

TABLE S1

*Randomized Clinical Trials Contributing Data to Individual Patient Meta-Analysis*

Trial	Target group	Diagnosis	Measures	Pharmacotherapy		Cognitive-behavioral therapy				Country	
			available	Compound	<i>n</i>	Weeks	Format	<i>n</i>	Weeks		Details
David, 2008	adults with MDD	A, B, C	BDI	fluoxetine	57	14	individual	113	14	1, 2, 3	Romania
DeRubeis, 2005	adults with MDD	A, B, C	HAM-D, BDI	paroxetine	120	16	individual	60	16	1, 2, 3	US
Dimidjian, 2006	adults with MDD	A, B	HAM-D, BDI	paroxetine	100	16	individual	45	16	1, 2, 3	US
Dunlop, 2012	adults with MDD	A, B	HAM-D, BDI	escitalopram	39	12	individual	41	12	2	US
Dunner, 1996	adults with dysthymic disorder	A, B, C	HAM-D, BDI	fluoxetine	13	16	individual	11	16	1, 2, 3	US
Elkin, 1989	adults with MDD	A, B	HAM-D, BDI	imipramine	57	16	individual	59	16	1, 2, 3	US
Faramarzi, 2008	infertile women with MDD	A, B, C	BDI	fluoxetine	30	10	group	29	10	2	Iran
Hegerl, 2010	depressed primary care patients	A, B, C	HAM-D, BDI	sertraline	83	10	group	61	10	1, 2, 3	Germany
Hollon, 1992	adults with MDD	A, B, C	HAM-D, BDI	imipramine	57	12	individual	25	12	1, 2, 3	US
Jarrett, 1999	adults with atypical MDD	A, B, C	HAM-D, BDI	phenelzine	36	10	individual	36	10	1, 2, 3	US
Kennedy, 2007	adults with MDD	A, B	HAM-D	venlafaxine	14	16	individual	17	16	1, 2, 3	Canada
Miranda, 2003	low-income women with MDD	A, B	HAM-D	paroxetine	88	24	either	90	8	2, 3	US
Mohr, 2001	MS patients with MDD	A, B	HAM-D, BDI	sertraline	22	16	individual	22	16	2, 3	US
Murphy, 1984	adults with MDD	A, B	HAM-D, BDI	nortriptyline	16	12	individual	17	12	2, 3	US
Rush, 1977	adults with MDD	A, B, C	HAM-D, BDI	imipramine	22	12	individual	19	12	2, 3	US
Segal, 2006	adults with MDD	A, B	HAM-D, BDI	citalopram	152	26	individual	149	22-24	1, 2, 3	Canada

*Note.* MDD = major depressive disorder. MS = multiple sclerosis. HAM-D = Hamilton Rating Scale for Depression. BDI = Beck Depression Inventory. Diagnostic details reported in cited trial publication: A = diagnoses based on *DSM* (III, III-R, or IV), Research Diagnostic Criteria, or Feighner Criteria; B = diagnosis informed by a semi-structured or structured interview; C = diagnosis made and/or confirmed by doctoral-level clinician, psychologist, or psychiatrist. Cognitive-behavioral therapy (CBT) details reported in cited trial publication: 1 = therapists had at least one year of experience in providing CBT and/or met standardized CBT competence criteria; 2 = CBT based on a written treatment manual; 3 = therapists received CBT supervision/feedback during clinical trial.

*References for Clinical Trial Publications*

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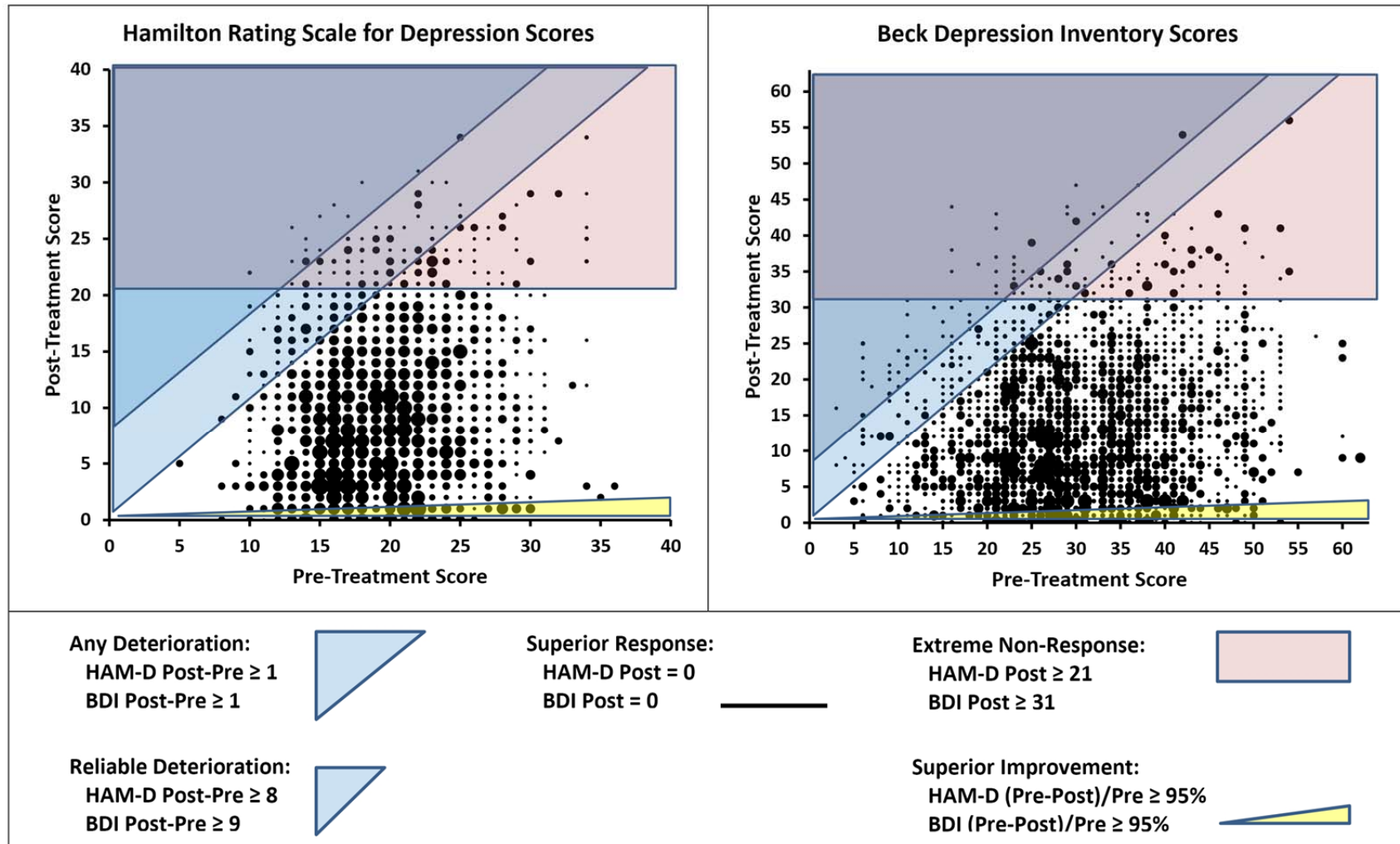
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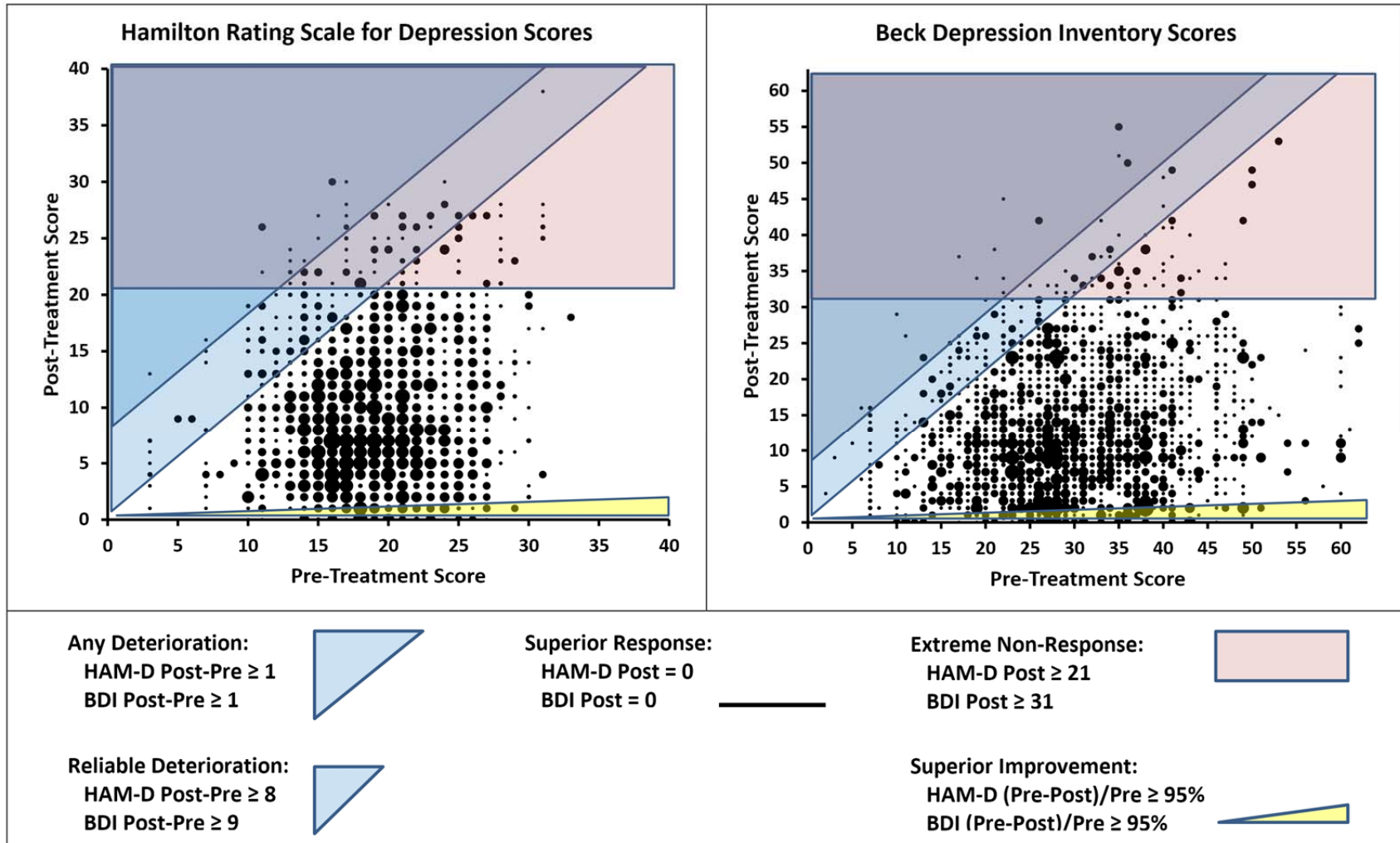
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Figure S1



Depressive symptom severity before and after pharmacotherapy. Larger dots represent more patients. Plotted data include imputation of missing values. HAM-D = Hamilton Rating Scale for Depression. BDI = Beck Depression Inventory-II.



Depressive symptom severity before and after cognitive behavioral therapy. Larger dots represent more patients. Plotted data include imputation of missing values. HAM-D = Hamilton Rating Scale for Depression. BDI = Beck Depression Inventory-II.

TABLE S2

*Negative Outcomes and Unusually-Positive Outcomes in Clinical Trials with Pill Placebo Arms*

Outcome	Pill placebo		Cognitive-behavioral therapy		Pharmacotherapy		Treatment difference
	Est. %	95% CI	Est. %	95% CI	Est. %	95% CI	<i>p</i>
Negative Outcomes							
Any Deterioration							
HAM-D	14.0	8.5, 22.1	11.2	6.5, 18.8	10.2	6.1, 16.5	.339
BDI	12.1	7.3, 19.5	10.3	5.9, 17.4	6.2	3.4, 11.2	.056
Reliable Deterioration							
HAM-D	1.5	0.5, 4.3	1.4	0.3, 5.5	1.0	0.3, 3.2	.875
BDI	1.7	0.4, 5.9	1.5	0.4, 5.1	1.5	0.5, 4.9	.990
Extreme Non-response							
HAM-D	11.0	7.6, 15.6	7.2	4.3, 11.8	7.4	4.9, 11.0	.252
BDI	10.4	5.6, 18.4	8.4	4.5, 15.2	6.2	3.1, 11.9	.201
Any Negative Outcome	24.8	17.7, 33.5	21.3	14.6, 29.9	16.2	11.2, 22.9	.046
Unusually-Positive Outcomes							
Superior Improvement							
HAM-D	1.6	0.5, 4.8	1.9	0.7, 5.4	4.3	2.0, 9.1	.090
BDI	6.8	3.3, 13.2	6.8	3.3, 13.5	7.9	4.1, 14.6	.838
Superior Response							
HAM-D	1.7	0.6, 4.8	1.5	0.5, 4.6	2.5	1.1, 5.8	.645
BDI	4.4	1.9, 9.7	4.5	2.0, 9.9	5.1	2.4, 10.6	.906
Any Unusually-Positive Outcome	6.9	3.4, 13.3	7.1	3.5, 13.9	10.3	5.6, 18.4	.225

*Note.* Est. = estimated proportion of patients derived from multilevel logistic regression models that adjusted for the random effect of study. Analyses included multiple imputation of missing HAM-D (Hamilton Rating Scale for Depression) and BDI (Beck Depression Inventory-II) scores. Any deterioration and reliable deterioration, respectively, are increases of  $\geq 1$  and  $\geq 8$  points on the HAM-D, and  $\geq 1$  and  $\geq 9$  points on the BDI, from pre- to post-treatment. Extreme non-response is post-treatment HAM-D  $\geq 21$  or BDI  $\geq 31$ . Superior improvement is  $\geq 95\%$  reduction in HAM-D or BDI scores from pre- to post-treatment. Superior response is a post-treatment HAM-D or BDI = 0. Any negative outcome is deterioration and/or extreme non-response, and any unusually-positive outcome is superior improvement and/or superior response on either measure. Five studies each used the HAM-D and BDI and included pill placebo arms (DeRubeis, 2005; Dimidjian, 2006; Elkin, 1989; Hegerl, 2010; Jarrett, 1999). Two trials (DeRubeis, 2005; Dimidjian, 2006) used 8-week placebo conditions, and results tabled here reflect 8-week outcomes in these trials.  $N = 951$ .

TABLE S3

*Prediction of Deterioration and Extreme Non-Response in Cognitive Behavioral Therapy and Pharmacotherapy*

Model	Any Deterioration				Reliable Deterioration				Extreme Non-response			
	HAM-D		BDI		HAM-D		BDI		HAM-D		BDI	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
1. Intercept	-2.57*	0.23	-2.90*	0.23	-4.78*	0.39	-4.52*	0.43	-2.87*	0.19	-3.10*	0.22
Treatment	0.08	0.11	0.04	0.14	0.33	0.33	-0.27	0.30	-0.02	0.12	0.06	0.13
2. Female gender	-0.07	0.13	0.01	0.14	0.23	0.39	-0.11	0.33	0.06	0.14	-0.17	0.13
Treatment * gender	0.15	0.11	-0.02	0.12	n/a	n/a	-0.16	0.29	0.04	0.14	-0.05	0.12
3. Age (years)	-0.05	0.12	0.02	0.14	-0.64	0.41	-0.03	0.34	-0.11	0.14	0.02	0.15
Treatment * age	-0.05	0.11	-0.02	0.15	0.01	0.42	-0.31	0.32	-0.18	0.13	0.02	0.13
4. Minority status	0.08	0.15	-0.16	0.17	-0.17	0.38	-0.06	0.34	-0.02	0.16	-0.18	0.16
Treatment * minority	-0.10	0.13	-0.11	0.16	n/a	n/a	n/a	n/a	-0.07	0.17	-0.06	0.18
5. Education (>12 years)	0.09	0.17	-0.01	0.17	-0.12	0.44	0.10	0.40	-0.22	0.15	-0.04	0.16
Treatment * education	-0.17	0.16	-0.02	0.16	0.14	0.41	-0.18	0.42	-0.03	0.15	0.25	0.16
6. Employed full time	-0.08	0.13	-0.19	0.16	-0.48	0.39	-0.47	0.38	-0.12	0.14	0.04	0.15
Treatment * employed	0.01	0.14	-0.01	0.16	n/a	n/a	-0.15	0.38	-0.12	0.14	0.03	0.14
7. Double depression	0.05	0.14	-0.07	0.20	0.08	0.42	n/a	n/a	-0.16	0.21	-0.40	0.31
Treatment * double depress.	-0.20	0.13	-0.02	0.19	n/a	n/a	n/a	n/a	n/a	n/a	-0.01	0.25
8. Comorbid diagnosis	0.14	0.14	0.17	0.16	0.28	0.36	0.25	0.40	0.14	0.14	0.11	0.17
Treatment * comorbid	0.10	0.11	0.04	0.15	-0.14	0.36	0.10	0.42	0.04	0.13	-0.11	0.16
9. Pre-treatment HAM-D	-0.65*	0.13	-0.06	0.14	-0.90*	0.35	0.07	0.34	0.63*	0.14	0.38*	0.14
Treatment * HAM-D	-0.01	0.12	-0.06	0.14	-0.20	0.35	0.05	0.30	-0.01	0.12	-0.11	0.14
10. Pre-treatment BDI	-0.19	0.16	-0.91*	0.15	-0.42	0.42	-0.78*	0.38	0.50*	0.19	0.81*	0.15
Treatment * BDI	0.05	0.13	0.01	0.15	0.50	0.41	0.18	0.37	0.26	0.15	0.07	0.15

*Note.* Estimates derived from multilevel logistic regression models adjusting for the random effect of study. Analyses included multiple imputation of missing HAM-D (Hamilton Rating Scale for Depression) and BDI (Beck Depression Inventory-II) scores. Models 2-10 include an intercept and the main effect of treatment (cognitive behavioral therapy versus pharmacotherapy), which are not shown. Any deterioration and reliable deterioration, respectively, are increases of  $\geq 1$  and  $\geq 8$  points on the HAM-D, and  $\geq 1$  and  $\geq 9$  points on the BDI, from pre- to post-treatment. Extreme non-response is post-treatment HAM-D  $\geq 21$  or BDI  $\geq 31$ . Tabled coefficients reflect standardization of predictor variables ( $M=0$ ,  $SD=1$ ) before analysis to minimize collinearity between main effects and interactions. n/a = outcome events were too rare in some predictor categories and combinations for models to converge. \*  $p < .05$ , two-tailed.

*Prediction of Superior Improvement and Superior Response in Cognitive Behavioral Therapy and Pharmacotherapy*

Model	Superior Improvement				Superior Response			
	HAM-D		BDI		HAM-D		BDI	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
1. Intercept	-2.72*	0.20	-2.22*	0.23	-3.23*	0.22	-2.88*	0.30
Treatment	-0.25*	0.12	-0.10	0.10	-0.18	0.15	-0.17	0.12
2. Female gender	0.08	0.13	0.15	0.10	0.01	0.15	-0.10	0.12
Treatment * gender	-0.10	0.12	-0.03	0.10	-0.09	0.15	-0.01	0.12
3. Age (years)	-0.31*	0.14	-0.12	0.11	-0.20	0.17	-0.03	0.14
Treatment * age	0.02	0.13	0.06	0.11	0.02	0.16	0.11	0.13
4. Minority status	-0.08	0.14	0.09	0.09	-0.14	0.19	0.17	0.11
Treatment * minority	n/a	n/a	0.05	0.09	n/a	n/a	0.10	0.11
5. Education (>12 years)	-0.11	0.13	0.22	0.13	-0.11	0.17	0.24	0.16
Treatment * education	-0.01	0.13	0.00	0.12	0.08	0.17	-0.03	0.15
6. Employed full time	-0.10	0.14	0.11	0.11	-0.20	0.17	0.34*	0.15
Treatment * employed	0.07	0.13	0.13	0.11	0.18	0.17	0.21	0.15
7. Double depression	-0.40	0.23	-0.13	0.17	n/a	n/a	-0.35	0.26
Treatment * double depress.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8. Comorbid diagnosis	-0.10	0.14	-0.03	0.12	-0.08	0.17	-0.02	0.15
Treatment * comorbid	0.08	0.13	-0.04	0.12	-0.01	0.17	-0.02	0.14
9. Pre-treatment HAM-D	0.28*	0.12	0.09	0.11	-0.20	0.16	-0.01	0.14
Treatment * HAM-D	0.05	0.12	0.06	0.11	0.15	0.15	0.13	0.13
10. Pre-treatment BDI	0.09	0.15	0.06	0.10	-0.07	0.18	-0.38*	0.14
Treatment * BDI	-0.03	0.16	0.05	0.11	0.06	0.18	-0.05	0.14

*Note.* Estimates derived from multilevel logistic regression models adjusting for the random effect of study. Analyses included multiple imputation of missing HAM-D (Hamilton Rating Scale for Depression) and BDI (Beck Depression Inventory-II) scores. Models 2-10 include an intercept and the main effect of treatment (cognitive behavioral therapy versus pharmacotherapy), which are not shown. Superior improvement is  $\geq 95\%$  reduction in HAM-D or BDI scores from pre- to post-treatment. Superior response is post-treatment HAM-D or BDI = 0. Tabled coefficients reflect standardization of predictor variables ( $M=0$ ,  $SD=1$ ) before analysis to minimize collinearity between main effects and interactions. n/a = outcome events were too rare in some predictor categories and combinations for models to converge. \*  $p < .05$ , two-tailed.