Supplementary Methods

Self-Other Affective Processing Task

Supplementary Table 1. Examples of negative and positive, self- and other-directed statements used for the

	Negative	Positive
Self-related	"You are unwanted."	"You are wonderful."
Other-related	"He is horrible."	"He is loved."

FMRI Data Analysis

Supplementary Table 2. Psychotropic medications and dosages for each diagnostic group

Group	Participant	Medications and Dosages
MDD	1	Effexor XR (187.5 mg); Buproprion (300mg); BuSpar (40mg)
	2	Wellbutrin XL (300mg); Ritalin LA (40mg)
	3	Temazepam(2 mg per week), Zolpidem (10mg every other day), Mirtazapine (7.5mg), Provigil (100mg)
	4	Prozac (20mg, 3x a day)
	5	Ambien (10mg); Suboxone (4 mg)
	6	none
	7	Paxil (60mg); Trazadone (30mg)
	8	Pristiq (50mg)
	9	Lexapro (10mg)
	10	Effexor (75mg, 2x a day)
	11	none
	12	Cymbalta (60mg); Xantax (1mg); Ambien (10mg)
	13	Lithium (1200mg); Prozac (60mg); Wellbutrin (300mg); Seroquel (100mg); Topamax (80mg); Propranolol (80mg)
	14	none
	15	none
MDD-SAD	1	none
	2	none
	3	Cymbalta (90mg), Prozac (10mg), Mirtazapine (30mg), Clonazepam (.25-.5mg)
	4	none
	5	Topamax (75mg), Ambien (10mg), Celexa (100mg), Wellbutrin (100mg)
	6	none
	7	Celexa (25mg)
	8	Xanax (2-3mg), Lexapro (5mg)
	9	none
	10	Wellbutrin (300mg)
	11	none
	12	none
	13	none
	14	none
	15	none
	16	Vyvanse (40mg)
SAD	1	none
	2	none
	3	none
	4	none
	5	none
	6	none
	7	none
	8	none
	9	none
	10	none
	11	Trazodone (25mg); Citalopram (10mg)
	12	none
	13	Remeron (60mg); Lorazepam (.05 mg)
	14	Valium (2 mg)
	15	none
	16	none

FMRI Data Acquisition

BOLD data were acquired with a 3 Tesla General Electric Signa MR scanner. Following scout scanning, high order shimming was performed over the whole brain until diminishing returns on image distortion correction were met. Next, BOLD data were acquired with a single channel, whole-head imaging coil from 31 axial slices using a spiral pulse sequence (1) [repetition time (TR) = 2000 ms, echo time (TE) = 30 ms, flip angle = 80°, field of view (FOV) = 220 mm, number of frames per run = 125]. Axial slices had 3.44 mm^2 in-plane and 4 mm through-plane resolution. A high resolution structural scan (115 slices, 1 mm^2 in-plane and 1.5 mm through-plane resolution, TE = min, flip angle = 15°, FOV = 220 mm) was performed following BOLD scanning runs.

FMRI Image Preprocessing

Preprocessing was performed with the AFNI imaging analysis suite (2). The first five acquisitions of each scanning run, recorded prior to onset of the task, were removed to allow for equilibration of the longitudinal magnetization vector. Then BOLD images were slice-time corrected to the sixteenth (middle) axial slice and motion corrected to the middle acquisition of the concatenated neuroimaging runs using Fourier interpolation. Data were then spatially smoothed with a 4 mm Gaussian kernel and temporally band-pass filtered, run-wise, at $.0167 < f < .125$ Hz. Following this, time-series data were converted to units of percent signal change and resampled to 3 mm isotropic voxels in Talairach template space (3).

Supplementary Results

Button-pressing Task Data

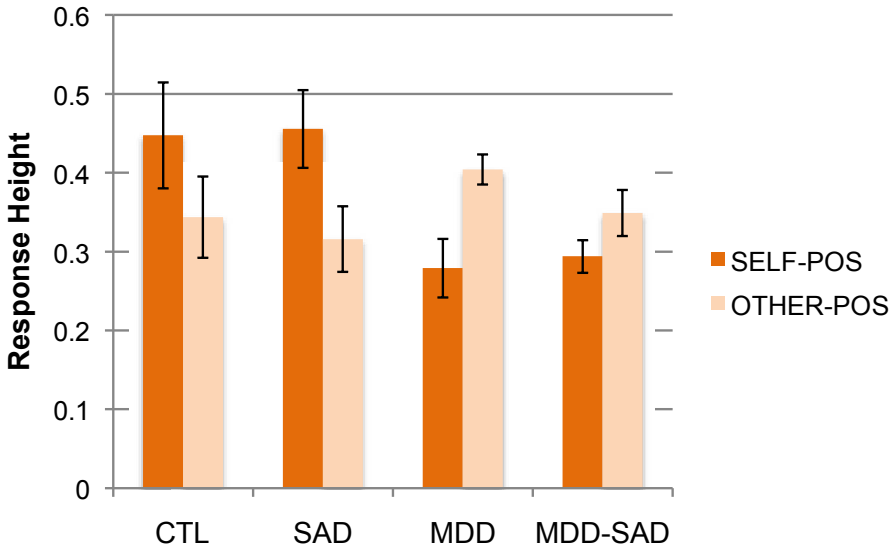
We conducted a group- (CTL, MDD, SAD, MDD-SAD) by-condition (POS, NEG) analysis of variance on response accuracy data acquired during the button-pressing distractor task following each stimulus block. We found no significant effect of group, condition, or group-by-condition interactions in button-press response accuracy (all $p > .20$).

Results

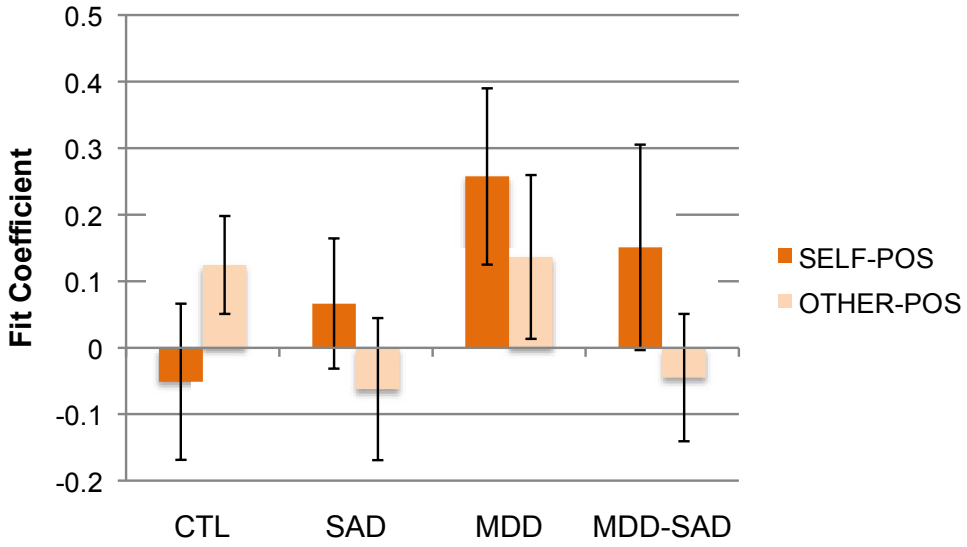
Participant Demographic and Clinical Characteristics

We conducted separate two-way [MDD (present, absent) by SAD (present, absent)] ANOVAs on age, depressive symptoms (BDI-II), and social anxiety symptoms (SPAI). There were no significant main effects or interaction for age (all $F < 3.47$, all $p > .05$). The analyses on depressive and anxiety symptoms both yielded significant main effects of MDD, $F(1,56) = 100.85$, and $F(1,54) = 23.52$, respectively, both $p < .05$, and of SAD, $F(1,56) = 13.88$, and $F(1,54) = 22.82$, respectively, both $p < .05$; the interaction of MDD and SAD was not significant in either analysis, $F(1,56) = .63$, and $F(1,54) = 2.91$, respectively, both $p > .05$. As expected, participants who had MDD or SAD reported more severe depressive and anxiety symptoms than did participants who did not have the disorder.

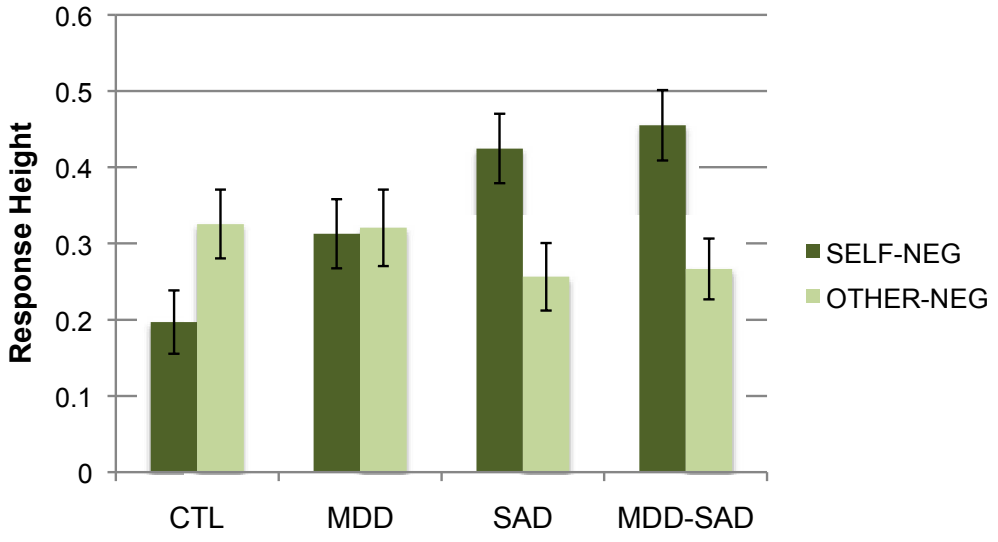
Neural response



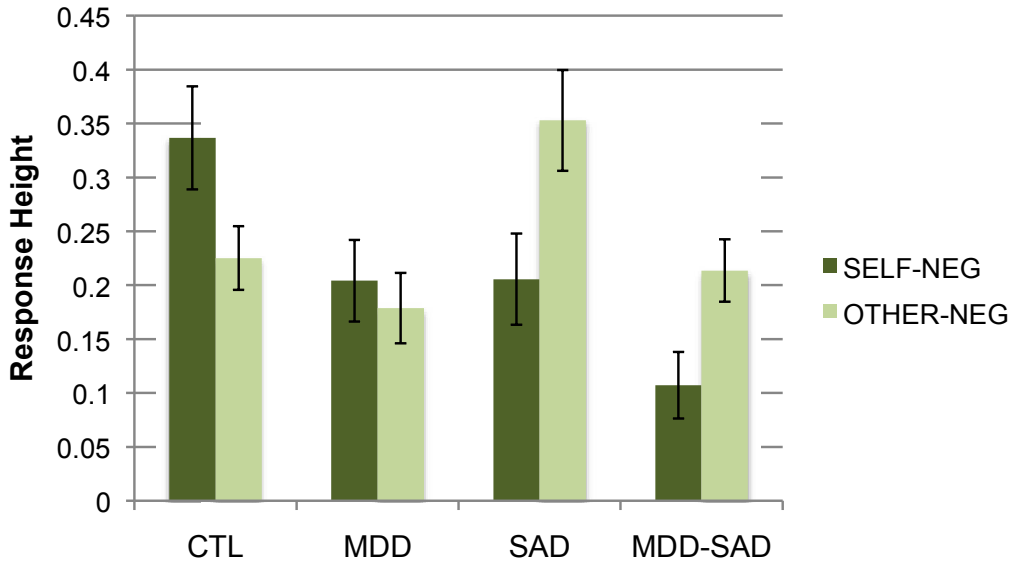
Supplementary Figure 1. Average (+/- standard error) response height of primary and association cortex [structures from Figure 1A and Table 3 (blue highlighted)] to self- and other-relevant positive information in CTL, SAD, MDD, and MDD-SAD groups.



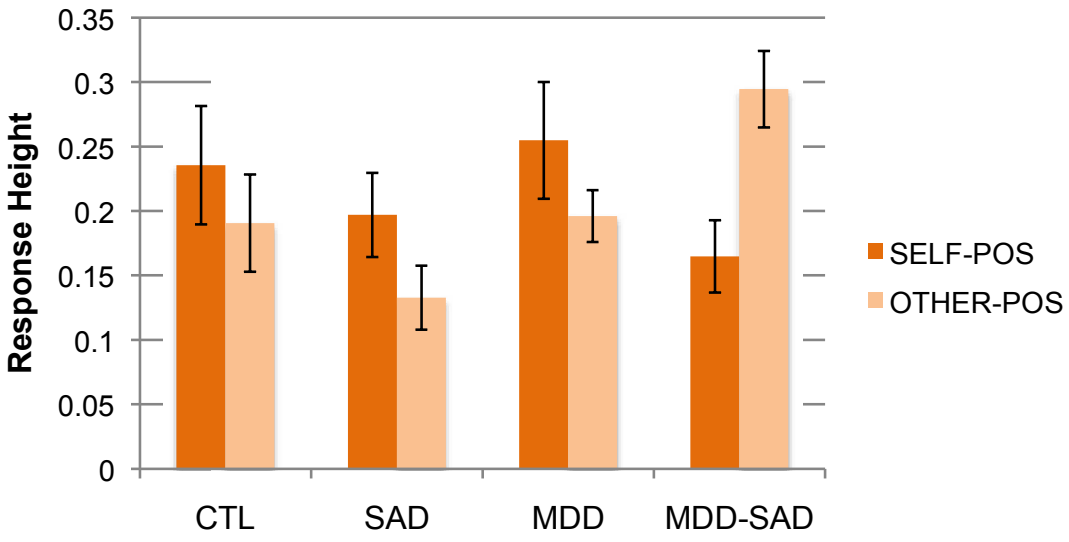
Supplementary Figure 2. Average (+/- standard error) connectivity between primary and association cortex [structures from Figure 1A and Table 3 (blue highlighted)] and ventral lateral and dorsal medial thalamic nuclei [structures from Figure 1B and Table 4 (blue highlighted)] during processing of self- and other-relevant positive information in CTL, SAD, MDD, and MDD-SAD groups.



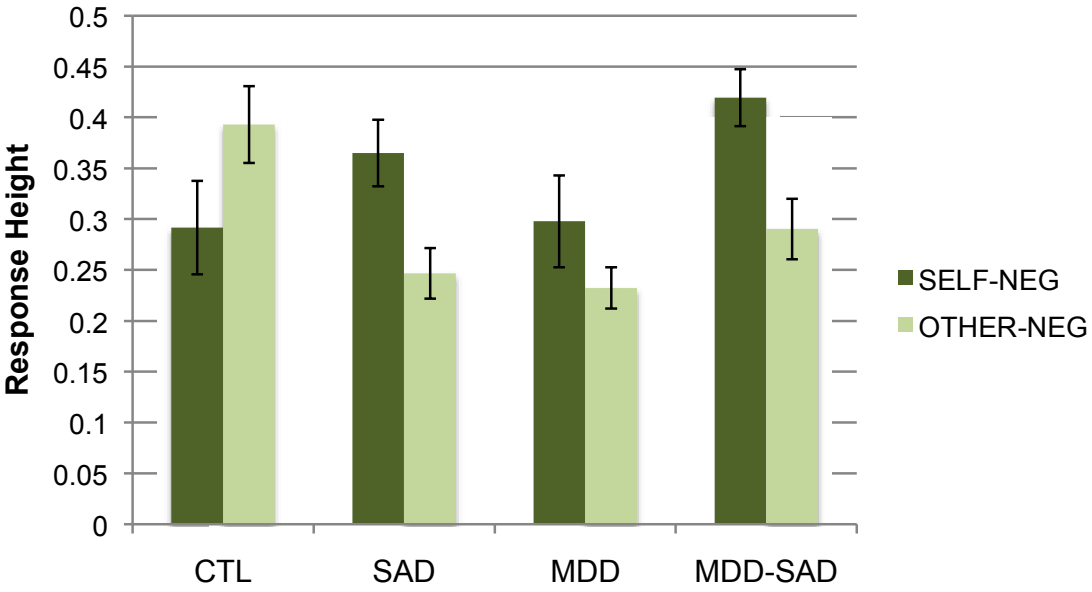
Supplementary Figure 3. Average (+/- standard error) response height of the right anterior insula [from Figure 2A and Table 3 (orange highlighted)] to self- and other-relevant negative information in CTL, SAD, MDD, and MDD-SAD groups.



Supplementary Figure 4. Average (+/- standard error) response height of default-mode network structures [from Figure 2B and Table 3 (green highlighted)] to self- and other-relevant negative information in CTL, SAD, MDD, and MDD-SAD groups.



Supplementary Figure 5. Average (+/- standard error) response height of bilateral dorsal anterior cingulate cortex [from Figure 3 and Table 3 (purple highlighted)] to self- and other-relevant positive information in CTL, SAD, MDD, and MDD-SAD groups.



Supplementary Figure 6. Average (+/- standard error) response height of superior frontal gyrus at cortical midline [structures from Figure 4 and Table 3 (pink highlighted)] to self- and other-relevant negative information in CTL, MDD, SAD, and MDD-SAD groups.

Supplementary Table 3. Regions showing MDD-by-Valence, SAD-by-Valence, and MDD-by-SAD-by-Valence interactions with respect to onset of neural response

Interaction	Structure	Description	Voxels	X	Y	Z
MDD-by-Valence	Left dorsolateral and ventrolateral prefrontal cortex	Slower onset for POS in MDD	301	-35	34	18
	Left inferior parietal lobule	Slower onset for POS in MDD	244	-37	-51	48
	Right dorsolateral prefrontal cortex	Slower onset for POS in MDD	192	37	25	38
	Bilateral lingual gyrus	Slower onset for POS in MDD	171	5	-82	-5
	Right posterior medial temporal gyrus	Slower onset for POS in MDD	130	50	-50	-9
	Right cerebellar vermis	Slower onset for POS in MDD	93	10	-54	-20
	Right orbitofrontal cortex	Slower onset for POS in MDD	86	31	34	-9
	Left posterior medial temporal gyrus	Slower onset for POS in MDD	80	-54	-46	11
	Right fusiform gyrus	Slower onset for POS in MDD	78	30	-73	-14
	Right superior parietal lobule	Slower onset for POS in MDD	61	33	-67	44
	Right dorsolmedial prefrontal cortex	Slower onset for POS in MDD	49	6	28	50
	Right inferior parietal lobule	Slower onset for POS in MDD	46	44	-43	49
	Right middle occipital gyrus	Faster onset for NEG in MDD	54	38	-80	12
	Left medial temporal gyrus	Faster onset for NEG in MDD	52	-44	3	-21
	Right superior parietal lobule	Faster onset for NEG in MDD	48	15	-55	59
SAD-by-Valence	Right precuneus	Slower onset for NEG in SAD	47	4	70	45
MDD-by-SAD-by-Valence	Right superior temporal gyrus	Slower onset for POS in MDD-SAD; Faster onset for POS in MDD and SAD	138	50	8	0
	Left superior temporal gyrus	Slower onset for POS in MDD-SAD; Faster onset for POS in MDD and SAD	84	-54	-30	15
	Bilateral dorsal anterior cingulate cortex	Faster onset for POS in MDD and SAD	72	6	20	36
	Right dorsolateral prefrontal cortex	Slower onset for POS in MDD-SAD; Faster onset for POS in MDD and SAD	70	26	51	17
	Left supramarginal gyrus	Slower onset for POS in MDD-SAD; Faster onset for POS in MDD	66	-52	-43	32
	Left middle occipital gyrus	Faster onset for POS in MDD and SAD	48	-48	-60	-8

1. Preston AR, Thomason ME, Ochsner KN, Cooper JC, Glover GH (2004): Comparison of spiral-in/out and spiral-out BOLD fMRI at 1.5 and 3T. *Neuroimage*. 21:291-301.
2. Cox RW (1996): AFNI: Software for analysis and visualization of functional magnetic resonance neuroimages. *Computers and Biomedical Research*. 29:162-173.
3. Talairach J, Tournoux P, Rayport M (1988): *Co-Planar Stereotaxic Atlas of the Human Brain*. Stuttgart, Germany: Thieme.