Supporting Information

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SI Results

Pre-scan Measures. Upon arrival, participants reported their general craving for food and cigarettes. Although participants reported overall greater desire for cigarettes [M_{cig} = 3.88, M_{food} = 2.95; $t(20) = 3.36$, $P < 0.01$], these ratings were not significantly correlated with reports of craving provided during the in-scanner task. More specifically, for food, these ratings were not at all correlated ($r = 0.12$, $P > 0.58$), and for cigarettes they were marginally correlated ($r = 0.40$, $P > 0.07$). We believe that the absence of significant correlations here suggest that the differences observed in the in-scanner ratings were not due to differences in pre-scanner craving or to differential abstinence.

Furthermore, duration of use, age of onset of smoking, and education were not correlated with in-scanner reported craving for cigarettes ($P > 0.21$). On the other hand, in-scanner level of craving for cigarettes (but not for food) was significantly correlated with the number of cigarettes per day that participants reported smoking ($r = 0.55$, $P = 0.01$). This is consistent with our prior work with an out-of-scanner version of this task (1).

Finally, duration of use, age of onset, and education were not significantly correlated with regulation of craving in this task. Duration of smoking was marginally negatively correlated with regulation success for cigarette smoking only ($r = -0.43$, $P > 0.06$).

Effects of Run. To assess whether reported craving as well as regulatory effects were stable across the task, we first subjected the run-by-run data to a 2 (Strategy: NOW and LATER) × 2 (Cue type: Food vs. Cigarettes) × 5 (Runs: 1–5) repeated-measures ANOVA. As reported in the main analysis, we found a significant main effect of strategy [$F(1,20) = 42.66$, $P < 0.001$], a significant main effect of cue type [$F(1,20) = 12.04$, $P < 0.005$], and a cue × strategy interaction [$F(1,20) = 6.66$, $P < 0.05$]. However, we did not find any effect of run [$F(4,17) = 0.31$, $P > 0.8$] or any interactions with runs (all $P > 0.3$).

To further address this concern, we then computed a "regulation success" score for each cue type, for each run separately. We subjected these scores to a 2 (Cue type: Food vs. Cigarettes) × 5 (Runs: 1–5) repeated-measures ANOVA. We found a main effect of cue type [$F(1,20) = 6.66$, $P < 0.05$], as expected, but no effect of run [$F(4,17) = 0.36$, $P > 0.61$], and no interaction [$F(4,17) = 0.77$, $P > 0.55$].

Finally, we subjected each pair of "regulation success" scores for each run to t tests. No two runs were significantly different from each other (all $P > 0.14$).

1. Kober H, Kross EF, Mischel W, Hart CL, Ochsner KN (2010) Regulation of craving by cognitive strategies in cigarette smokers. *Drug Alcohol Depend* 106:52–55.

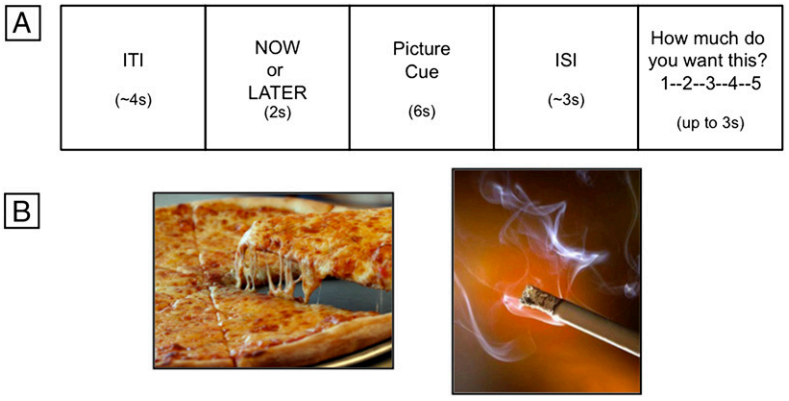

Fig. S1. Schematic illustration of trial structure. Numbers in parentheses represent the approximate durations for each trial event and were not present on the screen. Each trial began with an intertrial interval (ITI) jittered around 4 s. A 2-s instructional cue (NOW or LATER) was then followed by a 6-s presentation of the picture cue (either food or cigarettes). Following an interstimulus interval (ISI) jittered around 3 s, participants next indicated how much they wanted to consume the substance at that moment using a rating scale of 1 (not at all) to 5 (very much) that appeared onscreen for up to 3 s or until the participants indicated a response.

Table S1. Regions showing differential activation based on strategy and their Talairach peak coordinates

Region of activation	R/L	Peak coordinates				
		x	*y*	*z*	*k*	Max statistic
LATER > NOW						
dmPFC	L	−6	11	58	48	4.65
IFG	L	−45	23	−8	49	4.98
IFG*	L	−54	14	25	9	4.07
IFG*	L	−48	17	10	5	3.04
IFG*	R	42	26	−2	5	3.11
dlPFC*	L	−36	−1	55	8	4.47
Postcentral gyrus	L	−45	−19	61	19	4.89
Superior temporal gyrus	L	−57	−61	22	10	4.59
Middle temporal gyrus	L	−42	−55	25	13	3.39
Middle temporal gyrus	L	−66	−37	1	21	3.79
Inferior temporal gyrus	R	33	5	−32	14	4.25
NOW > LATER						
mPFC/mOFC	L	0	56	−2	51	−5.02
dACC	L	−3	5	31	16	−4.02
rostralACC	L	−15	44	7	12	−3.58
ACC	R	6	32	13	75	−6.23
PCC	R	24	−55	16	102	−6.42
PCC	R	12	−43	40	31	−4.11
Dorsal insula	L	−39	−7	10	10	−4.09
Middle temporal gyrus	R	36	−73	10	11	−6.19
Middle frontal gyrus	R	30	23	25	28	−5.28
Anterior parahippocampal gyrus	L	−39	−13	−8	17	−4.60
Posterior parahippocampal gyrus	R	27	−43	−2	14	−4.37
Inferior parietal lobule	L	−57	−31	37	66	−4.59
Supramarginal gyrus	R	57	−52	19	10	−4.28
Ventral striatum	L	−3	11	−2	26	−4.33
Amygdala*	L	−27	−1	−26	4	−3.64
Amygdala*	R	30	−4	−14	2	−3.71
Amygdala*	R	24	−7	−20	2	−4.23
Midbrain–VTA	L	−3	−19	−2	17	−4.06

Results are significant at $P < 0.05$, corrected for multiple comparisons. *k*, number of activated $3 \times 3 \times 3$-mm^3 voxels; L, left; R, right; Max statistic, *T* value at peak voxel.
*A priori regions of interest that were considered significant at $P < 0.005$ uncorrected (whole brain).

Table S2. Regions showing interaction between regulation condition and stimulus type

	R/L	Peak coordinates				
		x	*y*	*z*	*k*	Max statistic
Interaction						
dmPFC	L	−6	47	43	27	4.57
Postcentral gyrus	L	−63	−22	40	29	−4.31

Results are significant at $P < 0.05$, corrected for multiple comparisons. *k*, number of activated $3 \times 3 \times 3$-mm^3 voxels; L, left; R, right; Max statistic, *T* value at peak voxel.

Table S3. Regions in which activity in the Now > Later contrast correlated with regulation success and their Talairach peak coordinates

Region of activation	R/L	Peak coordinates					Max statistic
		x	*y*	*z*	*k*	*r*	
Positive correlation with decreases in craving							
Dorsal ACC	R	9	38	22	16	0.66	3.86
Dorsal ACC	R	9	29	37	11	0.65	3.72
Premotor cortex	R	33	35	49	45	0.76	5.17
Precuneus	L	−24	−82	43	23	0.81	5.94
Occiptial cortex	R	39	−73	4	18	0.74	4.76
Striatum*	R	3	14	1	9	0.68	4.07
Negative correlation with decreases in craving							
dlPFC*	L	−27	50	19	8	−0.75	−5.01
Middle temporal gyrus	L	−33	−25	4	11	−0.68	−4.00
Cerebellum (anterior)	R	0	−40	−29	15	−0.76	−5.10

Results are significant at $P < 0.05$, corrected for multiple comparisons. *k*, number of activated $3 \times 3 \times 3$-mm^3 voxels; L, left; R, right. Max statistic, *r* value at peak voxel.

*A priori regions of interest that were considered significant at $P < 0.005$ uncorrected (whole brain).