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Supplementary Figures: 9

Supplementary Tables: 4

Supplementary Videos: 0

Reporting Checklist for Nature Neuroscience

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Please note that in the event of publication, it is mandatory that authors include all relevant methodological and statistical information in the manuscript.

Statistics reporting, by figure

- Please specify the following information for each panel reporting quantitative data, and where each item is reported.
- Each figure legend should ideally contain an exact sample size (n) for each experimental group/condition, where n is an exact number and not a range, a clear definition of how n is defined (for example x cells from x slices from x animals from x litters, collected over x days), a description of the statistical test used, the results of the tests, any descriptive statistics and clearly defined error bars if applicable.
- For any experiments using custom statistics, please indicate the test used and stats obtained for each experiment.
- Each figure legend should include a statement of how many times the experiment shown was replicated in the lab; the details of sample collection should be sufficiently clear so that the replicability of the experiment is obvious to the reader.
- For experiments reported in the text but not in the figures, please use the page number instead of the figure number.

Note: Mean and standard deviation are not appropriate on small samples, and plotting independent data points is usually more informative. When technical replicates are reported, error and significance measures reflect the experimental variability and not the variability of the biological process; it is misleading not to state this clearly.

		TEST USED		n			DESCRIPTIVE STATS (AVERAGE, VARIANCE)		P VALUE		DEGREES OF FREEDOM & F/t/z/R/ETC VALUE	
	FIGURE NUMBER	WHICH TEST?	PAGE	EXACT VALUE	DEFINED?	PAGE	REPORTED?	PAGE	EXACT VALUE	PAGE	VALUE	PAGE
example	1a	one-way ANOVA	4	9, 9, 10, 15	mice from at least 3 litters/group	4	error bars are mean +/- SEM	4	p = 0.044	4	F(3, 36) = 2.97	4
example	results, pg 6	unpaired t-test	6	15	slices from 10 mice	6	error bars are mean +/- SEM	6	p = 0.0006	6	t(28) = 2.808	6
+ -	Fig 2B	Wilcoxon signed rank test for paired samples	p1 ms; Fig 2B	324,324	number of observations in the Choice/ Message condition from HC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p=2.2e-16	p1 ms; Fig 2B	W=1528	p1 ms; Fig 2B

		TEST USED		n			DESCRIPTIVE STATS (AVERAGE, VARIANCE)		P VALUE		DEGREES OF FREEDOM & F/t/z/R/ETC VALUE	
	FIGURE NUMBER	WHICH TEST?	PAGE	EXACT VALUE	DEFINED?	PAGE	REPORTED?	PAGE	EXACT VALUE	PAGE	VALUE	PAGE
+ -	Fig 2B	Wilcoxon signed-rank test for paired samples	p1 ms; Fig 2B	474,474	number of observations in the Choice/ Message condition for all subjects subjects	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p= 2.2e-16	p1 ms; Fig 2B	V = 2198	p1 ms; Fig 2B
+ -	Fig 2B	Kruskal-Wallis test	p1 ms; Fig 2B	648,132,168	number of observations in all conditions from HC/DLPFC/OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p=0.0006159	p1 ms; Fig 2B	χ2(2) = 14.7849	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	648,132	number of observations in all conditions from HC/DLPFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p=0.00065, Bonferroni corrected	p1 ms; Fig 2B	W=51207.5	p1 ms; Fig 2B
+ -	Fig 2B	Kruskal-Wallis test	p1 ms; Fig 2B	324,66,84	number of observations for paired difference in amount given from HC/DLPFC/ OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.0006185	p1 ms; Fig 2B	χ2(2) =14.7764	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	324,66	number of observations for paired difference in amount given from HC/DLPFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.00115, Bonferroni corrected	p1 ms; Fig 2B	W = 13439	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	66,84	number of observations for paired difference in amount given from DLPFC/OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.00025, Bonferroni corrected	p1 ms; Fig 2B	W = 3660.5	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	324,84	number of observations for paired difference in amount given from HC/OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 1.00 Bonferroni corrected	p1 ms; Fig 2B	W = 14024	p1 ms; Fig 2B
+ -	Fig 2B	Kruskal-Wallis test	p1 ms; Fig 2B	324,66,84	number of observations in Choice condition from HC/DLPFC/ OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.1489	p1 ms; Fig 2B	χ2 (2)= 3.8086	p1 ms; Fig 2B
+ -	Fig 2B	Kruskal-Wallis test	p1 ms; Fig 2B	324,66,84	number of observations in Message condition from HC/DLPFC/ OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.0001914	p1 ms; Fig 2B	χ2(2)= 17.1228	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	324,66	number of observations in Message condition from HC/DLPFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.00010473, Bonferroni corrected	p1 ms; Fig 2B	W =14094	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	66,84	number of observations in Message condition from DLPFC/OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 0.019578, Bonferroni corrected	p1 ms; Fig 2B	W = 2074	p1 ms; Fig 2B
+ -	Fig 2B	Pairwise comparisons using Wilcoxon rank sum test	p1 ms; Fig 2B	324,84	number of observations in Message condition from HC/OFC	p1 ms; Fig 2B	mean +/- S.E.M	p1 ms; Fig 2B	p = 1.0, Bonferroni corrected	p1 ms; Fig 2B	W = 14485	p1 ms; Fig 2B
+ -	Fig 2C, top	Fisher's exact test	p2 ms; Fig 2C	270,54,70	number of observations in conflict trails from HC/DLPFC /OFC	p2 ms; Fig 2C	mean +/- S.E.M	p2 ms; Fig 2C	p= 0.0004998	p2 ms; Fig 2C	NA	p2 ms; Fig 2C

+ -	Fig 2C, top	Pairwise comparisons using Fisher's exact test	p2 ms; Fig 2C	270,54	number of observations in conflict trails from HC/DLPFC	p2 ms; Fig 2C	mean +/- S.E.M	p2 ms; Fig 2C	p=6.471e-11, Bonferroni corrected	p2 ms; Fig 2C	NA	p2 ms; Fig 2C
+ -	Fig 2C, top	Pairwise comparisons using Fisher's exact test	p2 ms; Fig 2C	54,270	number of observations in conflict trails from DLPFC /OFC	p2 ms; Fig 2C	mean +/- S.E.M	p2 ms; Fig 2C	p=5.808e-05, Bonferroni corrected	p2 ms; Fig 2C	NA	p2 ms; Fig 2C
+ -	Fig 2C, top	Pairwise comparisons using Fisher's exact test	p2 ms; Fig 2C	270,70	number of observations in conflict trails in Message condition from HC /OFC	p2 ms; Fig 2C	mean +/- S.E.M	p2 ms; Fig 2C	p = 0.4929, Bonferroni corrected	p2 ms; Fig 2C	NA	p2 ms; Fig 2C
+ -	Fig 2C bottom	Fisher's exact test	p2 ms; Fig 2C	54,12,14	number of observations in no conflict trails in Message condition from HC /DLPFC/ OFC	p2 ms; Fig 2C	mean +/- S.E.M	p2 ms; Fig 2C	p = 0.2524	p2 ms; Fig 2C	NA	p2 ms; Fig 2C
+ -	par 1, p14,SI	Kruskal-Wallis test	par 1, p14, SI	324,54,84	number of observations in Choice condition from HC /lDLPFC/ OFC	par 1, p14, SI	mean +/- S.E.M	par 1, p14, SI	p = 0.1352	par 1, p14, SI	χ2(2) = 4.0018	par 1, p14, SI
+ -	Supplementary table 3, SI	Kruskal-Wallis test	Supplementary table 3, SI	324,54,84	number of observations in Message condition from HC /lDLPFC/ OFC	Supplementary table 3, SI	mean +/- S.E.M	Supplementary table 3, SI	p = 0.0002814	Supplementary table 3, SI	χ2 (2) = 16.3513	Supplementary table 3, SI
+ -	Supplementary table 3, SI	Kruskal-Wallis test	Supplementary table 3, SI	324,54,84	number of observations in paired difference across two conditions from HC /lDLPFC/OFC	Supplementary table 3, SI	mean +/- S.E.M	Supplementary table 3, SI	p = 0.001225	Supplementary table 3, SI	χ2 (2) =13.4091	Supplementary table 3, SI
+ -	Supplementary table 3, SI	Pairwise comparisons using Wilcoxon rank sum test	Supplementary table 3, SI	324,54	number of observations in paired difference across two conditions from HC /lDLPFC	Supplementary table 3, SI	mean +/- S.E.M	Supplementary table 3, SI	p = 0.0021, Bonferroni corrected	Supplementary table 3, SI	W = 11462	Supplementary table 3, SI
+ -	Supplementary table 3, SI	Pairwise comparisons using Wilcoxon rank sum test	Supplementary table 3, SI	54,84	number of observations in paired difference across two conditions from lDLPFC/OFC	Supplementary table 3, SI	mean +/- S.E.M	Supplementary table 3, SI	p =0.0004, Bonferroni corrected	Supplementary table 3, SI	W = 3122	Supplementary table 3, SI
+ -	Supplementary table 3, SI	Wilcoxon rank sum test	Supplementary table 3, SI	54,12	number of observations in Choice condition from lDLPFC/ rDLPFC	Supplementary table 3, SI	mean +/- S.E.M	Supplementary table 3, SI	p = 0.55	Supplementary table 3, SI	W = 249.5	Supplementary table 3, SI
+ -	Supplementary table 3, SI	Wilcoxon rank sum test	Supplementary table 3, SI	54,12	number of observations in Message condition from lDLPFC/ rDLPFC	Supplementary table 3, SI	mean +/- S.E.M	Supplementary table 3, SI	p = 0.173	Supplementary table 3, SI	W = 210.5	Supplementary table 3, SI

+ -	Supplementary table 3, SI	Wilcoxon rank sum test	par 1, p14, SI	54,12	number of observations in paired difference from lDLPFC/ rDLPFC	par 1, p14, SI	mean +/- S.E.M	par 1, p14, SI	p = 1	par 1, p14, SI	W = 280	par 1, p14, SI
+ -	Supplementary Figure 6	Fisher's exact test	p5, ms; p7, SI	324,66,84	number of observation pairs from HC/DLPFC/ OFC	p5, ms; p7, SI	mean +/- S.E.M	p5, ms; p7, SI	p= 0.0004998	p5, ms; p7, SI	NA	p5, ms; p7, SI
+ -	Supplementary Figure 6	Pairwise comparisons using Fisher's exact test	p5, ms; p7, SI	324,66	number of observation pairs from HC/DLPFC	p5, ms; p7, SI	mean +/- S.E.M	p5, ms; p7, SI	p = 0.00000135, Bonferroni corrected	p5, ms; p7, SI	NA	p5, ms; p7, SI
+ -	Supplementary Figure 6	Pairwise comparisons using Fisher's exact test	p5, ms; p7, SI	66,84	number of observation pairs from DLPFC/OFC	p5, ms; p7, SI	mean +/- S.E.M	p5, ms; p7, SI	p=0.0023343, Bonferroni corrected	p5, ms; p7, SI	NA	p5, ms; p7, SI
+ -	Fig 3A	log likelihood ratio test	p2, ms; Fig3 A	200	bootstap sample for DLPFC	p2, ms; Fig3 A	estimated parameter values	p2, ms; Fig3 A	p=0.5908494	p2, ms; Fig3 A	χ2(1) =0.289019788	p2, ms; Fig3 A
+ -	Fig 3A	log likelihood ratio test	p2, ms; Fig3 A	200	bootstap sample for OFC	p2, ms; Fig3 A	estimated parameter values	p2, ms; Fig3 A	p=1.070101e-05	p2, ms; Fig3 A	χ2(1) =19.3820154	p2, ms; Fig3 A
+ -	Fig 3A	log likelihood ratio test	p2, ms; Fig3 A	200	bootstap sample for HC	p2, ms; Fig3 A	estimated parameter values	p2, ms; Fig3 A	p=1.776357e-15	p2, ms; Fig3 A	χ2(1) =63.3455261	p2, ms; Fig3 A
+ -	Fig 3B	one sample t test	p2, ms; Fig3 B	200	bootstap sample for DLPFC	p2, ms; Fig3 B	estimated mean +/- bootstrap standard errors	p2, ms; Fig3 B	p=0.4865	p2, ms; Fig3 B	t(199)= 0.6972	p2, ms; Fig3 B
+ -	Fig 3B	one sample t test	p2, ms; Fig3 B	200	bootstap sample for OFC	p2, ms; Fig3 B	estimated mean +/- bootstrap standard errors	p2, ms; Fig3 B	p=9.909e-05	p2, ms; Fig3 B	t(199)=3.973	p2, ms; Fig3 B
+ -	Fig 3B	one sample t test	p2, ms; Fig3 B	200	bootstap sample for HC	p2, ms; Fig3 B	estimated mean +/- bootstrap standard errors	p2, ms; Fig3 B	p=7.327e-11	p2, ms; Fig3 B	t(199)=6.886	p2, ms; Fig3 B
+ -	Supplementary Fig. 3A top	Kruskal-Wallis test	p4, SI	66,132	number of observations in Choice condition from DLPFC/age-matched DLPFC healthy controls	p4, SI	mean +/- S.E.M	p4, SI	p = 0.7397	p4, SI	χ2(1) = 0.1104	p4, SI
+ -	Supplementary Fig. 3A top	Kruskal-Wallis test	p4, SI	66,132	number of observations in the Message condition from DLPFC/age-matched DLPFC healthy controls	p4, SI	mean +/- S.E.M	p4, SI	p = 0.0008698	p4, SI	χ2(1) = 11.0861	p4, SI
+ -	Supplementary Fig. 3A top	Kruskal-Wallis test	p4, SI	66,132	number of observation pairs from DLPFC/age-matched DLPFC healthy controls	p4, SI	mean +/- S.E.M	p4, SI	p = 0.000706	p4, SI	χ2(1) = 11.4734	p4, SI

+ -	Supplementary Fig. 3A bottom	Kruskal-Wallis test	p4, SI	84, 192	number of observations in the Message condition from OFC/age-matched OFC healthy controls	p4, SI	mean +/- S.E.M	p4, SI	p = 0.2597	p4, SI	χ2(1) = 1.2703	p4, SI
+ -	Supplementary Fig. 3A bottom	Kruskal-Wallis test	p4, SI	84, 192	number of observation pairs from OFC/age-matched OFC healthy controls	p4, SI	mean +/- S.E.M	p4, SI	p = 0.5437	p4, SI	χ2(1) = 0.3688	p4, SI
+ -	Supplementary Fig. 3B top	Fisher's exact test	p4, SI	54,110	number of observation in Conflict trials in the Message condition from DLPFC/age-matched DLPFC controls	p4, SI	mean +/- S.E.M	p4, SI	p = 0.0165	p4, SI	NA	p4, SI
+ -	Supplementary Fig. 3B bottom	Fisher's exact test	p4, SI	12,22	number of observation in No Conflict trials in the Message condition from OFC/age-matched OFC controls	p4, SI	mean +/- S.E.M	p4, SI	p = 1	p4, SI	NA	p4, SI
+ -	Supplementary Fig. 5A	linear regression	p6, SI	66, 324	number of observation pairs from DLPFC patients, number of observation pairs from HC	p6, SI	regression slope	p6, SI	p=.006	p6, SI	beta =.37	p6, SI
+ -	Supplementary Fig. 5B	linear regression	p6, SI	84, 324	number of observation pairs from OFC patients, number of observation pairs from HC	p6, SI	regression slope	p6, SI	p=2.44E-06	p6, SI	beta= .85	p6, SI
+ -	Supplementary Fig. 7	one sample t test	p8, SI	25	number of observations for relative emotion rating between Choice task and impersonal task	p8, SI	mean +/- S.E.M	p8, SI	p = .00000	p8, SI	t(24) = 9.05	p8, SI
+ -	Supplementary Fig. 7	one sample t test	p8, SI	25	number of observations for relative emotion rating between Choice task and low-conflict personal task	p8, SI	mean +/- S.E.M	p8, SI	p = .00000	p8, SI	t(24) = 7.58	p8, SI
+ -	Supplementary Fig. 7	one sample t test	p8, SI	25	number of observations for relative emotion rating between Choice task and high-conflict personal task	p8, SI	mean +/- S.E.M	p8, SI	p = .00000	p8, SI	t(24) = 8.16	p8, SI
+ -	Supplementary Fig. 7	one sample t test	p8, SI	26	number of observations for relative emotion rating between Message task and impersonal task	p8, SI	mean +/- S.E.M	p8, SI	p = .00000	p8, SI	t(25) = 12.74	p8, SI

+ -	Supplementary Fig. 7	one sample t test	p8, SI	26	number of observations for relative emotion rating between Message task and low-conflict personal task	p8, SI	mean +/- S.E.M	p8, SI	p = .00000	p8, SI	t(25)= 15.89	p8, SI
+ -	Supplementary Fig. 7	one sample t test	p8, SI	26	number of observations for relative emotion rating between Message task and high-conflict personal task	p8, SI	mean +/- S.E.M	p8, SI	p = .00000	p8, SI	t(25) = 14.37	p8, SI
+ -	Supplementary Fig. 8	two-way ANOVA	p9, SI	44,45,39,35	number of observations for Choice-100/ Choice-80/ Message-100/ Message-80	p9, SI	mean +/- S.E.M	p9, SI	p =0.0000077 p = .18 p = .84	p9, SI	F(1,159)=32.98 (F(1,159)=1.86 F(1,159)= 0.43	p9, SI
+ -	Supplementary Fig. 8	pairwise comparison using two sample t test	p9, SI	44,39	number of observations for Choice-100/ Message-100	p9, SI	mean +/- S.E.M	p9, SI	p=.0013	p9, SI	t(89) = 2.86	p9, SI
+ -	Supplementary Fig. 8	pairwise comparison using two sample t test	p9, SI	45,35	number of observations for Choice-80/ Message-80	p9, SI	mean +/- S.E.M	p9, SI	p =0.00000	p9, SI	t(74) = 5.31	p9, SI
+ -	Supplementary Fig. 9	Chi-square test	p10, SI	225,42,81	number of observations in Choice condition from Gneezy 2005/task with real payoff/task with hypothetical payoff	p10, SI	mean +/- S.E.	p10, SI	p = 0.8115	p10, SI	χ2(2) = 0.4178	p10, SI
+ -	Supplementary Fig. 9	Chi-square test	p10, SI	225,42,81	number of observations in Message condition from Gneezy 2005/task with real payoff/task with hypothetical payoff	p10, SI	mean +/- S.E.	p10, SI	p = 0.3983	p10, SI	χ2(2) = 1.8413	p10, SI
+ -	Supplementary Fig. 9	two-sample t test	p10, SI	42,81	number of observations in paired difference in amount given between Message and Choice condition in task with real payoff/ task with hypothetical payoff	p10, SI	mean +/- S.E.M.	p10, SI	p = 0.5531	p10, SI	t(39) = 0.598290	p10, SI
+ -	par1, p1, Online Methods	Kruskal-Wallis test	par1, p1, Online Methods	324,84,90	number of observations in Choice condition from HC/OFC/ DLPFC(including the excluded DLPFC patient who participated twice)	par1, p1, Online Methods	NA	par1, p1, Online Methods	p = 0.06603	par1, p1, Online Methods	χ2(2) = 5.4352	par1, p1, Online Methods

+ -	par1, p1, Online Methods	Kruskal-Wallis test	par1, p1, Online Methods	324,84,90	number of observations in Message condition from HC/OFC/ DLPFC(including the excluded DLPFC patient who participated twice)	par1, p1, Online Methods	NA	par1, p1, Online Methods	p = .00000486	par1, p1, Online Methods	χ2(2) = 24.4699	par1, p1, Online Methods
+ -	par1, p1, Online Methods	Kruskal-Wallis test	par1, p1, Online Methods	324,84,90	number of observation pairs from HC/OFC/ DLPFC(including the excluded DLPFC patient who participated twice)	par1, p1, Online Methods	NA	par1, p1, Online Methods	p = 0.0002292	par1, p1, Online Methods	χ2(2) = 16.7621	par1, p1, Online Methods
+ -	par1, p1, Online Methods	chi-square test for proportions	par1, p1, Online Methods	70,74	number of observations in conflict trails from OFC/DLPFC patients (with the excluded DLPFC patient who participated twice),	par1, p1, Online Methods	NA	par1, p1, Online Methods	p=0.01102	par1, p1, Online Methods	χ2(1) = 6.4619	par1, p1, Online Methods
+ -	par1, p1, Online Methods	chi-square test for proportions	par1, p1, Online Methods	270,74	number of observations in conflict trails from HC/DLPFC patients (with the excluded DLPFC patient who participated twice),	par1, p1, Online Methods	NA	par1, p1, Online Methods	p = 2.616e-07	par1, p1, Online Methods	χ2(1) = 26.5143	par1, p1, Online Methods
+ -	par1, p1, Online Methods	chi-square test for proportions	par1, p1, Online Methods	54,14,16	number of observations in no conflict trails from HC/OFC/DLPFC patients (with the excluded DLPFC patient who participated twice)	par1, p1, Online Methods	NA	par1, p1, Online Methods	p =0.9673	par1, p1, Online Methods	χ2(2) = 0.0665	par1, p1, Online Methods
+ -	par5, p1, main text	repeated measure 2 by 3 ANOVA	par5, p1, main text	2,3,40	number of condition, number of cohorts, and number of subjects	par5, p1, main text	NA	par5, p1, main text	p = 1.3e-10 ; p= 1.18e-09 ; p= 0.00215	par5, p1, main textl	F(1,37)=77.54; F(2,37) = 37.70; F(2,37) = 7.30	par5, p1, main text
+ -	par5, p1, main text	One-way ANOVA	par5, p1, main text	3,40	number of cohorts, and number of subjects	par5, p1, main text	NA	p13, SI	p = 0.2045	p13, SI	F(1,37) = 1.6575	par5, p1, main text
+ -	par5, p1, main text	One-way ANOVA	par5, p1, main text	3,40	number of cohorts, and number of subjects	par5, p1, main text	NA	par5, p1, main text	p = 0.0048	par5, p1, main text	F(2,37) = 6.192	par5, p1, main text
+ -	par5, p1, main text	Chi-square test for proportions	par5, p1, main text	270,54,70	number of observations in conflict trails under Message condition from HC/DLPFC/OFC	par5, p1, main text	NA	par5, p1, main text	p = 4.316e-12	par5, p1, main text	χ2 (2) = 52.3374	par5, p1, main text
+ -	par5, p1, main text	Chi-square test for proportions	par5, p1, main text	54, 12, 14	number of observations in no conflict trails under Message condition from HC/DLPFC/OFC	par5, p1, main text	NA	par5, p1, main text	p = 0.9731	par5, p1, main text	χ2 (2) = 0.0545	par5, p1, main text

+ -	par5, p1, main text	Chi-square test for proportions	par5, p1, main text	324,66,84	number of observation pairs from HC/DLPFC/OFC	par5, p1, main text	NA	par5, p1, main text	p = 8.795e-06	par5, p1, main text	χ2 (2) = 23.2827	par5, p1, main text

Representative figures

1. Are any representative images shown (including Western blots and immunohistochemistry/staining) in the paper?

   If so, what figure(s)?

2. For each representative image, is there a clear statement of how many time s this experiment was successfully repeated and a discussion of any limitations in repeatability?

   If so, on what page(s) is this reported?

Statistics and general methods

1. Is there a justification of the sample size?

   If so, how was it justified?

   On what page(s)?

   Even if no sample size calculation was performed, authors should report why the sample size is adequate to measure their effect size.

   The sample size for lesion and control cohorts has been shown to produce robust behavioral effects in multiple prior studies conducted in our research program(Voytek et.al.,2010; Voytek et al., 2010; Gehring et al., 2000). This is not surprising since reliable effects are obtained in monkey experiments with only 1 or 2 subjects if the neuroanatomy of the lesion is well controlled.

2. Are statistical tests justified as appropriate for every figure?

   On what page(s)?

   a. If there is a section summarizing the statistical methods in the methods, is the statistical test for each experiment clearly defined?

   yes.

   b. Do the data meet the assumptions of the specific statistical test you chose (e.g. normality for a parametric test)?

   Where is this described?

   We performed both parametric and non-parametric tests to account for possible violations of standard distributional assumptions. We included the compilation of all key statistical results in study using both parametric and non-parametric tests in Supplementary Table 3.

   c. Is there any estimate of variance within each group of data?

   Is the variance similar between groups that are being statistically compared?

   Where is this described?

   We performed fixed effect estimation to account for variance within each group.

   d. Are tests specified as one- or two-sided?

   All tests are two-sided.

   e. Are there adjustments for multiple comparisons?

   Yes, all pairwise comparisons are Bonferroni corrected.

3. Are criteria for excluding data points reported?

   Was this criterion established prior to data collection?

   On what page(s) is this described?

Yes, it is reported as "One DLPFC lesion patient answered incorrectly on more than 50% of post instruction questionnaires, and was excluded from the study. In comparison no other subjects failed to answer fewer than 90% of the questions correctly." on

4. Define the method of randomization used to assign subjects (or samples) to the experimental groups and to collect and process data.

   If no randomization was used, state so.

   On what page(s) does this appear?

The oder of our experimental conditions followed a predetermined pesudo randomization protocol to counter balance the ordering within each cohort.

Within each condition, the questions were randomly shuffled by the experimenter.

This is reported on page ii, online Methods.

5. Is a statement of the extent to which investigator knew the group allocation during the experiment and in assessing outcome included?

   If no blinding was done, state so.

   On what page(s)?

Experimenters knew whether the subjects were lesion patients or healthy controls when running the experiment.

6. For experiments in live vertebrates, is a statement of compliance with ethical guidelines/regulations included?

   On what page(s)?

N.A.

7. Is the species of the animals used reported?

   On what page(s)?

8. Is the strain of the animals (including background strains of KO/ transgenic animals used) reported?

   On what page(s)?

9. Is the sex of the animals/subjects used reported?

   On what page(s)?

Yes. on page i, Online Methods.

10. Is the age of the animals/subjects reported?

    On what page(s)?

Yes. on page i, Online Methods.

11. For animals housed in a vivarium, is the light/dark cycle reported?

    On what page(s)?

12. For animals housed in a vivarium, is the housing group (i.e. number of animals per cage) reported?

    On what page(s)?

13. For behavioral experiments, is the time of day reported (e.g. light or dark cycle)?

    On what page(s)?

14. Is the previous history of the animals/subjects (e.g. prior drug administration, surgery, behavioral testing) reported?

    On what page(s)?

Etiology were reported on page i, Online Methods.

    a. If multiple behavioral tests were conducted in the same group of animals, is this reported?

       On what page(s)?

Yes, in the procedure section, Online Methods.

15. If any animals/subjects were excluded from analysis, is this reported?

    On what page(s)?

Yes, it is reported on page i of Online Methods.

    a. How were the criteria for exclusion defined?

       Where is this described?

As reported on page i, Online Methods, one DLPFC lesion patient answered incorrectly on more than 50% of post instruction questionnaires, and was excluded from the study. In comparison no other subjects failed to answer fewer than 90% of the questions correctly.

    b. Specify reasons for any discrepancy between the number of animals at the beginning and end of the study.

       Where is this described?

Reagents

1. Have antibodies been validated for use in the system under study (assay and species)?

    a. Is antibody catalog number given?

       On what page(s) does this appear?

    b. Where were the validation data reported (citation, supplementary information, Antibodypedia)?

       On what page(s) does this appear?

2. If cell lines were used to reflect the properties of a particular tissue or disease state, is their source identified?

    On what page(s)?

    a. Were they recently authenticated?

       On what page(s) is this information reported?

Data deposition

Data deposition in a public repository is mandatory for:

a. Protein, DNA and RNA sequences
b. Macromolecular structures
c. Crystallographic data for small molecules
d. Microarray data

Deposition is strongly recommended for many other datasets for which structured public repositories exist; more details on our data policy are available here. We encourage the provision of other source data in supplementary information or in unstructured repositories such as Figshare and Dryad.

1. Are accession codes for deposit dates provided? On what page(s)?	

Computer code/software

Any custom algorithm/software that is central to the methods must be supplied by the authors in a usable and readable form for readers at the time of publication. However, referees may ask for this information at any time during the review process.

1. Identify all custom software or scripts that were required to conduct the study and where in the procedures each was used.	
2. Is computer source code/software provided with the paper or deposited in a public repository? Indicate in what form this is provided or how it can be obtained.	

Human subjects

1. Which IRB approved the protocol? Where is this stated?	As stated in page 3, paragraph 2, informed consent was obtained as approved by the Internal Review Board at University of California, Berkeley.
2. Is demographic information on all subjects provided? On what page(s)?	Yes, it is provided in table S1, page i, Online Methods.
3. Is the number of human subjects, their age and sex clearly defined? On what page(s)?	Yes, it is defined in table S1, page i, Online Methods.
4. Are the inclusion and exclusion criteria (if any) clearly specified? On what page(s)?	Yes, as reported on page i, Online Methods, one DLPFC lesion patient answered incorrectly on more than 50% of post instruction questionnaires, and was excluded from the study. In comparison no other subjects failed to answer fewer than 90% of the questions correctly.
5. How well were the groups matched? Where is this information described?	Information on matched controls is presented at Table 1, Online method and Supplementary Table 1.

6. Is a statement confirming that informed consent was obtained from all subjects included?

   On what page(s)?

   Yes, as stated in page 3, paragrap2, informed consent was obtained as approved by the Internal Review Board at University of California, Berkeley.

7. For publication of patient photos, is a statement confirming that consent to publish was obtained included?

   On what page(s)?

fMRI studies

For papers reporting functional imaging (fMRI) results please ensure that these minimal reporting guidelines are met and that all this information is clearly provided in the methods:

1. Were any subjects scanned but then rejected for the analysis after the data was collected?

   a. If yes, is the number rejected and reasons for rejection described?

      On what page(s)?

2. Is the number of blocks, trials or experimental units per session and/ or subjects specified?

   On what page(s)?

3. Is the length of each trial and interval between trials specified?

4. Is a blocked, event-related, or mixed design being used? If applicable, please specify the block length or how the event-related or mixed design was optimized.

5. Is the task design clearly described?

   Where?

6. How was behavioral performance measured?

7. Is an ANOVA or factorial design being used?

8. For data acquisition, is a whole brain scan used?

   If not, state area of acquisition.

   a. How was this region determined?

9. Is the field strength (in Tesla) of the MRI system stated?

    a. Is the pulse sequence type (gradient/spin echo, EPI/spiral) stated?

    b. Are the field-of-view, matrix size, slice thickness, and TE/TR/flip angle clearly stated?

10. Are the software and specific parameters (model/functions, smoothing kernel size if applicable, etc.) used for data processing and pre-processing clearly stated?

11. Is the coordinate space for the anatomical/functional imaging data clearly defined as subject/native space or standardized stereotaxic space, e.g., original Talairach, MNI305, ICBM152, etc? On what page(s)?

12. If there was data normalization/standardization to a specific space template, are the type of transformation (linear vs. nonlinear) used and image types being transformed clearly described? On what page(s)?

13. How were anatomical locations determined, e.g., via an automated labeling algorithm (AAL), standardized coordinate database (Talairach daemon), probabilistic atlases, etc.?

14. Were any additional regressors (behavioral covariates, motion etc) used?

15. Is the contrast construction clearly defined?

16. Is a mixed/random effects or fixed inference used?

    a. If fixed effects inference used, is this justified?

17. Were repeated measures used (multiple measurements per subject)?

    a. If so, are the method to account for within subject correlation and the assumptions made about variance clearly stated?

18. If the threshold used for inference and visualization in figures varies, is this clearly stated?

19. Are statistical inferences corrected for multiple comparisons?

    a. If not, is this labeled as uncorrected?

20. Are the results based on an ROI (region of interest) analysis?

    a. If so, is the rationale clearly described?

    b. How were the ROI's defined (functional vs anatomical localization)?

21. Is there correction for multiple comparisons within each voxel?

22. For cluster-wise significance, is the cluster-defining threshold and the corrected significance level defined?

Additional comments

Additional Comments