for depressive disorders defined as either MDD or minor depression. Missing data were taken into account with right-censoring in Cox proportional hazard model estimation (i.e., imputation was not used). Given that the three conditions differed significantly on perceived credibility, expected benefit, and satisfaction with assignment to that condition (all $p < .001$), we adjusted for these variables by including the participant's condition preference as a covariate.

Aims 2 (changes in depressive symptoms) and 3 (changes in social adjustment and substance use) were evaluated with random effects growth models in a hierarchical modeling framework and fit with SAS PROC MIXED, specifying an unstructured covariance structure. Variability in change in outcomes from posttest to 2-year follow-up (Level 1) was nested within individual (Level 2). Time was coded "0" at posttest and months since posttest for the

four follow-ups. To accommodate the partially nested data structure, CB bibliotherapy and brochure control participants were treated as a group of one (Bauer, Sterba, & Hallfors, 2008), and together with the CB group constitute Level 3. If the variance of the random Level 3 group effect was estimated as positive, then three-level nested models were retained; otherwise, two-level models were run. Linear growth models and linear plus quadratic growth models were fit; results indicated a linear plus quadratic model fit the data better for each outcome. Models controlled for pretest outcome value. We conducted two planned group contrasts: CB group (coded "1") versus CB bibliotherapy (coded "0"), and CB group (coded "1") versus brochure controls (coded "0"). Effect sizes were estimated by converting t values to d effect sizes (Rosnow & Rosenthal, 2008).

Results

Preliminary Analyses

Participants in the three conditions did not differ on demographics or outcomes at pretest. Attrition for diagnostic data was 7% at 1-year, 10% at 18-month, and 12% at 2-year follow-up, and did not differ by conditions at 1-year ($p = .728$), 18-month ($p = .531$), or 2-year ($p = .233$) follow-up. Participants completed 5.5 of 6 assessments ($SD = 1.0$), and number of completed assessments did not differ by condition ($p = .783$). Attrition was not associated with any study variables except substance use, $t(353) = 2.02$, $p = .046$; participants who completed all assessments had lower baseline substance use versus those that did not ($M = 0.27$, $SD = 0.50$ vs. $M = 0.47$, $SD = 0.73$). CB group attendance was not associated with demographics or outcomes.

Thirty-four percent of participants received treatment for emotional/behavioral problems between 6-month and 2-year follow-up; rates did not differ by condition ($p = .920$). Of those receiving treatment during follow-up, 44% received individual therapy, 5% received group or family therapy, 12% took medication, and 39% received multiple treatment types. Treatment type during follow-up did not differ by condition, $\chi^2(6, 121) = 5.48$; $p = .489$. Table 1 presents the continuous outcomes for the three conditions at all study data collection points.

Intervention Effects for MDD Onset

By 2-year follow-up, 66 (18%) participants showed MDD onset: 13 CB group participants (10%), 32 CB bibliotherapy participants (25%), and 21 brochure controls (17%). Figure 2 shows cumulative survival functions for percentage of participants that showed MDD onset over follow-up. Cox proportional hazard regression indicated that the hazard ratio for MDD onset over follow-up was significantly greater for participants in CB bibliotherapy compared with the CB group ($HR = 2.48$, 95% CI [1.30, 4.73]; $p = .006$), which corresponded to a 60% reduction in MDD onset for CB group participants compared with those in CB bibliotherapy. This difference reflects a medium magnitude effect (HR of 1.39, 2.28, and 3.74, approximate small, medium, and large effects; Lipsey & Wilson, 2001). MDD risk did not differ for the CB group versus the brochure control ($HR = 1.65$, 95% CI [0.83, 3.30]; $p = .154$) or for CB bibliotherapy versus brochure control ($HR = 1.52$, 95% CI [0.88, 2.64]; $p = .137$).

Table 1

Imputed Means and Standard Deviations of Primary and Secondary Outcome Measures

Outcome measures	CB group (n = 126)		CB bibliotherapy (n = 128)		Brochure control (n = 124)	
	Mean	SD	Mean	SD	Mean	SD
Depressive symptoms						
Pretest	1.37	0.35	1.45	0.41	1.38	0.36
Posttest	1.40	0.32	1.50	0.42	1.51	0.41
6-mo follow-up	1.24	0.30	1.26	0.32	1.28	0.33
12-mo follow-up	1.31	0.36	1.36	0.46	1.31	0.40
18-mo follow-up	1.28	0.34	1.34	0.46	1.31	0.35
24-mo follow-up	1.35	0.37	1.40	0.47	1.39	0.43
Social adjustment						
Pretest	2.66	0.45	2.71	0.45	2.73	0.41
Posttest	2.51	0.44	2.63	0.52	2.59	0.50
6-mo follow-up	2.51	0.48	2.52	0.51	2.64	0.54
12-mo follow-up	2.55	0.52	2.55	0.57	2.66	0.55
18-mo follow-up	2.42	0.53	2.43	0.54	2.43	0.51
24-mo follow-up	2.42	0.51	2.39	0.55	2.42	0.54
Substance use						
Pretest	0.27	0.52	0.31	0.51	0.40	0.64
Posttest	0.23	0.44	0.28	0.42	0.29	0.44
6-mo follow-up	0.40	0.59	0.45	0.54	0.46	0.60
12-mo follow-up	0.44	0.63	0.53	0.78	0.61	0.90
18-mo follow-up	0.50	0.68	0.53	0.64	0.61	0.88
24-mo follow-up	0.57	0.75	0.61	0.75	0.66	0.80

Note. Means and standard deviations average of 20 imputed data sets. Sample size values reflect the number of adolescents originally assigned to the condition. Substance use summarized with nontransformed values. CB = cognitive–behavioral; mo = month.

The same pattern of results was found for the broader diagnostic category of MDD or minor depression. By 2-year follow-up, 91 (24%) participants had shown MDD or minor depression onset: 22 CB group (18%) participants, 41 CB bibliotherapy (32%), and 28 brochure control (23%). Analyses indicated that the depressive disorder hazard ratio over follow-up was 1.87 (95% CI [1.11, 3.14]; *p* = .018) times greater (87% more likely) in CB bibliotherapy compared with the CB group. Conversely, the CB group and brochure control (*HR* = 1.12, 95% CI [0.74, 2.26]; *p* = .366), and CB bibliotherapy and brochure control (*HR* = 1.46, 95% CI [0.90, 2.37]; *p* = .121), did not differ in incidence. An exploratory analysis found that, for CB bibliotherapy participants, amount of the book read was not significantly related to MDD onset (i.e., those who read more of the book were not less likely to develop a future disorder).

Intervention Effects for Change in Depressive Symptoms

Fixed effects from the growth models are shown in Table 2. In the symptom contrasts comparing the CB group versus CB bibliotherapy, none of the effects involving condition were significant. The largest effects, which were of medium magnitude (*d* of .20, .50, and .80, approximate small, medium, and large effects, respectively; Cohen, 1988), were for time, indicating a significant initial linear decrease that decelerated (as shown by the positive quadratic effect).

Comparing the CB group with brochure controls, condition had two significant effects. First, the condition effect (estimate = −.104; *p* = .017, *d* = .30) indicated that, compared with brochure controls, CB group participants had lower depressive symptom scores at posttest. Second, the Condition × Time effect (estimate = .014, *p* = .040, *d* = .26) was positive, which indicated that the linear decrease for CB group members was less steep than seen in brochure controls, suggesting that controls experienced slightly more symptom reduction during follow-up. Both of these findings were small effects. In addition, the linear and quadratic effects for time were significant and of medium to large magnitude, indicating reductions that decelerated with time.

Intervention Effects for Secondary Outcomes

Table 2 includes the fixed effects from growth models for secondary outcomes. Condition had no impact on the initial intercepts or patterns of change for social adjustment or substance use, suggesting that the CB group did not differ from either CB bibliotherapy or brochure control on these outcomes. The only significant finding involved linear change in substance use in both contrasts (mean *d* = .37), suggesting a small to medium magnitude increase in substance use for participants that did not differ across condition.

Moderation

Baseline depressive symptoms and its interaction terms with group and time were added to the depressive symptom, adjustment, and substance use growth models to examine whether this factor impacted the magnitude of intervention effects on outcome change. A significant three-way cross-level interaction was found; baseline depressive symptoms moderated the effects of CB group versus CB bibliotherapy condition on quadratic change in depressive symptoms, *t* = 2.10, *p* = .035. This interaction was probed by computing sample estimated intercepts and slope trajectories at conditional levels of baseline depressive symptoms (i.e., simple trajectories). We followed recommendations in standard regression (Aiken & West, 1991) and selected values at one standard deviation below the mean-centered moderator, at the mean, and at one standard deviation
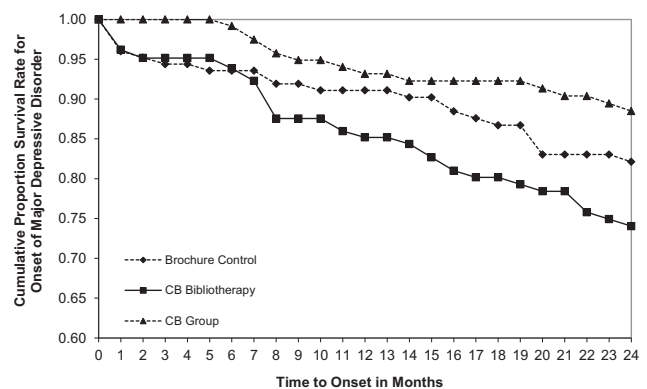
Figure 2. Survival curves for the onset of major depression over the 2-year follow-up period by intervention condition.

Table 2
Model Fixed Effects Parameters for Change in Depressive Symptoms and Secondary Outcomes

Variable	Parameter	Estimate	SE	t value	p value	d
	Parameter estimates for CB group vs. CB bibliotherapy participants					
Depressive symptoms	Intercept	1.440	.035	41.01	<.001	5.185
	Condition	−.070	.043	−1.59	.112	.201
	Time	−.023	.005	−4.40	<.001	.563
	Time^2	<.001	<.001	4.31	<.001	.550
	Condition × Time	.008	.008	1.12	.263	.144
	Condition × Time^2	<−.001	<.001	−1.14	.256	.146
Social adjustment	Intercept	2.637	.049	53.43	<.001	6.768
	Condition	−.089	.062	−1.43	.153	.181
	Time	−.010	.009	−1.27	.206	.163
	Time^2	<−.001	<.001	−0.00	.996	.000
	Condition × Time	.012	.010	1.23	.220	.157
	Condition × Time^2	<−.001	<.001	−0.80	.422	.102
Substance use	Intercept	.384	.039	9.93	<.001	1.257
	Condition	−.045	.046	−0.97	.333	.122
	Time	.016	.006	2.87	.004	.366
	Time^2	<−.001	<.001	−1.59	.111	.203
	Condition × Time	.003	.008	0.38	.706	.045
	Condition × Time^2	<−.001	<.001	−0.18	.859	.024
	Parameter estimates for CB group vs. Brochure control participants					
Depressive symptoms	Intercept	1.493	.036	41.87	<.001	5.318
	Condition	−.104	.043	−2.38	.017	.303
	Time	−.029	.005	−5.84	<.001	.749
	Time^2	.001	<.001	5.55	<.001	.713
	Condition × Time	.014	.007	2.05	.040	.264
	Condition × Time^2	−.001	<.001	−1.91	.056	.246
Social adjustment	Intercept	2.605	.048	54.08	<.001	6.857
	Condition	−.077	.061	−1.25	.210	.161
	Time	.007	.007	0.88	.381	.112
	Time^2	−.001	<.001	−2.26	.024	.291
	Condition × Time	−.004	.010	−0.34	.734	.044
	Condition × Time^2	<.001	<.001	0.85	.397	.110
Substance use	Intercept	.343	.039	8.79	<.001	1.121
	Condition	−.015	.046	−0.32	.752	.040
	Time	.017	.006	2.98	.003	.383
	Time^2	<−.001	<.001	−1.59	.111	.205
	Condition × Time	.001	.008	0.13	.894	.016
	Condition × Time^2	<−.001	<.001	−0.08	.937	.010

Note. Time reflects linear change, and Time^2 reflects quadratic change. Fixed effects for baseline score and treatment preference covariates are not displayed. SE = standard error; d = Cohen's d statistic; CB = cognitive–behavioral.

above the mean to represent low, medium, and high levels of baseline depression symptoms.

Simple trajectories (see Figure 3) show the quadratic change of depressive symptoms over follow-up as a function of baseline severity for CB group and bibliotherapy participants. At low baseline symptoms, the quadratic term had almost no effect on the CB group but resulted in a deceleration of the linear trend and eventual increase in symptoms for bibliotherapy participants, suggesting that bibliotherapy may have produced slightly stronger effects during follow-up. At the mean level of baseline symptoms, the quadratic trend had a similar effect on both groups, suggesting that depressive symptom course was similar for both conditions. At high baseline symptoms, the quadratic effect had less of an impact on decelerating the initial linear trend for the CB group, suggesting that the CB group resulted in lower depressive symptom levels at the end of follow-up relative to those receiving CB bibliotherapy.

Discussion

This study had four aims in evaluating the long-term effectiveness of a CB group depression prevention program relative to both an active intervention (CB bibliotherapy) and a minimal control (educational brochure). Regarding reductions in MDD onset, CB group participants showed significantly lower MDD onset (10%) relative to CB bibliotherapy participants (25%), but not relative to brochure controls (18%). Regarding reductions in depressive symptoms, no differences were detected between the CB group and CB bibliotherapy, and although CB group participants showed significantly lower depression levels relative to brochure controls at posttest, the controls "caught up" and no differences were detected subsequently. Regarding improvements in secondary outcomes, we found no detectable effects on social adjustment or substance use for the CB group relative to either CB bibliotherapy or brochure control. Regarding moderators, we found that elevated baseline depressive symptoms amplified the effect on the CB
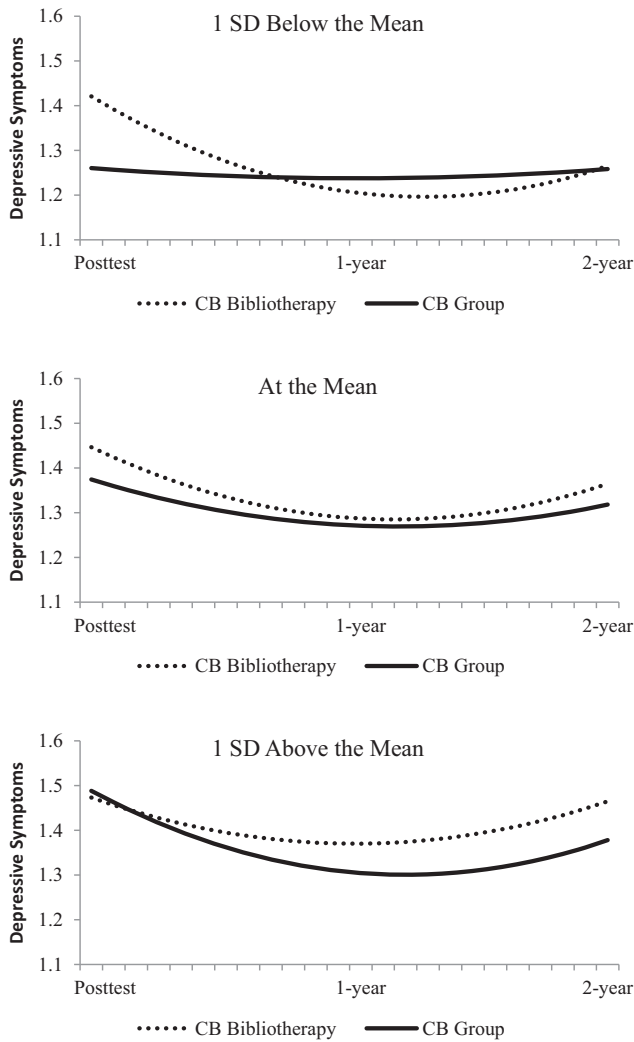
Figure 3. Simple slopes at low, medium, and high levels of baseline depression symptom severity.

group versus CB bibliotherapy for depressive symptom reductions. We discuss the implications of each aim next.

Our primary outcome was the long-term prevention of MDD onset. At 6-month follow-up, CB group participants had a significantly lower MDD onset than both CB bibliotherapy and brochure control groups (Rohde et al., 2014); this preventive effect remained significant at 2-year follow-up relative to CB bibliotherapy, but not relative to brochure controls. The fact that the CB group produced a significant 60% reduction in MDD onset relative to a credible intervention is encouraging, as this is a more rigorous comparison than the minimal control brochure. This study appears to be the first trial in which a CB depression program significantly reduced MDD onset relative to an active alternative intervention. Tempering enthusiasm, however, is the fact that the CB group did not produce a significant reduction in MDD onset relative to the minimal control brochure condition, which indicates that the CB group is not ready for widespread dissemination with real-world providers. We explored the possibility that the ability of school staff to effectively deliver the CB group may have varied, sug-

gested by a recent effectiveness trial (Wahl, Adelson, Patak, Pössel, & Hautzinger, 2014), which found superior 1-year depression symptom effects for girls when school psychologists rather than teachers delivered a universal CB prevention program (effects for boys did not differ). CB groups in the present study were led by either school nurses (28% of the CB group sample) or counselors (72% of the CB group sample), and type of facilitator (nurse vs. counselor) did not predict differences on any outcomes and thus did not account for the nonsignificant CB group effects.

Regarding the second outcome of symptom change, intervention effects were minimal, implying that the impact of CB prevention interventions on depressive symptoms faded. Though the depressive symptoms of CB group participants were significantly reduced relative to brochure controls at posttest, it was a small effect and participants in all three conditions showed a large initial decrease in symptoms that decelerated over time, consistent with a regression to the mean effect. More longstanding symptom reduction effects had been noted in the efficacy trial (Stice et al., 2010), with the CB group producing significantly greater depressive symptom reductions compared with CB bibliotherapy at both 1- and 2-year follow-ups ($d = .38$ and $.45$, respectively), and significant differences compared with brochure controls at 1-year ($d = .30$) but not at 2-year follow-up. Though many depression prevention programs have produced significantly greater reductions in depressive symptoms compared with assessment-only controls during or soon after intervention, these effects on continuous measures rarely persist. For example, a meta-analytic review found that 41% of programs produced significant reductions in depressive symptoms initially, only four of 17 trials of CB depression prevention programs produced effects that remained significant at 1-year follow-up, with an average effect size of only $d = .16$ across studies (Stice et al., 2009).

We found no effect for the CB group on secondary outcomes. To our knowledge, no randomized trial has found long-term effects for any CB prevention program on long-term measures of social/psychosocial adjustment, though significant decreases through 2-year follow-up in substance use among CB group participants were found in the efficacy trial, relative to both CB bibliotherapy ($d = .43$) and brochure controls ($d = .32$; Rohde, Stice, Gau, & Marti, 2012). One possible explanation for the different pattern of findings is that the present participants had somewhat lower substance use compared with efficacy participants ($M = .31$ vs. .48, $SD = .59$). In addition, participants in the present study with higher substance use at baseline were less likely to complete all follow-up assessments, which could have made it difficult to detect heavier use patterns. Consistent with well-established age trends (e.g., Johnston, O'Malley, Bachman, & Schulenberg, 2011), we found that substance use showed significant linear increases for all participants over the 2-year period.

How do the present findings compare with previous research and what do the findings mean? To our knowledge, only five previous CB adolescent depression prevention trials collected MDD diagnostic data out to 2-year follow-up: All were efficacy trials comparing a CB program with either assessment only, minimal intervention, or "usual care" (Beardslee et al., 2013; Clarke et al., 2001; Compas et al., 2011; Seligman, Schulman, DeRubeis, & Hollon, 1999; Stice et al., 2010; one additional study by Bond et al., 2004, assessed depressive symptoms, but not diagnostic, using a computer-administered interview to evaluate a universal preven-

tion program, finding no effects at posttest or 1- or 2-year follow-up). A fairly consistent pattern emerged in which all five trials report reductions (four significant, one at the trend level) in depressive disorder onset at or after 2-year follow-up, though none found corresponding significant depressive symptom reductions (or measures of adjustment). The earliest study (Seligman et al., 1999) compared a 16-hr CB group versus assessment control for first-year college students who were elevated on a depressive cognitive risk factor, reporting a trend-level reduction in probable/definite MDD at 3-year follow-up (40% vs. 48%; one-tailed $p = .08$); the remaining studies collected data to 2-year follow-up. Clarke et al. (2001) compared a 15-session CB group with usual care, reporting a significant effect with MDD rates appearing to be approximately 20% versus 32%. Compas et al. (2011) evaluated a 12-session family group CB intervention versus a written information control, finding significant MDD prevention effects (14% vs. 33%). Stice et al. (2010) evaluated the six-session CB group to brochure control, finding a significant effect for depressive disorder (MDD/minor) onset (14% in the CB group vs. 23% in the brochure control). The most recent efficacy trial, a large multisite study (Beardslee et al., 2013), found significant MDD prevention effects for a 14-session CB group intervention relative to usual care (37% vs. 48% rates of probable/definite MDD). Comparing results across studies, we first note that MDD onset was lower in the current effectiveness trial (18%) compared with all four efficacy trials (M onset = 31%), which reduced our sensitivity to detect effects. Hazard models focusing on dichotomous outcomes, such as MDD onset, have limited sensitivity, which prompted previous investigators to use directional tests (e.g., Clarke et al., 1995; Seligman et al., 1999; Stice et al., 2008). Indeed, the reduction in MDD onset for the CB group versus brochure controls would have been marginal (matching that reported by Seligman et al., 1999) had we used directional tests in this report. Second and more significant, averaging across the five previous long-term studies, MDD rates appear to be 35% lower in a CB prevention intervention versus control (17% lower in Seligman et al., 1999; 37% lower in Clarke et al., 1995; 58% lower in Compas et al., 2011; 23% lower in Beardslee et al., 2013; 39% lower in Stice et al., 2008) compared with being 41% lower for the CB group compared with the brochure control in the present study. The significant reduction in long-term onset of depressive disorders in four efficacy trials, combined with the trend effects of Seligman et al. (1999) and the comparable degree of MDD reduction in the present effectiveness trial seem to provide reliable evidence that CB interventions (a) can markedly reduce MDD onset, but (b) do not produce long-term reductions in mean level of depressive symptoms. That is, rates of MDD onset appear to diverge over time, whereas rates of symptom reductions converge, generally within 6 to 12 months. This pattern of results appears clinically meaningful and important, given that the reduced incidence of future severe psychopathology is the sine qua non of prevention. It has been argued that the observed prophylactic prevention effects are more meaningful than "treatment effects" (i.e., greater depressive symptom reductions) for youth with subthreshold symptoms (Horowitz & Garber, 2006). The inability of CB adolescent depression prevention programs to significantly reduce long-term symptom levels, combined with the lower rates of MDD onset in a general adolescent population, may account for the lack of

significant long-term effects for universal depression prevention interventions with adolescents.

There are several factors that might explain why CB bibliotherapy performed so well in the efficacy trial relative to this effectiveness trial. First, the significant moderational effect suggests that youth who entered the present study with higher depressive symptoms experienced less long-term symptom reductions in CB bibliotherapy compared with the CB group, and perhaps the continued elevation of symptoms created more opportunities in those receiving CB bibliotherapy to escalate into MDD over follow-up. Second, as noted (Rohde et al., 2014), CB bibliotherapy participants in this effectiveness trial read less of the book versus those in the efficacy trial. One facet of effectiveness research is whether an intervention can be successfully delivered in a real-world setting; usage data in the present study suggests that bibliotherapy with minimal support is not sufficiently engaging (e.g., 26% indicated they read at least half the book by 2-year follow-up). More contact from the school staff might have yielded better effects for this intervention, as depression reduction effects of bibliotherapy with adults are stronger for therapist-guided than "pure" bibliotherapy (Gellatly et al., 2007), but that requirement would also place an increased burden on school staff. Third, research found that the CB group did not significantly outperform a nondirective supportive expressive group intervention during follow-up in two efficacy trials (Stice et al., 2007, 2008), suggesting that nonspecific factors unrelated to the CB content also contribute to the effects of the CB group intervention. Consistent with this interpretation, the CB group significantly increased emotional expression and reduced loneliness relative to the brochure control (Stice et al., 2010). Thus, it seems likely that both CB content *and* the emotional support provided in a group intervention are two separate and potent mechanisms for depression prevention, which could each be enhanced for stronger effects. The fourth explanation for the divergent MDD effects for CB bibliotherapy in the two trials is that the effectiveness trial used a simplified recruitment procedure in which students self-selected into the program, whereas research staff in the efficacy trial verified that participants met a higher minimum level of depressive symptoms; it is possible that the less closely controlled recruitment process resulted in a self-selected sample of youth who needed the structured support provided by the CB group intervention to stave off MDD onset and could not benefit solely from self-guided CB bibliotherapy. The higher overall prevalence of MDD in past trials implies that they recruited more disordered youth, which suggests that efficacy trials, with their higher staffing, are better equipped to find and enroll the more at-risk adolescents than is possible in effectiveness research. Considerable attention has focused on the training of providers in effectiveness research, but our study suggests that a crucial "weak link" in effectiveness research (which will also negatively impact dissemination) may be how to successfully identify and engage the youth most in need of depression prevention efforts in real-world settings.

This trial, in which school personnel were responsible for participant recruitment and intervention delivery, is the first indicated prevention effectiveness trial comparing two CB-based interventions with an educational brochure control. It is also the first effectiveness trial evaluating a very brief CB group intervention (i.e., 6 hr of intervention vs. 15 to 21 hr for other programs with successful long-term depression prevention effects); the brevity

of this CB group program could facilitate dissemination if found to be effective. Nonetheless, it is also important to note study limitations. First, all outcomes relied on adolescent self-report. Greater confidence could be placed on the findings if multiple informants or additional, more objective, measures had been used. We did not collect parent-report data for several reasons (e.g., increased burden, difficulties obtaining parental participation), but primarily because adolescents appear to provide the most valid data regarding their depression levels (Cantwell, Lewinsohn, Rohde, & Seeley, 1997). Second, attrition was associated with higher initial substance use, though attrition rates did not differ across conditions at follow-ups, and imputation was used in the continuous measure analyses to preserve power and reduce potential bias. Third, to minimize burden, we did not measure other variables (e.g., comorbid psychopathology) that could function as additional outcomes or moderators; perhaps the most important missing factor was current parental depression, which has been found to attenuate the efficacy of CB prevention interventions for high-risk adolescents (Beardslee et al., 2013; Garber et al., 2009). Fourth, the racial/ethnic composition of the sample reflected the local area but did not allow us to test whether the program works similarly across ethnic groups. Fortunately, previous research suggests that program effects do not significantly differ across racial/ethnic groups (Marchand, Ng, Rohde, & Stice, 2010).

In conclusion, though there are valuable advantages to providing mental health services in school settings (e.g., access to clients, nonstigmatizing environment, convenience for parents), there are also significant challenges, including limited time and resources for mental health care provision and lack of support from administrators (Beidas et al., 2012). The present results suggest that a brief CB group-based prevention program may be more effective than CB bibliotherapy in preventing MDD incidence with high school adolescents in a real-world setting, but did not produce significantly greater MDD prevention effects relative to a minimal brochure control condition, thus failing to replicate a consistent finding from prior efficacy research with this age group. Though important gains are being made in the prevention of adolescent depression, it appears that more scientifically rigorous effectiveness research is needed to realize the ultimate goal of reducing the population prevalence of early onset MDD through prevention.

References

Abayomi, K., Gelman, A., & Levy, M. (2008). Diagnostics for multivariate imputations. *Journal of the Royal Statistical Society Series C, Applied Statistics, 57,* 273–291. http://dx.doi.org/10.1111/j.1467-9876.2007.00613.x

Ackerson, J., Scogin, F., McKendree-Smith, N., & Lyman, R. D. (1998). Cognitive bibliotherapy for mild and moderate adolescent depressive symptomatology. *Journal of Consulting and Clinical Psychology, 66,* 685–690. http://dx.doi.org/10.1037/0022-006X.66.4.685

Aiken, L. S., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions.* Newbury Park, CA: Sage.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.

Arnarson, E. O., & Craighead, W. E. (2011). Prevention of depression among Icelandic adolescents: A 12-month follow-up. *Behaviour Research and Therapy, 49,* 170–174. http://dx.doi.org/10.1016/j.brat.2010.12.008

Bauer, D. J., Sterba, S. K., & Hallfors, D. D. (2008). Evaluating group-based interventions when control participants are ungrouped. *Multivariate Behavioral Research, 43,* 210–236.

Beardslee, W. R., Brent, D. A., Weersing, V. R., Clarke, G. N., Porta, G., Hollon, S. D., . . . Garber, J. (2013). Prevention of depression in at-risk adolescents: Longer-term effects. *Journal of the American Medical Association Psychiatry, 70,* 1161–1170. http://dx.doi.org/10.1001/jamapsychiatry.2013.295

Beidas, R. S., Mychailyszyn, M. P., Edmunds, J. M., Khanna, M. S., Downey, M. M., & Kendall, P. C. (2012). Training school mental health providers to deliver cognitive-behavioral therapy. *School Mental Health, 4,* 197–206.

Bond, L., Patton, G., Glover, S., Carlin, J. B., Butler, H., Thomas, L., & Bowes, G. (2004). The Gatehouse Project: Can a multilevel school intervention affect emotional wellbeing and health risk behaviours? *Journal of Epidemiology and Community Health, 58,* 997–1003. http://dx.doi.org/10.1136/jech.2003.009449

Brière, F. N., Rohde, P., Shaw, H., & Stice, E. (2014). Moderators of two indicated cognitive-behavioral depression prevention approaches for adolescents in a school-based effectiveness trial. *Behaviour Research and Therapy, 53,* 55–62. http://dx.doi.org/10.1016/j.brat.2013.12.005

Burns, D. D. (1980). *Feeling good: The new mood therapy.* New York, NY: William Morrow.

Callahan, P., Liu, P., Purcell, R., Parker, A. G., & Hetrick, S. E. (2012). Evidence map of prevention and treatment interventions for depression in young people. *Depression Research and Treatment, 2012,* 820735. http://dx.doi.org/10.1155/2012/820735

Cantwell, D. P., Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1997). Correspondence between adolescent report and parent report of psychiatric diagnostic data. *Journal of the American Academy of Child & Adolescent Psychiatry, 36,* 610–619. http://dx.doi.org/10.1097/00004583-199705000-00011

Christensen, H., Pallister, E., Smale, S., Hickie, I. B., & Calear, A. L. (2010). Community-based prevention programs for anxiety and depression in youth: A systematic review. *The Journal of Primary Prevention, 31,* 139–170. http://dx.doi.org/10.1007/s10935-010-0214-8

Clarke, G. N., Hawkins, W., Murphy, M., Sheeber, L. B., Lewinsohn, P. M., & Seeley, J. R. (1995). Targeted prevention of unipolar depressive disorder in an at-risk sample of high school adolescents: A randomized trial of a group cognitive intervention. *Journal of the American Academy of Child & Adolescent Psychiatry, 34,* 312–321. http://dx.doi.org/10.1097/00004583-199503000-00016

Clarke, G. N., Hornbrook, M., Lynch, F., Polen, M., Gale, J., Beardslee, W., . . . Seeley, J. (2001). A randomized trial of a group cognitive intervention for preventing depression in adolescent offspring of depressed parents. *Archives of General Psychiatry, 58,* 1127–1134. http://dx.doi.org/10.1001/archpsyc.58.12.1127

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Compas, B. E., Forehand, R., Thigpen, J. C., Keller, G., Hardcastle, E. J., Cole, D. A., . . . Roberts, L. (2011). Family group cognitive-behavioral preventive intervention for families of depressed parents: 18- and 24-month outcomes. *Journal of Consulting and Clinical Psychology, 79,* 488–499. http://dx.doi.org/10.1037/a0024254

Cummings, J. R., & Druss, B. G. (2011). Racial/ethnic differences in mental health service use among adolescents with major depression. *Journal of the American Academy of Child & Adolescent Psychiatry, 50,* 160–170. http://dx.doi.org/10.1016/j.jaac.2010.11.004

Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., . . . Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention Science, 6,* 151–175. http://dx.doi.org/10.1007/s11121-005-5553-y

Garber, J., Clarke, G. N., Weersing, V. R., Beardslee, W. R., Brent, D. A., Gladstone, T. R. G., . . . Iyengar, S. (2009). Prevention of depression in

at-risk adolescents: A randomized controlled trial. *JAMA: Journal of the American Medical Association, 301,* 2215–2224. http://dx.doi.org/10.1001/jama.2009.788

Gellatly, J., Bower, P., Hennessy, S., Richards, D., Gilbody, S., & Lovell, K. (2007). What makes self-help interventions effective in the management of depressive symptoms? Meta-analysis and meta-regression. *Psychological Medicine, 37,* 1217–1228. http://dx.doi.org/10.1017/S0033291707000062

Gillham, J. E., Hamilton, J., Freres, D. R., Patton, K., & Gallop, R. (2006). Preventing depression among early adolescents in the primary care setting: A randomized controlled study of the Penn Resiliency Program. *Journal of Abnormal Child Psychology, 34,* 203–219. http://dx.doi.org/10.1007/s10802-005-9014-7

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology, 60,* 549–576. http://dx.doi.org/10.1146/annurev.psych.58.110405.085530

Gregory, R. J., Schwer-Canning, S., Lee, T. W., & Wise, J. C. (2004). Cognitive bibliotherapy for depression: A meta-analysis. *Professional Psychology: Research and Practice, 35,* 275–280. http://dx.doi.org/10.1037/0735-7028.35.3.275

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,* 401–415. http://dx.doi.org/10.1037/0022-006X.74.3.401

Jaycox, L. H., Reivich, K. J., Gillham, J., & Seligman, M. E. (1994). Prevention of depressive symptoms in school children. *Behaviour Research and Therapy, 32,* 801–816. http://dx.doi.org/10.1016/0005-7967(94)90160-0

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2011). *Monitoring the Future national results on adolescent drug use: Overview of key findings, 2010.* Ann Arbor, MI: Institute for Social Research, the University of Michigan.

Jorm, A. F. (2014). Improving the mental health of the population: Where to next? *The Medical Journal of Australia, 201,* 23–24. http://dx.doi.org/10.5694/mja14.00509

Klein, D. N., Torpey, D. C., & Bufferd, S. J. (2008). Depressive disorders. In T. P. Beauchaine & S. P. Hinshaw (Eds.), *Child and adolescent psychopathology* (pp. 477–509). Hoboken, NJ: John Wiley & Sons.

Lewinsohn, P. M., Roberts, R. E., Seeley, J. R., Rohde, P., Gotlib, I. H., & Hops, H. (1994). Adolescent psychopathology: II. Psychosocial risk factors for depression. *Journal of Abnormal Psychology, 103,* 302–315. http://dx.doi.org/10.1037/0021-843X.103.2.302

Lipsey, M. W., & Wilson, D. B. (2001). *Practical meta-analysis.* Thousand Oaks, CA: Sage.

Malouff, J., & Rooke, S. (2007). Empirically supported self-help books. *Behavior Therapist, 30,* 129–131.

Marchand, E., Ng, J., Rohde, P., & Stice, E. (2010). Effects of an indicated cognitive-behavioral depression prevention program are similar for Asian American, Latino, and European American adolescents. *Behaviour Research and Therapy, 48,* 821–825. http://dx.doi.org/10.1016/j.brat.2010.05.005

Merry, S. N., Hetrick, S. E., Cox, G. R., Brudevold-Iversen, T., Bir, J. J., & McDowell, H. (2011). Psychological and educational interventions for preventing depression in children and adolescents. *Cochrane Database of Systematic Reviews, 12,* CD003380. http://dx.doi.org/10.1002/14651858.CD003380.pub3

Muratori, F., Picchi, L., Bruni, G., Patarnello, M., & Romagnoli, G. (2003). A two-year follow-up of psychodynamic psychotherapy for internalizing disorders in children. *Journal of the American Academy of Child & Adolescent Psychiatry, 42,* 331–339. http://dx.doi.org/10.1097/00004583-200303000-00014

National Institute of Mental Health. (2001). "Let's talk about depression" (NIH Publication No. 01-4162). Bethesda, MD: Office of Communications and Public Liaison, NIMH.

Pössel, P., Horn, A. B., Groen, G., & Hautzinger, M. (2004). School-based prevention of depressive symptoms in adolescents: A 6-month follow-up. *Journal of the American Academy of Child & Adolescent Psychiatry, 43,* 1003–1010. http://dx.doi.org/10.1097/01.chi.0000126975.56955.98

Puig-Antich, J., & Chambers, W. J. (1983). *Schedule for affective disorders and schizophrenia for school-age children (6–18 years).* Pittsburgh, PA: Western Psychiatric Institute.

Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 385–401.

Raghunathan, T. E., Solenberger, P., & Van Hoewyk, J. (2002). *IVEware: Imputation and variance estimation software users guide.* University of Michigan: Survey Research Center, Institute for Social Research.

Riper, H., Andersson, G., Hunter, S. B., de Wit, J., Berking, M., & Cuijpers, P. (2014). Treatment of comorbid alcohol use disorders and depression with cognitive-behavioural therapy and motivational interviewing: A meta-analysis. *Addiction, 109,* 394–406. http://dx.doi.org/10.1111/add.12441

Rohde, P., Stice, E., Gau, J. M., & Marti, C. N. (2012). Reduced substance use as a secondary benefit of indicated adolescent depression prevention. *Psychology of Addictive Behaviors: Journal of the Society of Psychologists in Addictive Behaviors, 26,* 599–608. http://dx.doi.org/10.1037/a0028269

Rohde, P., Stice, E., Shaw, H., & Brière, F. N. (2014). Indicated cognitive behavioral group depression prevention compared to bibliotherapy and brochure control: Acute effects of an effectiveness trial with adolescents. *Journal of Consulting and Clinical Psychology, 82,* 65–74. http://dx.doi.org/10.1037/a0034640

Rosnow, R. L., & Rosenthal, R. (2008). Assessing the effect size of outcome research. In A. M. Nezu & C. M. Nezu (Eds.), *Evidence-based outcome research: A practical guide to conducting randomized controlled trials for psychosocial interventions* (pp. 379–401). New York, NY: Oxford University Press.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys.* New York, NY: Wiley. http://dx.doi.org/10.1002/9780470316696

SAS Institute Inc. (2011). *SAS/STAT user's guide – Procedures.* Cary, NC: Author.

Seligman, M. E., Schulman, P., DeRubeis, R. J., & Hollon, S. D. (1999). The prevention of depression and anxiety. *Prevention & Treatment, 2*(1), 8a.

Seligman, M. E., Schulman, P., & Tryon, A. M. (2007). Group prevention of depression and anxiety symptoms. *Behaviour Research and Therapy, 45,* 1111–1126. http://dx.doi.org/10.1016/j.brat.2006.09.010

Spence, S. H., Sheffield, J. K., & Donovan, C. L. (2003). Preventing adolescent depression: An evaluation of the problem solving for life program. *Journal of Consulting and Clinical Psychology, 71,* 3–13.

Stice, E., Barrera, M., Jr., & Chassin, L. (1998). Prospective differential prediction of adolescent alcohol use and problem use: Examining the mechanisms of effect. *Journal of Abnormal Psychology, 107,* 616–628. http://dx.doi.org/10.1037/0021-843X.107.4.616

Stice, E., Burton, E., Rohde, P., & Bearman, S. K. (2007). Randomized trial of a brief depression prevention program: An elusive search for a psychosocial placebo control condition. *Behaviour Research and Therapy, 45,* 863–876. http://dx.doi.org/10.1016/j.brat.2006.08.008

Stice, E., Hayward, C., Cameron, R. P., Killen, J. D., & Taylor, C. B. (2000). Body-image and eating related factors predict onset of depression among female adolescents: A longitudinal study. *Journal of Abnormal Psychology, 109,* 438–444. http://dx.doi.org/10.1037/0021-843X.109.3.438

Stice, E., Rohde, P., Gau, J. M., & Wade, E. (2010). Efficacy trial of a brief cognitive-behavioral depression prevention program for high-risk adolescents: Effects at 1- and 2-year follow-up. *Journal of Consulting and Clinical Psychology, 78,* 856–867. http://dx.doi.org/10.1037/a0020544

Stice, E., Rohde, P., Seeley, J. R., & Gau, J. M. (2008). Brief cognitive-behavioral depression prevention program for high-risk adolescents outperforms two alternative interventions: A randomized efficacy trial. *Journal of Consulting and Clinical Psychology, 76,* 595–606. http://dx .doi.org/10.1037/a0012645

Stice, E., Shaw, H., Bohon, C., Marti, C. N., & Rohde, P. (2009). A meta-analytic review of depression prevention programs for children and adolescents: Factors that predict magnitude of intervention effects. *Journal of Consulting and Clinical Psychology, 77,* 486–503. http://dx.doi .org/10.1037/a0015168

Wahl, M. S., Adelson, J. L., Patak, M. A., Pössel, P., & Hautzinger, M. (2014). Teachers or psychologists: Who should facilitate depression prevention programs in schools? *International Journal of Environmental Research and Public Health, 11,* 5294–5316. http://dx.doi.org/10.3390/ ijerph110505294

Weersing, V. R., Iyengar, S., Kolko, D. J., Birmaher, B., & Brent, D. A. (2006). Effectiveness of cognitive-behavioral therapy for adolescent depression: A benchmarking investigation. *Behavior Therapy, 37,* 36–48. http://dx.doi.org/10.1016/j.beth.2005.03.003

Weissman, M. M., Orvaschel, H., & Padian, N. (1980). Children's symptom and social functioning self-report scales. Comparison of mothers' and children's reports. *Journal of Nervous and Mental Disease, 168,* 736–740. http://dx.doi.org/10.1097/00005053-198012000-00005

Weist, M. D., Goldstein, J., Evans, S. W., Lever, N. A., Axelrod, J., Schreters, R., & Pruitt, D. (2003). Funding a full continuum of mental health promotion and intervention programs in the schools. *Journal of Adolescent Health, 32*(Suppl.), 70–78. http://dx.doi.org/10.1016/S1054-139X(03)00067-3

Correction to Grilo et al. (2015)

In the article "Predicting Meaningful Outcomes to Medication and Self-Help Treatments for Binge-Eating Disorder in Primary Care: The Significance of Early Rapid Response" by Carlos M. Grilo, Marney A. White, Robin M. Masheb, and Ralitza Gueorguieva (*Journal of Consulting and Clinical Psychology*, 2015, Vol. 83, No. 2, pp. 387–394. http://dx.doi.org/10.1037/a0038635), the axis labels are missing on Figure 3. A corrected figure appears below.
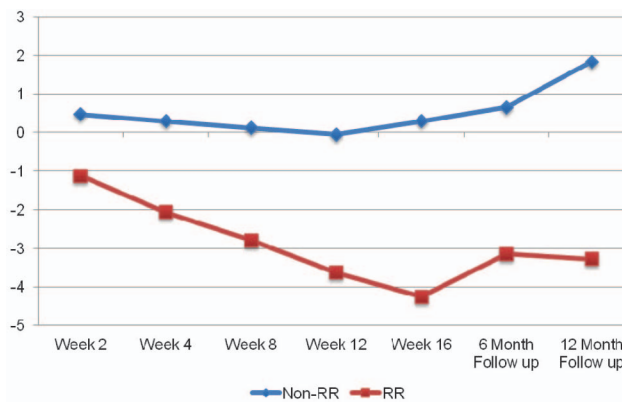
Figure 3. Percent weight loss by rapid response status. Percent weight by participants with rapid response versus without rapid response monthly during the course of treatment and at 6- and 12-month posttreatment follow-up assessments. The data shown are based on estimated marginal means (derived from mixed-models analyses) for all 104 participants. See the online article for the color version of this figure.

http://dx.doi.org/10.1037/ccp0000043