

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

A Voxel-wise Meta-analysis of Task-based fMRI Studies on Impaired Gain and Loss Processing in Adults with Addiction

Supplementary Contents

Table S1. Quality assessment checklist.

Table S2. Experimental paradigm details of task-based fMRI studies included in the meta-analyses.

Table S3. Image acquisition details and quality assessment scores of task-based fMRI studies included in the meta-analyses.

Table S4. Meta-analyses results regarding regional differences of task-evoked activation between participants with addiction and HCs during gain anticipation (including gain-loss contrasts).

Table S5. Meta-analyses results regarding regional differences of task-evoked activation between participants with addiction and HCs during gain outcome (including gain-loss contrasts).

Table S6. Meta-analyses results regarding regional differences of task-evoked activation between participants with all addictions and HCs during gain anticipation, excluding the studies of Martin et al. (2014) and Yip et al. (2016).

Table S7. Meta-analyses results regarding regional differences of task-evoked activation

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

between participants with all addictions and HCs during loss anticipation, excluding the studies of Martin et al. (2014) and Yip et al. (2016).

Figure S1. A simplified diagram illustrating an example of the Monetary Incentive Delay

Task

Supplementary References. Articles included in the meta-analyses.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S1. Quality assessment checklist.

Items (score 0/0.5/1 per item; total score out of 9)

Category I: Participants

1. Patients were evaluated prospectively, specific diagnostic criteria were applied, and demographic data were reported.
2. Healthy comparison participants were evaluated prospectively, psychiatric and medical illness were excluded.
3. Important variables (e.g., age, sex, illness duration, onset, medication status, comorbidity, severity of illness) were checked either by stratification or statistically.

Category II: Methods for image acquisition and analysis

4. Whole brain analysis was automated with no a prior regional selection.
5. Coordinates reported in a standard space.
6. The imaging technique used was clearly described so that it could be reproduced.
7. Measurements were clearly described so that they could be reproduced.

Category III: Results and conclusions

8. Statistical parameters for significant and important nonsignificant differences were provided.
 9. Conclusions were consistent with the results obtained and the limitations were discussed.
-

Note: When criteria were partially met, 0.5 points were awarded.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S2. Experimental paradigm, reward type, phase and contrasts of the included studies (for both primary and supplementary analyses).

Dataset	Experimental Paradigm	Reward Type	Phase and Contrasts
Luo et al., 2011	MID	monetary	anticipation (gain only)
Bischoff-Grethe et al., 2016	probabilistic feedback expectancy task	monetary	anticipation (overall; gain > loss), outcome (overall; gain > loss)
Cousijn et al., 2012	Iowa gambling task	monetary	outcome (gain > loss)
Jia et al., 2011	MID	monetary	anticipation (gain > neutral), outcome (gain > neutral)
Romanczuk-Seiferth et al., 2014	MID	monetary	anticipation (gain and loss), outcome (gain)
Rose et al., 2013	MID (revised)	monetary	outcome (gain > loss)
Yip et al., 2014	MID	monetary	anticipation (loss only), outcome (gain/loss > neutral)
Yi et al., 2019	MID	monetary	anticipation (gain > neutral), outcome (gain > neutral)
Bedi et al., 2018	SID and MID	social reward (i.e., smiling face) and monetary	outcome (gain only)
Becker et al., 2017	reward anticipation task	monetary	anticipation (monetary gain > verbal feedback)
Beck et al., 2009	MID	monetary	anticipation (loss > neutral)
Wrase et al., 2007	MID	monetary	anticipation (gain > neutral; loss > neutral)
Martin et al., 2014	reward prediction task	monetary	anticipation (loss > baseline), reward outcome (gain > baseline)
de Ruitter et al., 2008	probabilistic reversal learning task	monetary	outcome (gain and loss)
Choi et al., 2012	MID	monetary	anticipation (gain > neutral; loss > neutral)
Sescousse et al., 2013	incentive delay task	monetary and visual erotic rewards	anticipation (monetary gain > erotic cue), outcome (gain only)
Filbey et al., 2013	MID	monetary	anticipation (gain > loss)
Yip et al., 2016	MID	monetary	anticipation (gain and loss)
Goldstein et al., 2007	sustained monetary reward	monetary	outcome (gain > neutral)
Balodis et al., 2012	MID	monetary	anticipation (gain/loss > neutral), outcome (gain/loss > neutral)
Nestor et al., 2010	MID	monetary	anticipation (gain/loss > neutral), outcome (gain/loss > neutral)

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Van Hell et al., 2010	MID	monetary	anticipation (gain > neutral), reward outcome (gain > neutral)
Forbes et al., 2014	card guessing game	monetary	outcome (gain > loss)
Tobler et al., 2016	newly designed paradigm	non-social win outcome of music	outcome (gain > neutral)

Abbreviations: MID, monetary incentive delay; SID, social incentive delay; NA, not available.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S3. Image acquisition details and quality assessment scores of task-based fMRI studies included in the meta-analyses.

Dataset	Data Analysis			Image Acquisition			Source of Coordinates Included	Quality Assessment Total Scores/9
	Correction for Multiple Comparisons	Threshold (Voxel-level)	Threshold (Cluster-level)	Scanner	Software	Coordinate Space		
Luo et al., 2011	corrected	Z = 2.3	$p = .05$	3T	FSL	MNI	Table 1. Group difference: immediate–delayed; smokers > nonsmokers	9
Bischoff-Grethe et al., 2016	corrected	$p < .05$	$p < .05$	3T	FSL	MNI	Table 5. Group and Anticipation Main Effects; Table 6. Group and Outcome Main Effects; HCs > METH+	9
Cousijn et al., 2012	corrected	Z > 2.3	$p < .05$	3T	FSL	MNI	Table 2. Heavy cannabis users > controls	8
Jia et al., 2011	uncorrected	$p < .001$ or $p < .005$	NA	3T	SPM	MNI	Table S3 in Supplement 1. CD > HC	9
Romanczuk-Seiferth et al., 2014	uncorrected	$p < .01$	NA	3T	SPM	MNI	Supplementary table 14-17 and 20-23	8.5
Rose et al., 2013	corrected	NA	$p < .05$	3T	Other	TAL	Table 2. Controls > Smokers+NIC Group*Outcome (successful > Unsuccessful)	9
Yip et al., 2014	FWE corrected	NA	$p < .01$	3T	FSL	MNI	Supplementary Table 1.	8.5
Yi et al., 2019	corrected	Z > 2.3	$p < .05$	7T	FSL	MNI	Table 3. AID; Table 4. AID > MID	8.5
Bedi et al., 2018	corrected	$p < .001$	NA	3T	FSL	MNI	Table S2 in Supplement, SID and MID	9
Becker et al., 2017	uncorrected	NA	$p < .001$	3T	SPM	MNI	Table 3. AD versus Depressed patients and healthy controls	8.5
Beck et al., 2009	uncorrected	NA	$p < .001$	1.5T	SPM	MNI	Page 8 of Supplement 1.	9
Wrase et al., 2007	uncorrected	NA	$p < .001$	1.5T	SPM	MNI	Table 2. and Table 3.	9
Martin et al., 2014	corrected	$p < .005$	$p < .05$	3T	Other	TAL	Results - Smokers versus nonsmokers (in-text)	9

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

de Ruiter et al., 2008	corrected	NA	$p < .001$	3T	SPM	MNI	Table 2.	8.5
Choi et al., 2012	uncorrected	NA	$p < .001$	1.5T	SPM	MNI	Table 2. and Table 3.	9
Sescousse et al., 2013	uncorrected	$p < .001$	NA	1.5T	SPM	MNI	Supplementary Table 1., reward outcome phase (in-text)	8.5
Filbey et al., 2013	corrected	NA	$p < .05$	3T	FSL	MNI	Table 3. Marijuana users > controls	9
Yip et al., 2016	corrected	$p < .001$	$p < .05$ (FWE corrected)	3T	SPM	MNI	Table 3.	9
Goldstein et al., 2007	uncorrected	NA	$p < .05$	4T	SPM	TAL	Table 1. B. Non-boldface	9
Balodis et al., 2012	corrected	NA	$p < .05$	3T	SPM	MNI	Table 2. A1 and outcome	8.5
Nestor et al., 2010	corrected	$p < .005$	$p \leq .05$	3T	Other	TAL	Table 2. and Table 3.	9
Van Hell et al., 2010	corrected	$p < .05$	NA	1.5T	SPM	TAL	Table 2. and Table 4.	8.5
Forbes et al., 2014	corrected	$p < .001$	NA	3T	SPM	TAL	Table S1.	9
Tobler et al., 2016	uncorrected	$p < .001$	NA	3T	SPM	MNI	Table 2.	9

Abbreviations: FWE, family-wise error; FSL, FMRIB's Software Library; SPM, Statistical Parametric Mapping; MNI, Montreal Neurological Institute; TAL, Talairach space; METH+, methamphetamine dependence; HCs, healthy controls; CD, cocaine dependence; NIC, nicotine use; AID, activity incentive delay; MID, monetary incentive delay; SID, social incentive delay; AD, alcohol dependence; NA, not available.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S4. Meta-analyses results regarding regional differences of task-evoked activation between participants with addiction and HCs during gain anticipation (including gain-loss contrasts).

Local Maximum				Cluster		Egger's test	Jackknife	Heterogeneity
Region	Peak MNI coordinate (x, y, z)	SDM-Z value	<i>p</i> value	No. of voxels	Breakdown (No. of voxels)	(<i>p</i> value)	sensitivity	
<i>All addictions > HCs</i>								
L angular gyrus, BA 39	-52,-56,30	1.464	8.93e-4	160	L angular gyrus, BA 39 (92) L middle temporal gyrus, BA 21 (18) L angular gyrus, BA 22 (15) L supramarginal gyrus, BA 22 (10) L middle temporal gyrus, BA 22 (6) L supramarginal gyrus, BA 40 (6) L inferior parietal (excluding supramarginal and angular) gyri, BA 39 (6) L angular gyrus, BA 40 (3) L middle temporal gyrus, BA 39 (3) L supramarginal gyrus, BA 39 (1)	0.116	13/15	No
Corpus callosum	26,-76,28	1.539	5.63e-4	154	Corpus callosum (109) R middle occipital gyrus, BA 19 (23) R superior occipital gyrus, BA 19 (22)	0.761	13/15	No
L middle occipital gyrus, BA 39	-40,-84,24	1.518	6.40e-4	137	L middle occipital gyrus, BA 39 (76)	0.220	14/15	No

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L middle occipital gyrus, BA 19 (45)			
					L middle occipital gyrus (12)			
					L angular gyrus, BA 39 (1)			
R precuneus	4,-52,44	1.267	2.90e-3	53	R precuneus (51)	0.737	11/15	No
					Corpus callosum (2)			
L precentral gyrus, BA 6	-24,-18,72	1.286	2.59e-3	33		0.561	13/15	No
R precuneus	10,-64,64	1.396	1.31e-3	29	R precuneus, BA 7 (26)	0.076	13/15	No
					R precuneus, BA 5 (1)			
					R superior parietal gyrus, BA 7 (1)			
					R precuneus (1)			
R superior longitudinal fasciculus III	38,34,0	1.376	1.52e-3	27	R superior longitudinal fasciculus III (17)	0.537	13/15	No
					R inferior frontal gyrus, triangular part, BA 47 (6)			
					R inferior frontal gyrus, orbital part, BA 47 (2)			
					R insula, BA 47 (1)			
Corpus callosum	10,-82,30	1.265	2.91e-3	12		0.602	10/15	No
<i>All addictions < HCs</i>								
L superior frontal gyrus, medial, BA 32	0,48,18	-1.589	4.39e-4	633	L superior frontal gyrus, medial, BA 32 (172)	0.068	13/15	No
					L anterior cingulate / paracingulate gyri, BA 32 (169)			
					R anterior cingulate / paracingulate gyri,			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					BA 32 (153)			
					L superior frontal gyrus, medial, BA 10 (25)			
					L superior frontal gyrus, medial (22)			
					L anterior cingulate / paracingulate gyri (20)			
					R superior frontal gyrus, medial, BA 10 (14)			
					L anterior cingulate / paracingulate gyri, BA 24 (14)			
					Corpus callosum (11)			
					R superior frontal gyrus, medial, BA 32 (9)			
					L median network, cingulum (9)			
					R anterior cingulate / paracingulate gyri (8)			
					R anterior cingulate / paracingulate gyri, BA 24 (4)			
					R superior frontal gyrus, medial (3)			
R temporal pole, superior temporal gyrus, BA 38	30,14,-26	-1.438	1.15e-3	241	R temporal pole, superior temporal gyrus, BA 38 (90)	0.046	13/15	No
					R temporal pole, superior temporal gyrus (35)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					R inferior frontal gyrus, orbital part, BA 38 (26)			
					R inferior frontal gyrus, orbital part (19)			
					R insula, BA 38 (14)			
					R temporal pole, superior temporal gyrus, BA 20 (7)			
					R parahippocampal gyrus, BA 38 (7)			
					R parahippocampal gyrus, BA 28 (7)			
					R insula (2)			
					R temporal pole, superior temporal gyrus, BA 28 (2)			
					R parahippocampal gyrus, BA 36 (1)			
L superior longitudinal fasciculus III	-46,28,8	-1.639	3.51e-4	209	L inferior frontal gyrus, triangular part, BA 45 (108)	0.630	13/15	No
					L superior longitudinal fasciculus III (43)			
					Corpus callosum (37)			
					L inferior frontal gyrus, triangular part, BA 48 (5)			
					L inferior network, inferior fronto-occipital fasciculus (5)			
					L inferior frontal gyrus, triangular part, BA 47 (5)			
					L anterior thalamic projections (4)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

L striatum	-16,14,-16	-1.46	9.96e-4	135	L striatum (2) L striatum (43) L inferior network, uncinata fasciculus (16) L olfactory cortex, BA 25 (14) L superior frontal gyrus, orbital part, BA 11 (14) L inferior frontal gyrus, orbital part, BA 11 (12) L olfactory cortex, BA 11 (9) L gyrus rectus, BA 11 (8) L superior frontal gyrus, orbital part, BA 25 (4) Corpus callosum (3) L lenticular nucleus, putamen, BA 25 (2) L gyrus rectus, BA 25 (2) L caudate nucleus, BA 11 (1) L caudate nucleus, BA 25 (1)	0.027	12/15	Yes
L inferior network, inferior longitudinal fasciculus	-36,-50,-10	-1.502	7.69e-4	100	L inferior network, inferior longitudinal fasciculus (75) L fusiform gyrus, BA 37 (19) L inferior temporal gyrus, BA 37 (6)	0.088	13/15	No
R inferior network, inferior	38,-16,-8	-1.562	4.75e-4	71	R inferior network, inferior	0.143	13/15	No

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

fronto-occipital fasciculus						fronto-occipital fasciculus (22)			
						R lenticular nucleus, putamen, BA 48 (12)			
						Corpus callosum (7)			
						R insula, BA 48 (3)			
						R inferior network, inferior longitudinal fasciculus (3)			
R supplementary motor area, BA 6	2,18,62	-1.418	1.31e-3	68		L supplementary motor area, BA 6 (32)	0.156	13/15	No
						R supplementary motor area, BA 6 (13)			
						R supplementary motor area, BA 8 (7)			
						R supplementary motor area (4)			
						L supplementary motor area (4)			
						R superior frontal gyrus, medial, BA 8 (1)			
						L supplementary motor area, BA 8 (1)			
Corpus callosum	-24,-52,50	-1.379	1.72e-3	36		Corpus callosum (24)	0.340	13/15	No
						L inferior parietal (excluding supramarginal and angular) gyri, BA 7 (7)			
						L superior parietal gyrus, BA 7 (5)			
R inferior network, inferior longitudinal fasciculus	30,-22,-8	-1.403	1.47e-3	10		R inferior network, inferior longitudinal fasciculus (3)	0.167	9/15	No
						Corpus callosum (3)			
						R hippocampus, BA 20 (2)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

<i>SDs > HCs</i>								
L middle occipital gyrus, BA 39	-40,-80,22	1.818	5.16e-5	934	R optic radiations (1) R inferior network, inferior fronto-occipital fasciculus (1)	0.721	11/11	No
					L angular gyrus, BA 39 (243)			
					L middle occipital gyrus, BA 19 (230)			
					L middle occipital gyrus, BA 39 (190)			
					L middle temporal gyrus, BA 39 (53)			
					L middle temporal gyrus, BA 21 (42)			
					L middle occipital gyrus (27)			
					L inferior network, inferior longitudinal fasciculus (25)			
					L angular gyrus, BA 22 (14)			
					L angular gyrus, BA 19 (12)			
					L middle temporal gyrus, BA 22 (12)			
					Corpus callosum (11)			
					L supramarginal gyrus, BA 22 (9)			
					L middle temporal gyrus, BA 37 (4)			
					L inferior parietal (excluding supramarginal and angular) gyri, BA 39 (3)			
					L superior longitudinal fasciculus II (3)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L middle occipital gyrus, BA 37 (2)			
					L supramarginal gyrus, BA 39 (2)			
					L angular gyrus (2)			
Corpus callosum	24,-76,24	1.536	3.04e-4	476	Corpus callosum (272)	0.840	10/11	No
					R middle occipital gyrus, BA 19 (91)			
					R superior occipital gyrus, BA 19 (77)			
					R cuneus cortex, BA 18 (16)			
					R cuneus cortex, BA 19 (10)			
					R inferior network, inferior longitudinal fasciculus (3)			
					R cuneus cortex (2)			
					L cuneus cortex, BA 18 (1)			
					L cuneus cortex (1)			
					R superior occipital gyrus, BA 18 (1)			
					R superior occipital gyrus, BA 7 (1)			
					R middle occipital gyrus, BA 39 (1)			
Right precuneus, BA 7	10,-62,68	1.319	1.25e-3	57	R precuneus, BA 7 (43)	0.081	10/11	No
					R precuneus, BA 5 (8)			
					R superior parietal gyrus, BA 7 (4)			
					R superior parietal gyrus (1)			
					R precuneus (1)			
L hippocampus, BA 37	-26,-34,-4	1.253	1.80e-3	48	L hippocampus, BA 37 (21)	0.136	10/11	No
					L optic radiations (13)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					Corpus callosum (9)			
					L hippocampus, BA 27 (4)			
					L hippocampus (1)			
L precuneus, BA 23	0,-58,24	1.195	2.51e-3	27	L precuneus, BA 23 (11)	0.174	10/11	No
					R precuneus, BA 23 (9)			
					L precuneus (5)			
					R posterior cingulate gyrus (1)			
					R precuneus (1)			
L calcarine fissure / surrounding cortex, BA 17	2,-96,8	1.268	1.62e-3	20	L calcarine fissure / surrounding cortex, BA 17 (9)	0.142	10/11	No
					L cuneus cortex, BA 18 (4)			
					L calcarine fissure / surrounding cortex (4)			
					L calcarine fissure / surrounding cortex, BA 18 (2)			
					L cuneus cortex, BA 17 (1)			
<i>SDs < HCs</i>								
R anterior cingulate / paracingulate gyri, BA 32	6,42,16	-1.473	8.46e-4	779	L anterior cingulate / paracingulate gyri, BA 32 (207)	0.110	9/11	No
					R anterior cingulate / paracingulate gyri, BA 32 (195)			
					L superior frontal gyrus, medial, BA 32 (106)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

L anterior cingulate / paracingulate gyri,
BA 24 (104)

L anterior cingulate / paracingulate gyri
(50)

R anterior cingulate / paracingulate gyri,
BA 24 (45)

R median cingulate / paracingulate gyri,
BA 24 (23)

R median cingulate / paracingulate gyri,
BA 32 (14)

L superior frontal gyrus, medial (13)

R anterior cingulate / paracingulate gyri
(5)

Corpus callosum (4)

L median cingulate / paracingulate gyri,
BA 24 (4)

R superior frontal gyrus, medial, BA 32
(3)

L median cingulate / paracingulate gyri
(2)

R median network, cingulum (2)

R superior frontal gyrus, medial, BA 10
(1)

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

L superior longitudinal fasciculus III	-44,26,8	-1.513	5.63e-4	350	R superior frontal gyrus, medial (1) L inferior frontal gyrus, triangular part, BA 45 (114) L superior longitudinal fasciculus III (51) Corpus callosum (48) L inferior frontal gyrus, opercular part, BA 48 (42) L inferior frontal gyrus, opercular part, BA 44 (42) L inferior frontal gyrus, triangular part, BA 48 (35) L inferior frontal gyrus, triangular part, BA 47 (6) L inferior frontal gyrus, triangular part (3) L anterior thalamic projections (3) L frontal aslant tract (2) L insula, BA 48 (1) L inferior network, inferior fronto-occipital fasciculus (1) L frontal inferior longitudinal fasciculus (1) L striatum (1)	0.631	9/11	No
L striatum	-16,14,-16	-1.575	3.41e-4	223	L striatum (61)	0.023	9/11	Yes

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L inferior frontal gyrus, orbital part, BA 11 (28)			
					L olfactory cortex, BA 25 (25)			
					L inferior network, uncinate fasciculus (21)			
					L superior frontal gyrus, orbital part, BA 11 (21)			
					L gyrus rectus, BA 11 (11)			
					L olfactory cortex, BA 11 (10)			
					Corpus callosum (10)			
					L lenticular nucleus, putamen, BA 25 (8)			
					L gyrus rectus, BA 25 (6)			
					L superior frontal gyrus, orbital part, BA 25 (5)			
					L caudate nucleus, BA 25 (3)			
					L caudate nucleus, BA 11 (2)			
					L lenticular nucleus, putamen, BA 48 (1)			
					L olfactory cortex, BA 48 (1)			
Corpus callosum	-24,-52,50	-1.436	1.11e-3	54	Corpus callosum (32)	0.264	9/11	No
					L inferior parietal (excluding supramarginal and angular) gyri, BA 7 (13)			
					L superior parietal gyrus, BA 7 (8)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L inferior parietal (excluding supramarginal and angular) gyri, BA 40 (1)			
R inferior network, inferior fronto-occipital fasciculus	34,-18,-4	-1.382	1.75e-3	33	R inferior network, inferior fronto-occipital fasciculus (12)	0.135	9/11	No
					Corpus callosum (7)			
					R lenticular nucleus, putamen, BA 48 (6)			
					R striatum (1)			
L inferior network, inferior longitudinal fasciculus	-36,-50,-12	-1.287	3.67e-3	25	L inferior network, inferior longitudinal fasciculus (22)	0.113	9/11	No
					L fusiform gyrus, BA 37 (3)			

Abbreviations: HCs, healthy controls; SDs, substance dependence; BA, Brodmann area; R, right; L, left.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S5. Meta-analyses results regarding regional differences of task-evoked activation between participants with addiction and HCs during gain outcome (including gain-loss contrasts).

Local Maximum				Cluster		Egger's test	Jackknife	Heterogeneity
Region	Peak MNI coordinate (x, y, z)	SDM-Z value	<i>p</i> value	No. of voxels	Breakdown (No. of voxels)	(<i>p</i> value)	sensitivity	
<i>All addictions > HCs</i>								
R middle occipital gyrus, BA 19	30,-78,36	1.131	9.08e-4	266	R middle occipital gyrus, BA 19 (137) R superior occipital gyrus, BA 19 (48) R superior occipital gyrus, BA 7 (30) Corpus callosum (23) R middle occipital gyrus, BA 7 (18) R middle occipital gyrus, BA 39 (9) R middle occipital gyrus (1)	0.327	18/20	No
R temporal pole, superior temporal gyrus, BA 20	42,8,-30	1.048	1.59e-3	154	R inferior network, inferior longitudinal fasciculus (59) R temporal pole, middle temporal gyrus, BA 20 (35) R temporal pole, superior temporal gyrus, BA 38 (15) R temporal pole, superior temporal gyrus, BA 20 (12) R temporal pole, middle temporal gyrus,	0.131	18/20	No

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

						BA 21 (9)			
						R temporal pole, middle temporal gyrus,			
						BA 38 (8)			
						R middle temporal gyrus, BA 20 (7)			
						R inferior network, uncinata fasciculus			
						(4)			
						R middle temporal gyrus, BA 21 (4)			
<i>All addictions < HCs</i>									
R median cingulate / paracingulate gyri,	2,-18,36	-2.06	2.06e-5	1352		R median cingulate / paracingulate gyri,	0.848	20/20	No
BA 23						BA 23 (267)			
						L median cingulate / paracingulate gyri,			
						BA 23 (259)			
						L median cingulate / paracingulate gyri,			
						BA 24 (133)			
						R median cingulate / paracingulate gyri,			
						BA 24 (122)			
						R median network, cingulum (119)			
						L median network, cingulum (95)			
						R median cingulate / paracingulate gyri			
						(85)			
						Corpus callosum (74)			
						L median cingulate / paracingulate gyri			
						(59)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L anterior cingulate / paracingulate gyri (13)			
					L posterior cingulate gyrus, BA 23 (11)			
					L anterior cingulate / paracingulate gyri, BA 24 (9)			
					L superior frontal gyrus, medial (7)			
					R median cingulate / paracingulate gyri, BA 32 (7)			
					L superior frontal gyrus, medial, BA 32 (7)			
					L superior frontal gyrus, medial, BA 24 (3)			
					R posterior cingulate gyrus, BA 23 (1)			
					R superior frontal gyrus, medial, BA 32 (1)			
					R supplementary motor area (1)			
					L posterior cingulate gyrus (1)			
R inferior parietal (excluding supramarginal and angular) gyri, BA 40	52,-54,44	-1.393	2.64e-3	145	R inferior parietal (excluding supramarginal and angular) gyri, BA 40 (79)	0.488	18/20	Yes
					R inferior parietal (excluding supramarginal and angular) gyri, BA 39 (35)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					R angular gyrus, BA 39 (25)			
					R angular gyrus, BA 40 (5)			
					R inferior parietal (excluding supramarginal and angular) gyri (1)			
L middle frontal gyrus, BA 46	-34,40,32	-1.361	3.07e-3	37	L middle frontal gyrus, BA 46 (28)	0.181	18/20	No
					L middle frontal gyrus, BA 9 (9)			
<i>SDs > HCs</i>								
(None)								
<i>SDs < HCs</i>								
R median cingulate / paracingulate gyri, BA 23	2,-26,36	-2.095	4.13e-5	1519	R median cingulate / paracingulate gyri, BA 23 (279)	0.767	16/16	No
					L median cingulate / paracingulate gyri, BA 23 (276)			
					L median cingulate / paracingulate gyri, BA 24 (135)			
					R median network, cingulum (134)			
					R median cingulate / paracingulate gyri, BA 24 (127)			
					R median cingulate / paracingulate gyri (123)			
					L median network, cingulum (115)			
					Corpus callosum (87)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

L median cingulate / paracingulate gyri
(75)
L anterior cingulate / paracingulate gyri
(17)
L superior frontal gyrus, medial, BA 32
(16)
R median cingulate / paracingulate gyri,
BA 32 (13)
L posterior cingulate gyrus, BA 23 (13)
L superior frontal gyrus, medial (6)
L anterior cingulate / paracingulate gyri,
BA 24 (3)
R posterior cingulate gyrus, BA 23 (3)
L superior frontal gyrus, medial, BA 24
(2)
L median cingulate / paracingulate gyri,
BA 32 (2)
R superior frontal gyrus, medial, BA 32
(2)
L supplementary motor area, BA 32 (2)
L supplementary motor area (2)
R supplementary motor area (1)
L posterior cingulate gyrus (1)

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

R inferior parietal (excluding supramarginal and angular) gyri, BA 40	52,-54,44	-1.417	2.58e-3	170	R inferior parietal (excluding supramarginal and angular) gyri, BA 40 (62) R angular gyrus, BA 39 (53) R inferior parietal (excluding supramarginal and angular) gyri, BA 39 (34) R angular gyrus, BA 22 (11) R angular gyrus, BA 40 (6) R inferior parietal (excluding supramarginal and angular) gyri (3) R superior temporal gyrus, BA 22 (1)	0.423	14/16	Yes
--	-----------	--------	---------	-----	---	-------	-------	-----

Abbreviations: HCs, healthy controls; SDs, substance dependence; BA, Brodmann area; R, right; L, left.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S6. Meta-analyses results regarding regional differences of task-evoked activation between participants with all addictions and HCs during gain anticipation, excluding the studies of Martin et al. (2014) and Yip et al. (2016).

Local Maximum				Cluster		Egger's test	Jackknife	Heterogeneity
Region	Peak MNI coordinate (x, y, z)	SDM-Z value	<i>p</i> value	No. of voxels	Breakdown (No. of voxels)	(<i>p</i> value)	sensitivity	
<i>All addictions > HCs</i>								
L angular gyrus, BA 39	-52,-56,32	1.852	1.65e-4	456	L angular gyrus, BA 39 (159) L middle temporal gyrus, BA 21 (50) L supramarginal gyrus, BA 40 (47) L middle temporal gyrus, BA 22 (37) L supramarginal gyrus, BA 22 (31) L supramarginal gyrus, BA 48 (23) L inferior parietal (excluding supramarginal and angular) gyri, BA 39 (23) L angular gyrus, BA 22 (21) L inferior parietal (excluding supramarginal and angular) gyri, BA 40 (13) L middle temporal gyrus, BA 39 (11) L supramarginal gyrus, BA 42 (8) L angular gyrus, BA 40 (7)	0.464	11/11	No

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L superior temporal gyrus, BA 42 (7)			
					L superior temporal gyrus, BA 22 (5)			
					L arcuate network, posterior segment (4)			
					L supramarginal gyrus, BA 39 (4)			
					L middle temporal gyrus, BA 42 (3)			
					L middle temporal gyrus, BA 37 (2)			
					L angular gyrus, BA 48 (1)			
L precentral gyrus, BA 6	-24,-16,74	1.503	1.21e-3	59		0.314	9/11	No
R precuneus	10,-54,46	1.357	3.00e-3	27	R precuneus (26)	0.900	8/11	No
					Corpus callosum (1)			
<i>All addictions < HCs</i>								
R temporal pole, superior temporal gyrus, BA 38	30,14,-26	-1.608	1.00e-3	377	R temporal pole, superior temporal gyrus, BA 38 (135)	0.016	10/11	No
					R temporal pole, superior temporal gyrus (41)			
					R inferior frontal gyrus, orbital part, BA 38 (38)			
					R insula, BA 38 (24)			
					R parahippocampal gyrus, BA 28 (24)			
					R inferior frontal gyrus, orbital part (20)			
					R parahippocampal gyrus, BA 38 (13)			
					R temporal pole, superior temporal gyrus, BA 20 (12)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					R temporal pole, superior temporal gyrus, BA 34 (8)			
					R temporal pole, superior temporal gyrus, BA 28 (3)			
					R insula, BA 48 (3)			
					R parahippocampal gyrus, BA 36 (3)			
					R insula (2)			
					R inferior network, inferior longitudinal fasciculus (2)			
					R parahippocampal gyrus (1)			
					R olfactory cortex (1)			
L supplementary motor area, BA 6	0,16,62	-1.788	2.58e-4	215	L supplementary motor area, BA 6 (94)	0.016	10/11	No
					R supplementary motor area, BA 6 (44)			
					R supplementary motor area, BA 8 (24)			
					L supplementary motor area (22)			
					R supplementary motor area (9)			
					L supplementary motor area, BA 8 (8)			
					R superior frontal gyrus, medial, BA 8 (3)			
L striatum	-16,16,-12	-1.626	9.08e-4	219	L striatum (63)	0.008	8/11	Yes
					L olfactory cortex, BA 25 (29)			
					L inferior network, uncinata fasciculus (23)			
					L superior frontal gyrus, orbital part, BA			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					11 (19)			
					L inferior frontal gyrus, orbital part, BA			
					11 (18)			
					L gyrus rectus, BA 11 (13)			
					L lenticular nucleus, putamen, BA 25			
					(10)			
					Corpus callosum (10)			
					L olfactory cortex, BA 11 (7)			
					L gyrus rectus, BA 25 (6)			
					L superior frontal gyrus, orbital part, BA			
					25 (5)			
					L caudate nucleus, BA 25 (4)			
					L caudate nucleus, BA 11 (2)			
L inferior network, inferior longitudinal fasciculus	-36,-50,-10	-1.827	1.81e-4	193	L inferior network, inferior longitudinal fasciculus (116)	0.124	9/11	No
					L fusiform gyrus, BA 37 (50)			
					L inferior temporal gyrus, BA 37 (24)			
					L inferior temporal gyrus, BA 20 (2)			
L middle frontal gyrus	-24,46,30	-1.465	2.55e-3	24	L middle frontal gyrus, BA 46 (11)	0.082	9/11	No
					L middle frontal gyrus, BA 9 (9)			
					L middle frontal gyrus (4)			

Abbreviations: HCs, healthy controls; BA, Brodmann area; R, right; L, left.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Table S7. Meta-analyses results regarding regional differences of task-evoked activation between participants with all addictions and HCs during loss anticipation, excluding the studies of Martin et al. (2014) and Yip et al. (2016).

Local Maximum				Cluster		Egger's test	Jackknife	Heterogeneity
Region	Peak MNI coordinate (x, y, z)	SDM-Z value	p value	No. of voxels	Breakdown (No. of voxels)	(p value)	sensitivity	
<i>All addictions > HCs</i>								
L postcentral gyrus, BA 4	-50,-20,46	1.485	3.25e-4	581	L postcentral gyrus, BA 4 (232) L postcentral gyrus, BA 3 (141) L postcentral gyrus, BA 6 (97) L inferior parietal (excluding supramarginal and angular) gyri, BA 3 (55) L precentral gyrus, BA 6 (18) L postcentral gyrus (12) L supramarginal gyrus, BA 3 (11) L precentral gyrus, BA 4 (9) L inferior parietal (excluding supramarginal and angular) gyri, BA 2 (3) L hand inferior U tract (2) L postcentral gyrus, BA 43 (1)	0.552	6/8	No
Corpus callosum	14,-14,66	1.306	1.91e-3	358	R precentral gyrus, BA 6 (156)	0.395	6/8	No

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					Corpus callosum (60)			
					R precentral gyrus, BA 4 (43)			
					R postcentral gyrus, BA 4 (29)			
					R superior frontal gyrus, dorsolateral, BA 6 (26)			
					R supplementary motor area, BA 6 (23)			
					R cortico-spinal projections (9)			
					R postcentral gyrus, BA 3 (8)			
					R precentral gyrus (2)			
					R precentral gyrus, BA 3 (1)			
					R postcentral gyrus (1)			
L middle frontal gyrus, BA 10	-30,56,6	1.401	1.08e-3	193	L middle frontal gyrus, BA 10 (107)	0.321	6/8	No
					L superior frontal gyrus, dorsolateral, BA 10 (34)			
					L middle frontal gyrus (10)			
					L middle frontal gyrus, BA 11 (8)			
					L superior frontal gyrus, dorsolateral, BA 11 (7)			
					L middle frontal gyrus, BA 46 (6)			
					Corpus callosum (5)			
					L middle frontal gyrus, BA 47 (4)			
					L superior frontal gyrus, orbital part, BA 11 (3)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

					L anterior thalamic projections (3)			
					L middle frontal gyrus, orbital part, BA 47 (3)			
					L middle frontal gyrus, orbital part, BA 10 (1)			
					L superior frontal gyrus, orbital part, BA 47 (1)			
					L superior frontal gyrus, dorsolateral, BA 47 (1)			
R striatum	24,12,4	1.451	5.63e-4	152	R striatum (101)	0.661	6/8	No
					R lenticular nucleus, putamen, BA 48 (31)			
					R superior longitudinal fasciculus III (10)			
					R lenticular nucleus, putamen (4)			
					R inferior network, inferior fronto-occipital fasciculus (4)			
					R fronto-insular tract 3 (2)			
R inferior frontal gyrus, opercular part, BA 48	52,14,6	1.133	3.91e-3	25	R inferior frontal gyrus, opercular part, BA 48 (20)	0.429	6/8	No
					R inferior frontal gyrus, triangular part, BA 45 (4)			
					R inferior frontal gyrus, triangular part, BA 48 (1)			

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

All addictions < HCs

L striatum	-12,16,-8	-1.785	1.03e-4	2321	L striatum (376) L temporal pole, superior temporal gyrus, BA 38 (127) L inferior network, uncinete fasciculus (121) L lenticular nucleus, putamen, BA 48 (113) L inferior network, inferior longitudinal fasciculus (105) Corpus callosum (102) R striatum (90) L olfactory cortex, BA 25 (76) L gyrus rectus, BA 11 (73) L inferior temporal gyrus, BA 20 (73) Anterior commissure (56) L caudate nucleus, BA 25 (53) L temporal pole, middle temporal gyrus, BA 20 (48) L anterior thalamic projections (47) L temporal pole, middle temporal gyrus, BA 38 (41) L amygdala, BA 34 (37)	0.069	8/8	No
------------	-----------	--------	---------	------	--	-------	-----	----

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

R olfactory cortex, BA 25 (33)

L temporal pole, superior temporal gyrus,
BA 48 (29)

L temporal pole, superior temporal gyrus
(27)

L middle temporal gyrus, BA 20 (24)

L middle temporal gyrus, BA 21 (24)

L olfactory cortex (24)

L temporal pole, middle temporal gyrus,
BA 21 (20)

L olfactory cortex, BA 11 (17)

L pons (17)

L temporal pole, superior temporal gyrus,
BA 20 (17)

L superior frontal gyrus, orbital part, BA
11 (16)

L inferior network, inferior
fronto-occipital fasciculus (15)

L superior frontal gyrus, medial orbital,
BA 11 (14)

L lenticular nucleus, putamen, BA 25
(13)

L gyrus rectus, BA 25 (12)

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

R caudate nucleus, BA 25 (12)

R gyrus rectus, BA 11 (10)

L insula, BA 48 (10)

L temporal pole, superior temporal gyrus,
BA 21 (8)

L lenticular nucleus, putamen, BA 11 (6)

L caudate nucleus (6)

L cortico-spinal projections (5)

L anterior cingulate / paracingulate gyri
(5)

R olfactory cortex (5)

L anterior cingulate / paracingulate gyri,
BA 11 (4)

L gyrus rectus (4)

R gyrus rectus, BA 25 (4)

R superior frontal gyrus, medial orbital,
BA 11 (4)

L superior temporal gyrus, BA 48 (4)

R median network, cingulum (3)

R gyrus rectus (3)

R olfactory cortex, BA 11 (3)

L lenticular nucleus, putamen (3)

L anterior cingulate / paracingulate gyri,

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

BA 25 (3)
L lenticular nucleus, putamen, BA 34 (2)
L caudate nucleus, BA 11 (2)
L inferior temporal gyrus (2)
L amygdala, BA 36 (2)
L inferior temporal gyrus, BA 36 (2)
R superior frontal gyrus, medial orbital
(2)
L superior frontal gyrus, orbital part (1)
R caudate nucleus (1)
L temporal pole, superior temporal gyrus,
BA 36 (1)
L amygdala, BA 20 (1)

Abbreviations: HCs, healthy controls; BA, Brodmann area; R, right; L, left.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. J Psychiatry Neurosci 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

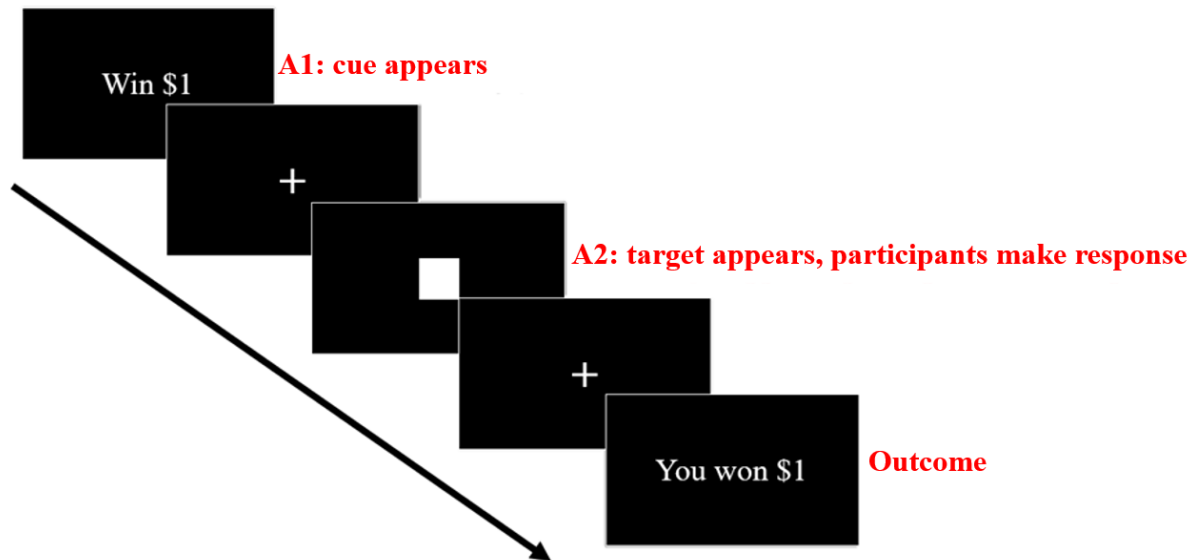


Figure S1. A simplified diagram illustrating an example of the Monetary Incentive Delay Task.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

Supplementary references

1. Luo S, Ainslie G, Giragosian L, et al. Striatal hyposensitivity to delayed rewards among cigarette smokers. *Drug and alcohol dependence*. 2011;116(1-3):18-23.
2. Bischoff-Grethe A, Connolly CG, Jordan SJ, et al. Altered reward expectancy in individuals with recent methamphetamine dependence. *Journal of Psychopharmacology*. 2017;31(1):17-30.
3. Cousijn J, Wiers RW, Ridderinkhof KR, et al. Individual differences in decision making and reward processing predict changes in cannabis use: a prospective functional magnetic resonance imaging study. *Addiction biology*. 2013;18(6):1013-23.
4. Jia Z, Worhunsky PD, Carroll KM, et al. An initial study of neural responses to monetary incentives as related to treatment outcome in cocaine dependence. *Biological psychiatry*. 2011;70(6):553-60.
5. Romanczuk-Seiferth N, Koehler S, Dreesen C, et al. Pathological gambling and alcohol dependence: neural disturbances in reward and loss avoidance processing. *Addiction biology*. 2015;20(3):557-69.
6. Rose EJ, Ross TJ, Salmeron BJ, et al. Acute nicotine differentially impacts anticipatory valence- and magnitude-related striatal activity. *Biological psychiatry*. 2013;73(3):280-8.
7. Yip SW, DeVito EE, Kober H, et al. Pretreatment measures of brain structure and reward-processing brain function in cannabis dependence: an exploratory study of relationships with abstinence during behavioral treatment. *Drug and alcohol dependence*.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

2014;140:33-41.

8. Yi JY, Dichter GS, Reese ED, et al. Neural reward response to substance-free activity images in opiate use disorder patients with depressive symptoms. *Drug and Alcohol Dependence*. 2019;198:180-9.
9. Bedi G, Hao X, Van Dam NT, et al. Social motivational processing and interpersonal function in aging cocaine smokers. *Addiction biology*. 2019;24(5):1044-55.
10. Becker A, Kirsch M, Gerchen MF, et al. Striatal activation and frontostriatal connectivity during non-drug reward anticipation in alcohol dependence. *Addiction biology*. 2017;22(3):833-43.
11. Beck A, Schlagenhaut F, Wüstenberg T, et al. Ventral striatal activation during reward anticipation correlates with impulsivity in alcoholics. *Biological psychiatry*. 2009;66(8):734-42.
12. Wrase J, Schlagenhaut F, Kienast T, et al. Dysfunction of reward processing correlates with alcohol craving in detoxified alcoholics. *Neuroimage*. 2007;35(2):787-94.
13. Martin LE, Cox LS, Brooks WM, et al. Winning and losing: differences in reward and punishment sensitivity between smokers and nonsmokers. *Brain and behavior*. 2014;4(6):915-24.
14. De Ruiter MB, Veltman DJ, Goudriaan AE, et al. Response perseveration and ventral prefrontal sensitivity to reward and punishment in male problem gamblers and smokers. *Neuropsychopharmacology*. 2009;34(4):1027.

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

15. Yip SW, DeVito EE, Kober H, et al. Anticipatory reward processing among cocaine-dependent individuals with and without concurrent methadone-maintenance treatment: Relationship to treatment response. *Drug and alcohol dependence*. 2016;166:134-42.
16. Goldstein RZ, Alia-Klein N, Tomasi D, et al. Is decreased prefrontal cortical sensitivity to monetary reward associated with impaired motivation and self-control in cocaine addiction? *American Journal of Psychiatry*. 2007;164(1):43-51.
17. Nestor L, Hester R, Garavan H. Increased ventral striatal BOLD activity during non-drug reward anticipation in cannabis users. *Neuroimage*. 2010;49(1):1133-43.
18. van Hell HH, Vink M, Ossewaarde L, et al. Chronic effects of cannabis use on the human reward system: an fMRI study. *European neuropsychopharmacology*. 2010;20(3):153-63.
19. Forbes EE, Rodriguez EE, Musselman S, et al. Prefrontal response and frontostriatal functional connectivity to monetary reward in abstinent alcohol-dependent young adults. *PloS one*. 2014;9(5).
20. Tobler PN, Preller KH, Campbell-Meiklejohn DK, et al. Shared neural basis of social and non-social reward deficits in chronic cocaine users. *Social cognitive and affective neuroscience*. 2016;11(6):1017-25.
21. Filbey FM, Dunlop J, Myers US. Neural effects of positive and negative incentives during marijuana withdrawal. *PloS one*. 2013;8(5).
22. Choi J-S, Shin Y-C, Jung WH, et al. Altered brain activity during reward anticipation in

Appendix 1 to Qiu Z, Wang J. A voxel-wise meta-analysis of task-based functional MRI studies on impaired gain and loss processing in adults with addiction. *J Psychiatry Neurosci* 2020.

DOI: 10.1503/jpn.200047

© Joule Inc.

Online appendices are unedited and posted as supplied by the authors.

pathological gambling and obsessive-compulsive disorder. *PLoS One*. 2012;7(9):e45938.

23. Sescousse G, Barbalat G, Domenech P, et al. Imbalance in the sensitivity to different types of rewards in pathological gambling. *Brain*. 2013;136(8):2527-38.

24. Balodis IM, Kober H, Worhunsky PD, et al. Diminished frontostriatal activity during processing of monetary rewards and losses in pathological gambling. *Biological psychiatry*. 2012;71(8):749-57.