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Effect of a Cognitive-Behavioral Prevention Program on Depression 6 Years After Implementation Among At-Risk Adolescents: A Randomized Clinical Trial.

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Effect of a Cognitive-Behavioral Prevention Program on Depression 6 Years After Implementation Among At-Risk Adolescents:

A Randomized Clinical Trial

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Study concept and design: Brent, Brunwasser, Weersing, Clarke, Beardslee, Gladstone, Lynch, Iyengar, Garber.

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Abstract

IMPORTANCE—Adolescents whose parents have a history of depression are at risk for developing depression and functional impairment. The long-term effects of prevention programs on adolescent depression and functioning are not known.

OBJECTIVE—To determine whether a cognitive-behavioral prevention (CBP) program reduced the incidence of depressive episodes, increased depression-free days, and improved developmental competence 6 years after implementation.

DESIGN, SETTING, AND PARTICIPANTS—A 4-site randomized clinical trial compared the effect of CBP plus usual care vs usual care, through follow-up 75 months after the intervention (88% retention), with recruitment from August 2003 through February 2006 at a health maintenance organization, university medical centers, and a community mental health center. A total of 316 participants were 13 to 17 years of age at enrollment and had at least 1 parent with current or prior depressive episodes. Participants could not be in a current depressive episode but had to have subsyndromal depressive symptoms or a prior depressive episode currently in remission. Analysis was conducted between August 2014 and June 2015.

INTERVENTIONS—The CBP program consisted of 8 weekly 90-minute group sessions followed by 6 monthly continuation sessions. Usual care consisted of any family-initiated mental health treatment.

MAIN OUTCOMES AND MEASURES—The Depression Symptoms Rating scale was used to assess the primary outcome, new onsets of depressive episodes, and to calculate depression-free days. A modified Status Questionnaire assessed developmental competence (eg, academic or interpersonal) in young adulthood.

RESULTS—Over the 75-month follow-up, youths assigned to CBP had a lower incidence of depression, adjusting for current parental depression at enrollment, site, and all interactions (hazard ratio, 0.71 [95% CI, 0.53–0.96]). The CBP program's overall significant effect was driven by a lower incidence of depressive episodes during the first 9 months after enrollment. The CBP program's benefit was seen in youths whose index parent was not depressed at enrollment, on depression incidence (hazard ratio, 0.54 [95% CI, 0.36–0.81]), depression-free days ($d = 0.34$, $P = .01$), and developmental competence ($d = 0.36$, $P = .04$); these effects on developmental competence were mediated via the CBP program's effect on depression-free days.

CONCLUSIONS AND RELEVANCE—The effect of CBP on new onsets of depression was strongest early and was maintained throughout the follow-up period; developmental competence was positively affected 6 years later. The effectiveness of CBP may be enhanced by additional booster sessions and concomitant treatment of parental depression.

Depression is the leading cause of disability worldwide and commonly begins in adolescence.^{1,2} Prevention is one viable strategy for reducing the population burden of depression because most depressed adolescents do not receive specialty mental health treatment³ and because untreated depression is associated with enduring deleterious effects on interpersonal relationships, educational attainment, and occupational status.^{4–6}

Single-site studies have demonstrated the efficacy of an adaptation of the Coping with Depression for Adolescents intervention in preventing the onset of depression relative to usual care in adolescents with subsyndromal depressive symptoms and in those with a parental history of depression.⁷⁻⁹ These results were replicated in our 4-site randomized clinical trial of 316 high-risk adolescents randomly assigned to either an adaptation of the Coping with Depression for Adolescents (cognitive-behavioral prevention [CBP]) plus usual care or usual care alone, which found a lower incidence of depressive episodes at 9 and 33 months after enrollment in those who received CBP.^{10,11} Current depression in the index parent at the baseline assessment moderated outcome, with intervention effects found for those youths whose parents were not currently depressed at the time of enrollment.^{10,11}

The CBP program also resulted in better scores on a global measure of functioning 33 months from intake, mediated through a reduction of days with depression (S.M.B, J.G., V.R.W., G.N.C., W.R.B., D.A.B., T.R.G., G.P., F.L.L., and S.D.H., unpublished data, 2015). Whereas the short-term efficacy of depression prevention programs and the broader long-term effects of preventive interventions for at-risk families have been demonstrated,¹²⁻¹⁴ to our knowledge, no study has examined whether the effect of a depression prevention program extends over a period as long as 6 years,^{15,16} particularly spanning the transition from adolescence to young adulthood. Therefore, the present study assessed the extent and duration of CBP's effects on onsets of new depressive episodes and on developmental competency at the end of a 6-year follow-up. We hypothesized that those who received CBP would have a lower hazard of depression onsets and better developmental competence during emerging adulthood. Furthermore, we posited that CBP's effect on depressive onsets and developmental competence would be moderated by the index parent's depression status at study enrollment, and that CBP's effect on developmental competence would be mediated through an increase in depression-free days.

Methods

Participants

The sample of 316 adolescents was recruited at 4 sites (Van-derbilt University, Nashville, Tennessee; Judge Baker Children's Center/Children's Hospital, Boston, Massachusetts; University of Pittsburgh, Pittsburgh, Pennsylvania; and Kaiser Permanente Center for Health Research, Portland, Oregon) between August 2003 and February 2006. Institutional review boards at the respective sites approved the study (Trial Protocol in Supplement 1). For all participants, recruited by site coordinators, assent and written parental consent was obtained; written informed consent was obtained from participants older than 18 years. The initial sample consisted of participants 13 to 17 years of age who had at least 1 parent or caretaker ("index parent") with major depression or dysthymia in the last 3 years, or a depressive disorder with at least 3 recurrences, or a depressive episode of at least 3 years' duration during the adolescent's life; 45.4% of index parents were in a current depressive episode at baseline. Adolescents themselves had a previous depressive episode that was currently in remission for 2 months or longer (55.4%), or had current sub-syndromal depressive symptoms (ie, a score of ≥ 20 on the Center for Epidemiological Studies of Depression Scale [CES-D]¹⁷) (19.9%), or both (24.7%). Siblings were allowed to participate and were yoked

in terms of randomization; 33 sets of siblings, including 1 set of triplets, participated. Adolescents were excluded from our study if they met diagnostic criteria for a current major depressive episode or dysthymia, had lifetime bipolar disorder or schizophrenia, were receiving a therapeutic dose of an antidepressant, or had previously had 8 or more sessions of cognitive-behavioral therapy or dialectical behavior therapy.

Randomization

Participants were randomized centrally at the Pittsburgh site by a computer program to either CBP plus usual care or usual care alone, using Efron's biased coin toss to balance across cells and sites on age, sex, self-identified ethnicity and race, and inclusion criteria.^{18,19} The 2 intervention arms, referred to hereafter as simply CBP and usual care, were similar with regard to the above-noted variables, as well as other relevant clinical variables across conditions.^{10,11}

Intervention

The CBP program is a modification of the Coping with Depression for Adolescents program⁷⁻⁹ that emphasizes cognitive re-structuring and problem solving, delivered in a structured, educational format that allows for adolescents to practice these skills. The CBP program was delivered in 8 weekly 90-minute group sessions, followed by 6 monthly booster sessions; participants assigned to CBP attended an average of 6.5 acute sessions (median, 8.0; range, 0-8) and an average of 3.8 booster sessions (median, 5.0; range, 0-6). There were informational sessions for parents at weeks 1 and 8, attended by at least one of the adolescents' parents (76.4% and 70.9%, respectively). Group leaders were at least masters' level therapists supervised by doctoral-level clinicians; fidelity to the model was found across all sites.¹⁰ Participants in both intervention arms were permitted to seek outside services. Participants who evidenced a depressive episode were provided with referral information.

Assessments

Assessments were conducted at baseline, at the end of the acute intervention (3 months), at the end of the continuation phase (9 months), and at 21, 33, and 75 months after enrollment, with final assessments completed by January 2013. Independent evaluators blind to intervention condition conducted the assessments, with a demonstrated high level of interrater reliability.¹⁰

Index parents were assessed at baseline using the Structured Clinical Interview for *DSM-IV* Diagnosis Axis I Disorders, Patient Edition (SCID-I/P), with respect to current and past mood disorders and total number and duration of episodes.²⁰ Parents' self-reported depression during the previous week was assessed with the CES-D.¹⁷

Adolescents were assessed for present and lifetime *DSM-IV* diagnoses using the Schedule for Schizophrenia and Affective Disorders for School-Age Children—Present and Lifetime Version,²¹ except for the final follow-up, when the SCID-I/P was used.²⁰ At all follow-ups, the onset and duration of depressive symptoms were assessed using the Longitudinal Interview for Follow-up Evaluation,²² with severity and impairment rated on a 6-point

Depression Symptom Rating (DSR) scale (eTable 1 in Supplement 2). The DSR scale provided the primary outcome (ie, onset of depressive episode, defined as a DSR score of 4 for at least 2 weeks). The DSR scale showed good interrater reliability ($\kappa = 0.92$ [95% CI, 0.83–1.00]) among 75 participants.

The DSR scale was used to calculate depression-free days (DFDs), which has become a more commonly used metric in depression intervention studies.^{23–25} For each week from baseline to the 75-month follow-up, participants' DSR scores were converted to depression weights of 0.00 (DSR score of 1 [ie, no depressive symptoms]), 0.33 (DSR score of 2), 0.66 (DSR score of 3), or 1.00 (DSR score of 4 [ie, depressive episode]). Weekly depression weights were multiplied by 7 and summed to estimate the number of days in depression. The DFDs were calculated by subtracting the total number of days in depression from the total number of days in follow-up.

At each assessment, self-reported and interview-rated depressive symptoms were obtained using the CES-D and the Children's Depression Rating Scale–Revised (CDRS-R), respectively.^{26,27} Global functioning for the previous 2 weeks was assessed using the Children's Global Assessment Scale (C-GAS) at prior time points and the Global Assessment Scale (GAS) at the 75-month time point.^{28,29} Usual care in both intervention arms was assessed using the Child and Adolescent Services Assessment.³⁰

At 75 months, developmental competence in emerging adulthood was assessed using a 16-item self-report version of the Status Questionnaire (SQ).^{31–34} (eTable 2 in Supplement 2). All questions were rated on a Likert scale, with 0 indicating the lowest level of competence, and 4 the highest. The SQ included questions about educational and occupational attainment, romantic relationships, family and peers relationships, citizenship, and life satisfaction. Internal consistency for the total scale was good (Cronbach $\alpha = .76$ [95% CI, .70–.80]).

Data Analytic Strategy

As in our recent follow-up study,¹¹ we compared the goodness of fit for Cox regression and gamma frailty models to test the effect of CBP on time to depression onset. The fit for the 2 sets of models was similar; therefore, we report results of the more parsimonious Cox regression model. Random-effects regression analyses were used to assess the effects of CBP on continuous measures of depression from baseline to month 75. We used the Yekutieli multiple test procedure to adjust for multiple comparisons for all post hoc comparisons, in which a $q < .05$ was considered statistically significant.^{35–37} We included a term for sibling clustering in all models. We tested for moderation of CBP effects for an index parent depressed at baseline and for site, in keeping with previous findings and the extant literature.^{38–40}

Moderation and Moderated-Mediation Analyses

To obtain a zero-skewed variable, DFDs were ln-transformed using the `lnskew0` command in Stata (StataCorp): $\text{lnskew0 (DFD)} = \ln (-\text{DFDs} + 2246.67)$. Path analyses were

conducted to determine whether Inskew(DFD)mediated the effect of CBP on developmental competence (eFigure in Supplement 2).

Results

Sample Retention and Comparison of Intervention Groups

Figure 1 presents the Consolidated Standards of Reporting Trials diagram for this follow-up period. At month 75, we assessed 88% of recruited participants (mean [SD] age, 21.2 [1.1] years; range, 18–25 years), including 29 participants who had not been assessed at month 33. At the 75-month evaluation, there were no differences between those retained vs those lost to follow-up with respect to age, sex, race, ethnicity, sibling status, parent employment, adolescent depression severity or past episodes, index parent depression at baseline (IPDB), or intervention group (all $P > .07$, all $q > .99$). In the retained sample, there were no significant differences by intervention condition or site with respect to baseline variables, retention, or follow-up duration (eTables 3 and 4 in Supplement 2).

Main Effect of CBP vs Usual Care

The participants who received CBP had a significantly lower hazard ratio (HR) for depression onset relative to the participants who received usual care (HR, 0.76 [95% CI, 0.58–0.996]; $z = -1.99$; $P = .05$). Differences in the overall incidence of depressive episodes in participants who received CBP vs those who received usual care (61.9% vs 70.5%, respectively; $\chi^2_1 = 2.56$; $P = .11$) and in the mean(SD)number of DFDs (1893 [400.5] vs 1862 [184.9] days, respectively; $z = 1.67$; $P = .09$; $d = 0.10$) were not significant.

Moderator Analyses

Index parent depression at baseline was a significant moderator of the intervention effect (HR, 1.89 [95% CI, 1.10–3.25]; $z = 2.29$; $P = .02$). For those participants with no IPDB, CBP resulted in a lower HR of incident depression compared with usual care (52.6% vs 71.3%; HR, 0.54 [95% CI, 0.36–0.81]; $z = -2.99$; $P = .003$) (Figure 2A) and in a significantly greater mean (SD) number of DFDs (1957.4 [361.0] vs 1821.8 [442.7] days; $z = 2.84$; $P = .01$; $d = 0.34$). For those with an IPDB, the intervention effect was not significant (CBP vs usual care, respectively) on the incidence of depressive episodes (71.4% vs 70.0%; HR, 1.04 [95% CI, 0.72–1.50]; $z = 0.20$; $P = .84$) (Figure 2B) or on the mean number(SD) of DFDs (1827.8 [429.3] vs 1904 [310.2] days; $z = -0.54$; $P = .59$; $d = -0.20$).

Table 1 reports the Cox model comprising main effects and all higher-order interactions for condition (CBP vs usual care), IPDB, and site. Pooling the data across sites, we found a significant effect of CBP (HR, 0.71 [95% CI, 0.53–0.96]; $z = -2.24$; $P = .03$) and a significant interaction of IPDB by site ($P = .03$), but no other significant 2- or 3-way interactions (all $P > .07$). Neither of the study inclusion criteria—high CES-D score (HR, 0.77 [95% CI, 0.39–1.54]; $z = -0.73$; $P = .46$) or a past depressive disorder (HR, 0.69 [95% CI, 0.29–1.66]; $z = -0.82$; $P = .41$)—moderated the intervention outcome.

Duration of Effect of CBP vs Usual Care

We divided follow-up periods into 3 intervals, based on previous follow-up time points (months 0–9, 10–33, and 34–75) and examined the hazard of depression onsets during each interval. Those who received CBP had a lower incidence (new onsets) of depression during the 0- to 9-month interval (HR, 0.64 [95% CI, 0.41–0.99]; $z = -2.00$; $P = .05$) but not during the next 2 intervals (all $P > .26$) (Table 2). Participants without an IPDB largely drove this effect; analyses using DFDs as an outcome showed similar results (Table 3).

Self- and Interview-Rated Depression

Random-effects regression analyses indicated a significant effect of CBP over time on the CES-D ($\beta = -1.60$ [95% CI, -3.20 to 0.01]; $z = -1.95$; $P = .05$), but not on the CDRS-R ($\beta = -1.18$ [95% CI, -2.79 to 0.43]; $z = -1.43$; $P = .15$). These different results may be because a high CES-D score, but not a high CDRS-R score, was one of the inclusion criteria for participants. There was no evidence of moderation by IPDB, site, or inclusion criteria on these measures.

Service Use

No significant differences were found between intervention groups at each time interval (0–9, 10–33, and 34–75 months) or overall with respect to outpatient, inpatient, school-based, or juvenile court treatment, or by treatment modality (antidepressant or psychotherapy) (eTables 5 and 6 in Supplement 2).

Global Functioning

Over the total follow-up period, there were significant intervention effects over time on the C-GAS and GAS scores ($\beta = 2.23$ [95% CI, 0.56 – 3.91]; $z = 2.61$; $P = .01$); at month 75, the mean (SD) GAS score was similar between groups (75.8 [11.6] for participants who received CBP vs 75.3 [11.1] for those who received usual care; $t_{275} = -0.33$; $P = .74$; $d = -0.04$). There were no moderating effects of IPDB ($\beta = 2.40$ [95% CI, -0.95 to 5.75]; $z = 1.41$; $P = .16$) or site ($\chi^2_3 = 3.30$; $P = .35$) on global functioning.

Developmental Competence

The main effect of intervention on developmental competence was not significant (mean [SD] SQ score: 43.9 [7.1] for participants who received CBP vs 43.6 [7.9] for those who received usual care; $t_{250} = 0.30$; $P = .76$; $d = 0.04$). There was a significant moderating effect of IPDB ($\beta = -5.06$ [95% CI, -8.86 to -1.26]; $t = -2.62$; $P = .01$) but not site ($F_{3228} = 1.12$; $P = .34$). For youths without an IPDB, developmental competence was significantly higher for those who received CBP vs usual care (mean [SD] SQ score: 44.9 [6.8] vs 42.3 [7.8], respectively; $t_{130} = 2.30$; $P = .04$; $d = 0.36$); the difference in developmental competence between adolescents who had an IPDB and received CBP vs those who had an IPDB and received usual care was not significant (mean [SD] SQ score: 42.7 [7.4] vs 45.1 [7.7], respectively; $t_{118} = 1.72$; $P = .09$; $d = -0.32$).

Moderated-Mediation Analysis

Path analyses revealed a significant direct effect of $\ln\text{skew0(DFD)}$ on developmental competence regardless of IPDB status at enrollment (all $P < .001$) (Figure 3). The indirect effect of CBP on competence at 75 months through $\ln\text{skew0(DFD)}$ was significant when current parental depression was absent:

$$\hat{a}_1 \hat{b}_1^{\text{IPDB}=0} = 1.34 (95\% \text{CI}, 0.44 - 2.40),$$

but not when current parental depression was present at baseline:

$$\hat{a}_1 \hat{b}_1^{\text{IPDB}=1} = -0.26 (95\% \text{CI}, -1.19 \text{ to } 0.62)$$

(eFigure in Supplement 2), thus indicating the presence of moderated mediation.

Discussion

We found a sustained benefit of CBP on the prevention of depression among at-risk youths more than 6 years after the implementation of the intervention. The strongest differential effects of CBP on the prevention of new onsets of depression occurred within the first 9 months from enrollment, which translated to longer-term benefits for youths with respect to developmental competence during early adulthood. These positive effects on both depressive episodes and developmental competence were present only for youths whose index parent was not depressed at the time of the baseline evaluation. Furthermore, in this subgroup, the positive effect of CBP on developmental competence assessed 6 years after the intervention was mediated by its effect on DFDs. To our knowledge, this is the first demonstration of the long-term benefits of a program to prevent adolescent depression, which also resulted in more adaptive developmental competence.

We found that, even 6 years after the intervention, the overall hazard of depression was lower for the adolescents who received CBP than for those who received usual care. This preventive effect largely was driven by the significant difference in new onsets of depression during the first 9 months after enrollment, after which the risk of new onsets of depressive episodes was similar in both groups. That is, the differences that emerged over the first 9 months following enrollment largely were maintained across the remainder of the follow-up, with the overall lower incidence of depression attributable to preventive CBP effects that occurred during the first 9 months after enrollment. Thus, the effects of the intervention on depressive episodes appear to have occurred early and were maintained over 6 years.

Two different measures of functioning, the SQ and the GAS (or C-GAS for previous time points), detected positive effects of CBP. The SQ is a self-rated measure of the attainment of specific developmental goals and reflects stable aspects of functioning achieved over a long period of time. The SQ, assessed only at 75 months, found effects favoring CBP, moderated by parent depression at baseline. The GAS is rated by an interviewer and assesses an overall impression of functioning for the 2 weeks prior to each assessment point. With the GAS, there were overall slope effects favoring CBP over time, without evidence of moderation of

parental depression, but the mean 75-month GAS scores were not different between the 2 groups. The SQ and GAS scores were correlated at 75 months ($r = 0.55$), and discrepant findings at this time point could be explained by differences in content, time frame queried, and reporter. Nevertheless, the effect of CBP on both the GAS and SQ scores was mediated by the effect of the intervention on the prevention of days in depression and on DFDs, respectively. Thus, the prevention of depression is important not only for symptom relief but also for the promotion of adaptive functioning.

We have previously reported that current parental depression moderated the effect of CBP on adolescents' depressive outcomes.^{10,11} Other studies have demonstrated the negative effect of parental (often maternal) depression on children's symptoms, functioning, and treatment outcomes.³⁹⁻⁴³ Conversely, interventions that treat parental depression to remission are associated with improvements in children's symptoms and their response to treatment.^{43,44} One promising depression prevention program that increases the level of parental warmth and improves children's use of secondary control coping⁴⁵⁻⁴⁷ showed some short-term effects on reducing parents' depressive symptoms, which may have contributed to the overall efficacy of the program.^{48,49}

The strengths of the present study include a large sample size, randomization with no significant group differences at baseline, good adherence to the intervention protocol, a long period of follow-up with high participant retention, and a reliable and clinically meaningful outcome measure. The limitations to generalizability are that the sample was highly selected and the intervention was conducted with skilled and well-supervised clinicians. A limitation of our findings about developmental competence was that this measure was only obtained at the final assessment.

Conclusions

Overall, these findings demonstrate the effectiveness of CBP for preventing depression and promoting competence, but they also highlight 3 potential improvements to CBP. First, the main beneficial effect on the onset of new depression episodes occurred over the course of the intervention, suggesting that booster sessions might help extend these effects on new onsets even further in time. Second, CBP was not effective if the index parent was depressed at baseline, highlighting the possible importance of treating parental depression, either prior to or concomitant with their children's participation in the CBP program. Third, CBP is focused exclusively on the adolescent. Interventions that also improve parenting and the quality of the parent-child relationship have been shown to have long-lasting benefits on a range of both externalizing and internalizing symptoms.^{12,13} Nevertheless, the current findings showed that CBP forms the basis of a promising intervention and that the prevention of depression is possible and can have longer-term developmental consequences.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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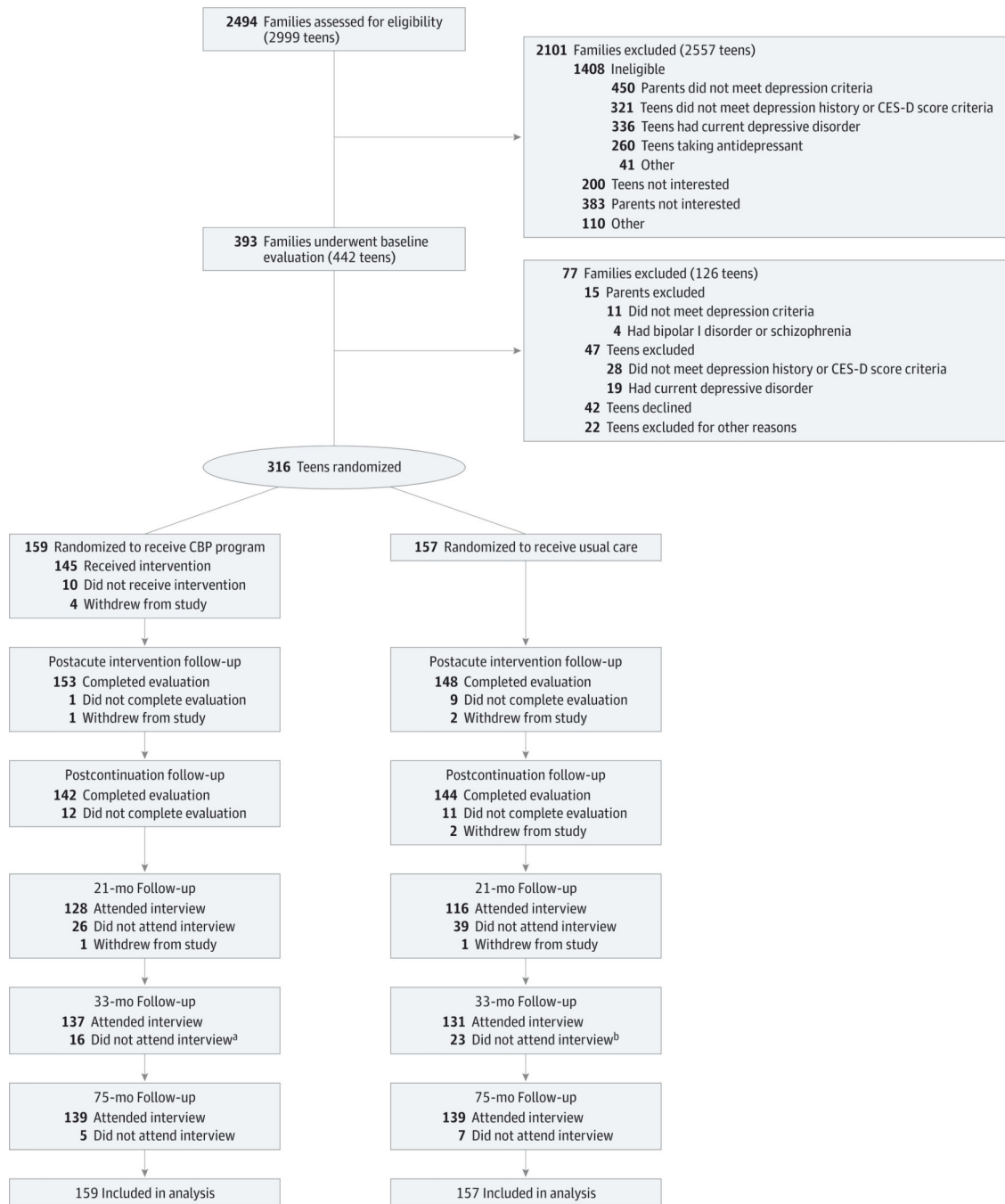


Figure 1. Consolidated Standards of Reporting Trials Diagram of Flow of Participants From Screening to Analysis

CES-D indicates Center for Epidemiological Studies of Depression Scale.

^a Of these 16 adolescents, 13 completed the 75-month (6-year) follow-up.

^b Of these 23 adolescents, 16 completed the 75-month (6-year) follow-up.

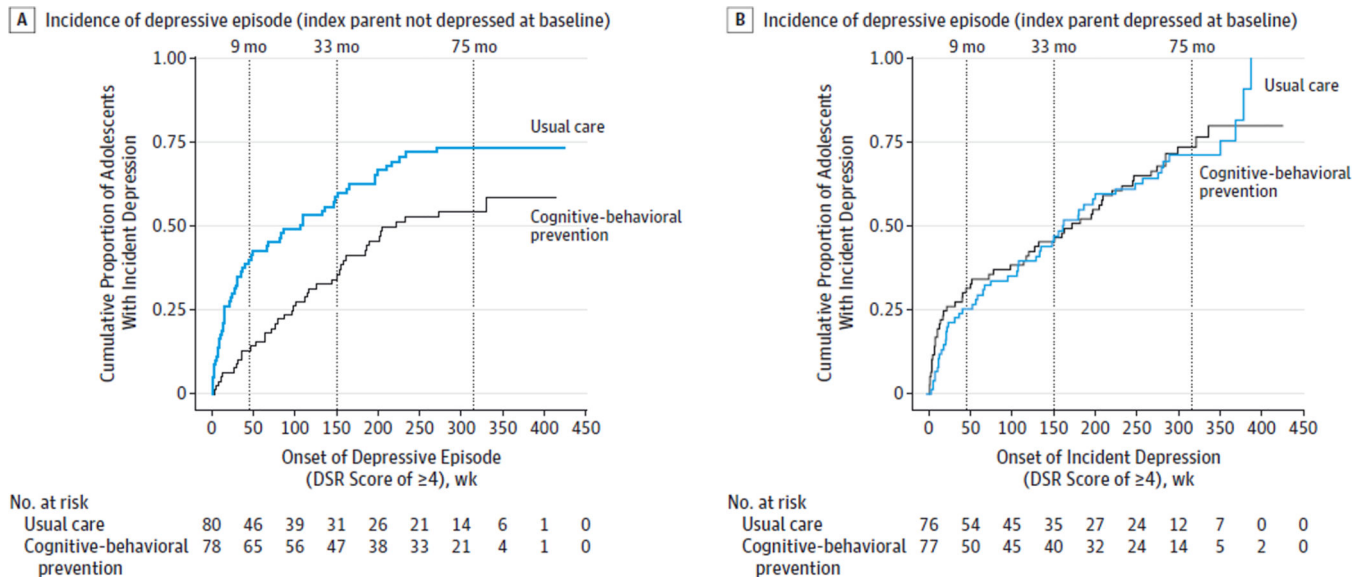


Figure 2.
Parental Depression at Baseline Evaluation as Moderator of Primary Outcome (Time to Onset of a Depressive Episode)

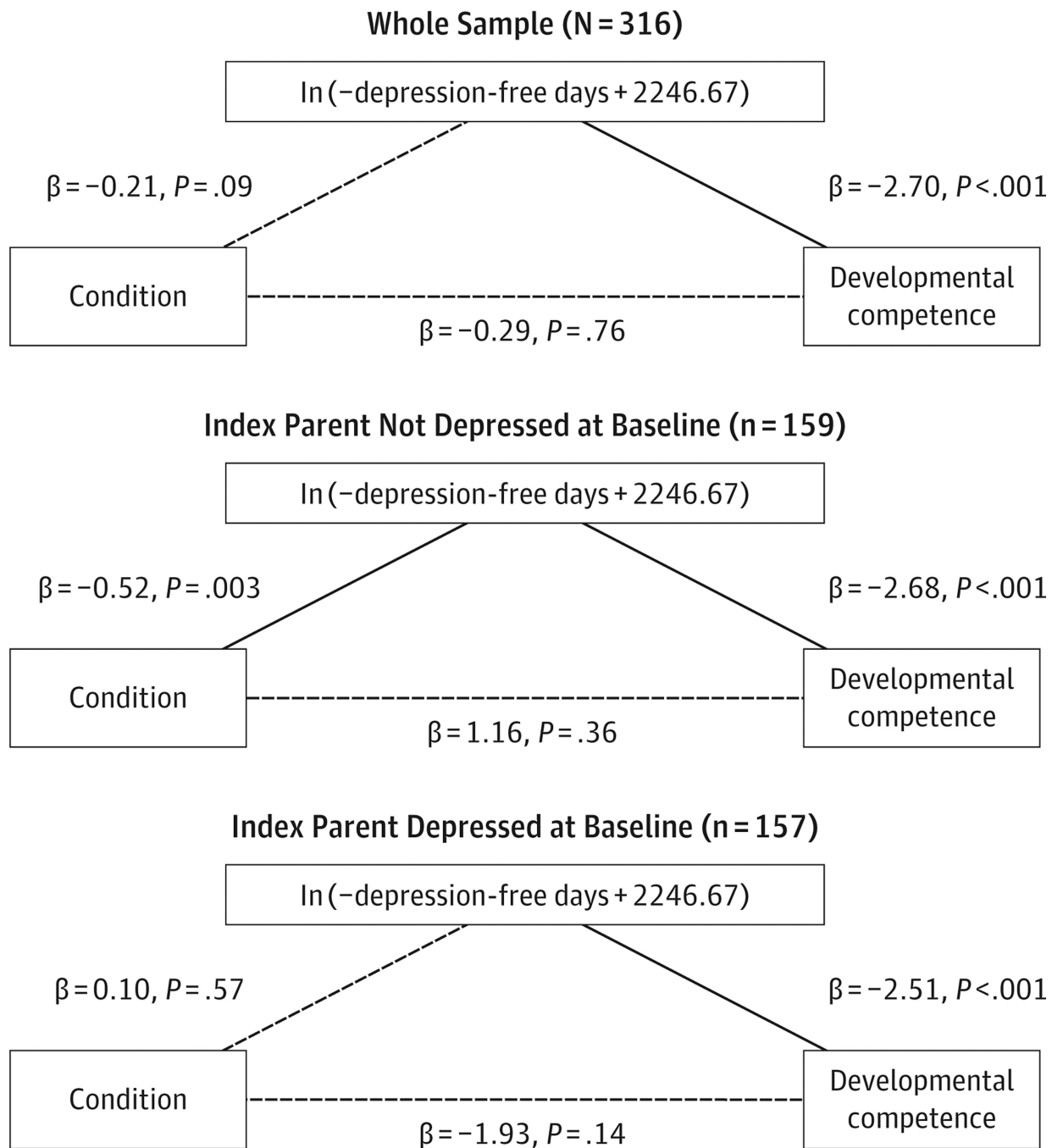


Figure 3. Moderation/Moderated-Mediation Analysis of Developmental Competence
Solid lines indicate statistically significant paths, and dashed lines represent nonstatistically significant paths.

Table 1

Cox Model for Condition, Index Parent Depressed at Baseline (IPDB), and Site

Variable	Hazard Ratio (95% CI)	χ^2 Test or z Score	P Value
Condition	0.24 (0.11–0.50)	$z = -3.81$	<.001
IPDB	0.51 (0.26–1.01)	$z = -1.93$	.05
Site		$\chi^2_3 = 5.14$	.16
Site 1 ^a	0.49 (0.22–1.11)	$z = -1.70$	.09
Site 3 ^a	0.44 (0.21–0.94)	$z = -2.12$	.03
Site 4 ^a	0.64 (0.27–1.51)	$z = -1.01$	.31
Condition by IPDB	2.03 (0.60–6.82)	$z = 1.15$	.25
Condition by site		$\chi^2_3 = 7.21$	.07
Condition by site 1	3.33 (0.91–12.13)	$z = 1.82$	.07
Condition by site 3	3.79 (1.33–10.84)	$z = 2.49$	.01
Condition by site 4	2.62 (0.82–8.37)	$z = 1.63$	.10
IPDB by site ^a		$\chi^2_3 = 9.14$	.03
IPDB by site 1	4.53 (1.62–12.70)	$z = 2.87$	.004
IPDB by site 3	1.53 (0.55–4.26)	$z = 0.82$	.41
IPDB by site 4	1.23 (0.42–3.63)	$z = 0.37$	.71
Condition by IPDB by site ^a		$\chi^2_3 = 2.02$	.57
Condition by IPDB by site 1	0.34 (0.06–1.95)	$z = -1.20$	.23
Condition by IPDB by site 3	0.87 (0.18–4.27)	$z = -0.17$	.87
Condition by IPDB by site 4	0.98 (0.18–5.49)	$z = -0.02$	.99

^aDummy variable for site. Reference is site 2.

Table 2

Effect of CBP Program vs Usual Care on Incidence of Depression Over Follow-up for Overall Sample and by Depression Status of Index Parent at Baseline

Onset of Depression	HR (95% CI)	z Score	P Value	q Value
Overall sample, mo				
0–9	0.64 (0.41–0.99)	–2.00	.05	.57
10–33	0.74 (0.43–1.25)	–1.13	.26	>.99
34–75	0.96 (0.60–1.54)	–0.16	.87	>.99
Index parent not depressed at baseline, mo				
0–9	0.27 (0.13–0.54)	–3.64	<.001	<.001
10–33	0.78 (0.37–1.63)	–0.66	.51	>.99
34–75	0.93 (0.44–1.99)	–0.18	.86	>.99
Index parent depressed at baseline, mo				
0–9	1.35 (0.73–2.49)	0.97	.33	>.99
10–33	0.66 (0.30–1.45)	–1.02	.31	>.99
34–75	1.03 (0.57–1.86)	0.11	.91	>.99

Abbreviations: CBP, cognitive-behavioral prevention; HR, hazard ratio.

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Effect of CBP Program vs Usual Care on Number of Depression-Free Days Over Follow-up for Overall Sample and by Depression Status of Index Parent at Baseline

Depression-Free Days	Mean (SD)		z Score	P Value	q Value
	CBP	Usual Care			
Overall sample, mo					
0-9	273.5 (60.5)	258.9 (61.1)	-3.07	.002	.03
10-33	650.9 (125.8)	633.8 (148.3)	-1.16	.25	>.99
34-75	973.3 (295.4)	972.0 (274.2)	-1.22	.22	>.99
Index parent not depressed at baseline, Mo					
0-9	293.0 (36.2)	254.8 (62.7)	-4.74	<.001	<.001
10-33	662.6 (112.7)	630.7 (160.3)	-1.65	.10	.64
34-75	1008.8 (280.0)	941.0 (310.7)	-2.55	.02	.17
Index parent depressed at baseline, mo					
0-9	253.5 (73.1)	263.4 (29.5)	0.42	.67	>.99
10-33	638.8 (137.7)	637.1 (135.4)	-0.07	.95	>.99
34-75	937.4 (308.2)	1004.6 (227.1)	0.89	.38	>.99

Abbreviation: CBP, cognitive-behavioral prevention.

Table 3