Appendix 1 to Gaebler M, Daniels JK, Lamke J-P, et al. Behavioural and neural correlates of self-focused emotion regulation in social anxiety disorder. *J Psychiatry Neurosci 2014.*

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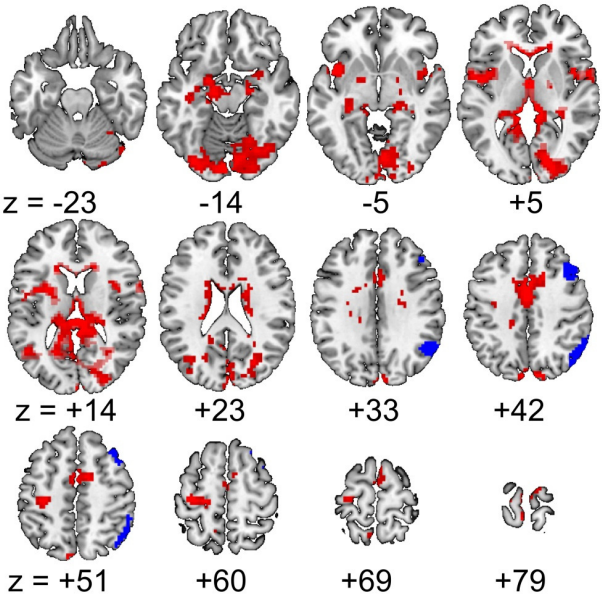

Fig. S1: Brain activation across all participants for direct comparison of active emotion regulation through self-focused reappraisal during viewing of affective pictures. Direct comparison of regulatory strategies did not show significant group effects. Across groups, voluntary decrease of emotional intensity compared to voluntary increase of emotional intensity while watching aversive pictures more strongly activated middle frontal and inferior parietal regions (blue). The inverse contrast showed an extended network stretching from visual cortices to lateral frontal regions, also encompassing the thalamus and the cerebellum (red). Numbers are the *z* coordinates (Montreal Neurological Institute space) of the slices. For peak coordinates and individual thresholds (joint voxel activation and cluster extent), see Table S1.

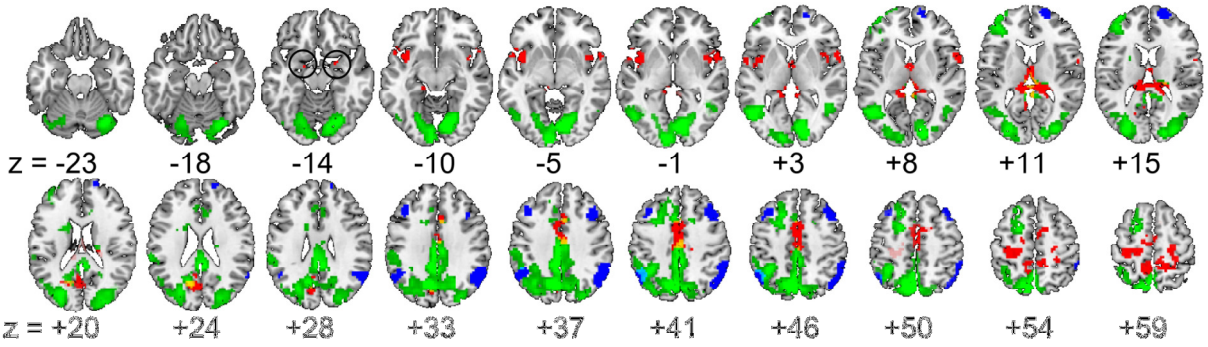

Fig. S2: Brain activation across all participants for active emotion regulation through self-focused reappraisal during viewing of affective pictures or passive viewing. Compared to passive viewing of aversive pictures, voluntary increase of emotional intensity yielded significantly stronger activation in a network comprising the bilateral insula, hippocampal-thalamic and medial clusters in the supplementary motor area/middle cingulum and precuneus, but also left-hemispheric lateral regions around the central fissure (red; see Ochsner and colleagues[1]). Dark circles indicate stronger activation in the bilateral amygdala during upregulation (region of interest: $p < 0.05$, family-wise error–corrected). Voluntary distancing compared to passive watching of aversive pictures showed a network of bilateral dorsolateral prefrontal and inferior parietal clusters (blue; see Ochsner and colleagues[1] and Walter and colleagues[2]). Compared to neutral images, passive viewing of aversive pictures showed significant activation in a large bilateral network in early and extrastriate visual cortices, known to be modulated by emotion, extending along medial regions to (left hemispheric) lateral middle and superior frontal areas (green; see Kanske and colleagues[3]). Surprisingly, amygdala activation was not selectively increased by passive viewing of aversive compared to neutral pictures as both groups showed amygdala activation during the latter condition. Several possible explanations exist. The instruction word, which was presented for 2 s before the stimulus, was the same for both passive "permit" conditions. Owing to the cue word's ambiguity about whether an aversive or a neutral stimulus was to follow, amygdala activation for preparation or uncertainty processing[4] may have cancelled out differential effects. Nevertheless, a previous study using the same design found differential amygdala activation between these two conditions.[2] A bias leading to amygdala activation during viewing of neutral pictures could have been introduced through the immediately following negativity rating, the least negative option of which still stated weak negativity, leading to skewed perception through the preparation for the rating. Yellow areas indicate overlap between networks of affective viewing and voluntary increase. Numbers are the *z* coordinates (Montreal Neurological Institute) of the slices. For peak coordinates and individual thresholds (joint voxel activation and cluster extent), see Table S1.

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Table S1: Coordinates (in MNI space) and anatomical labels[5] for brain activations in contrasts of interest across groups (part 1 of 2)

Hemisphere; anatomical label	MNI coordinates			Statistics		*p* value*
	x	*y*	*z*	*t*	*k*	
All participants DistA > PermA (*p* < 0.001, *k* > 64)						
Left hemisphere						
Inferior parietal	–51	–54	42	5.08	156	< 0.001
Angular	–51	–54	33	5.06		< 0.001
Middle frontal						
	–42	24	33	4.45	73	< 0.001
	–36	24	48	4.41		< 0.001
	–36	30	30	3.58		< 0.001
Right hemisphere						
Middle frontal	39	21	45	7.5	140	< 0.001
Inferior parietal						
	54	–60	39	5.96	394	< 0.001
	54	–51	45	5.82		< 0.001
Supramarginal	54	–45	39	5.34		< 0.001
Superior frontal (medial)	15	63	6	5.65	83	< 0.001
Superior frontal						
	21	63	15	4.67		< 0.001
	15	60	24	3.78		< 0.001
All participants IncA > PermA (*p* < 0.001, *k* > 99)						
Left hemisphere						
Postcentral	–36	–30	57	6.11	172	< 0.001
Precentral						
	–21	–24	63	4.84		< 0.001
	–21	–27	51	4.2		< 0.001
Hippocampus	–9	–33	12	5.24		< 0.001
Insula	–45	9	–6	5.57	157	< 0.001
Supplementary motor area	0	–9	69	5.16	500	< 0.001
Middle cingulum	0	–6	45	4.4		< 0.001
Precuneus	–12	–51	57	4.66	213	< 0.001
Right hemisphere						
Hippocampus	15	–36	9	5.61	611	< 0.001
Supplementary motor area	6	9	66	4.28		< 0.001

Hemisphere; anatomical label	MNI coordinates			Statistics		*p* value*
	x	*y*	*z*	*t*	*k*	
All participants IncA > PermA (*p* < 0.05 FWE–corrected amygdala ROI)						
Left hemisphere						
Amygdala	–21	0	–12	4.01	7	< 0.001
Right hemisphere						
Amygdala	21	3	–15	3.87	5	< 0.001
All participants PermA > PermN (*p* < 0.001, *k* > 94)						
Left hemisphere						
Precuneus	–9	–69	42	8.45		< 0.001
Superior frontal						
	–18	3	51	6.26	556	< 0.001
	–21	6	60	6.12		< 0.001
Superior frontal (medial)	–6	18	42	5.69		< 0.001
Inferior frontal (triangularis)	–42	45	12	5.81	221	< 0.001
Middle frontal						
	–42	57	9	5.65		< 0.001
	–36	57	15	5.26		< 0.001
Right hemisphere						
Lingual	15	–78	–9	8.76	5652	< 0.001
Calcarine	12	–84	0	8.36		< 0.001
All participants DistA > IncA (*p* < 0.001, *k* > 109)						
Right hemisphere						
Middle frontal						
	39	18	42	6.32	173	< 0.001
	36	24	51	5.61		< 0.001
	45	27	39	4.53		< 0.001
Inferior parietal	60	–54	42	5.48	235	< 0.001
Angular						
	48	–57	36	5.29		< 0.001
	48	–60	51	4.88		< 0.001
All participants IncA > DistA (*p* < 0.001, *k* > 110)						
Left hemisphere						
Precentral						

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Table S1: Coordinates (in MNI space) and anatomical labels[5] for brain activations in contrasts of interest across groups (part 2 of 2)

Hemisphere; anatomical label	MNI coordinates			Statistics		*p* value*
	x	*y*	*z*	*t*	*k*	
All participants IncA > PermA (*p* < 0.001, *k* > 99) cont'd						
Rolandic operculum	57	9	0	4.8	126	< 0.001
Insula	48	3	0	4.22		< 0.001
Insula	42	6	–9	3.76		< 0.001
Thalamus	3	–27	12	5.02		< 0.001
Precuneus	15	–45	60	4.59		< 0.001
Superior parietal	24	–48	60	4.3		< 0.001
All participants IncA > DistA (*p* < 0.001, *k* > 110) cont'd						
	–36	–24	57	5.00	165	< 0.001
	–21	–24	60	4.45		< 0.001
	–27	–21	72	4.20		< 0.001
Right hemisphere						
Thalamus	6	–30	3	6.73	4722	< 0.001
	3	–30	12	6.12		< 0.001
Cerebellar vermis	3	–42	3	6.58		< 0.001

DistA = voluntary decrease of emotion to aversive images; FWE = family-wise error; IncA = voluntary increase of emotion to aversive images; MNI = Montreal Neurological Institute; PermA = passive viewing of aversive images; PermN = passive viewing of neutral images; ROI = region of interest.
*Uncorrected at the voxel level with an individually calculated cluster extent k threshold to achieve whole–brain correction at $p < 0.05$ using AlphaSim (http://www.restfmri.net/). See also Figure S2.

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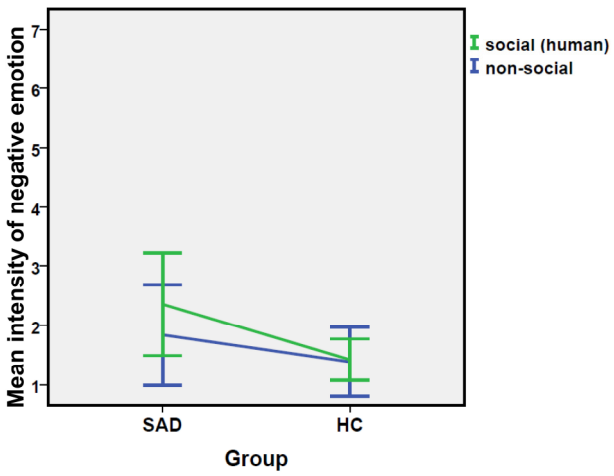

Fig. S3: Ratings of emotional intensity during passive viewing of neutral images by group divided into social and nonsocial stimuli. Eighteen neutral stimuli were separated into 13 social (showing humans and human faces) and 5 nonsocial images (showing animals or objects). A post hoc 2 x 2 repeated-measures analysis of variance with the within-subject factor sociality (nonsocial v. social) and the between-subject factor group (social anxiety disorder [SAD] v. healthy controls) revealed main effects for sociality ($F_{1,42}$ = 6.25, p = 0.016, ηp^2 = 0.13) and group ($F_{1,42}$ = 15.75, p < 0.001, ηp^2 = 0.273) as well as the 2 factor interaction ($F_{1,42}$ = 4.69, p = 0.036, ηp^2 = 0.1; see Fig. S1). Hence, the general negativity bias for neutral stimuli in individuals with SAD compared with healthy controls was differentially modulated by the presence of humans and human faces. Error bars represent standard deviation.

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