Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Supplement

Expanded subject selection description

One-hundred and thirty-nine adults with anxiety/depression (ANX/DEP) and seventy-eight healthy adult comparisons (HC) completed the AAC task during fMRI. This dataset was compiled across four different samples from past and ongoing studies. These four studies were a healthy adult test-retest reliability study,[1] a randomized clinical trial of adults with a primary diagnosis of major depressive disorder (MDD; ClinicalTrials.gov ID: NCT02602340), a randomized clinical trial of adults with a primary diagnosis of generalized anxiety disorder [GAD; ClinicalTrials.gov ID: NCT02807480; Protocol Paper[2]], and subset of HCs from a longitudinal study of a resilience training program for first-year college students.[3] For neuroimaging data, only the healthy adult test-retest reliability study has previously been published,[1] and there was 51% overlap between the HC sample used in the prior and present studies. Note the prior study examined only the reliability of behavior and neural activation during the AAC task across time, and this prior study did not include cross-sectional comparisons to a clinical group, nor did it include analyses to examine correlational relationships between behavioral and neural activity measures.

Participants were assessed for psychiatric diagnoses using the Mini-International Neuropsychiatric Interview [M.I.N.I.],[4] either Version 6.0.0[5] for *DSM-IV-TR* or Version 7.0.2[6] for *DSM-5* and completed the Patient-Reported Outcomes Measurement Information System [PROMIS][7] Anxiety and Depression Scales, although several participants in the MDD study did not have these measures because it was not added to the protocol until after a total eight participants had already completed the study. Diagnostic interviewers received comprehensive

assessment training from a senior-level licensed clinician and were required to achieve a sufficient interrater reliability rating (Cohen's kappa>0.8) for the M.I.N.I. before conducting interviews independently. For the ANX/DEP sample, inclusion criteria were a primary diagnosis of either GAD or MDD. Co-morbid GAD/MDD diagnoses were permitted, and additional co-morbid anxiety disorder and related diagnoses (i.e., social anxiety disorder, panic disorder, posttraumatic stress disorder) were also permitted. For all participants in the study, exclusionary criteria were: (i) severe suicidal ideation with either intent or plan; (ii) history of substance use disorder in the past 6 months; (iii) meeting diagnostic criteria for psychotic, bipolar, obsessive-compulsive, or eating disorders; (iv) moderate to severe traumatic brain injury or other neurocognitive disorder; (v) severe or unstable medical conditions, (vi) MRI contraindications, such as metal or metallic devices in the body; (vii) noncorrectable vision or hearing problems; and (viii) current use of psychotropic medications that could acutely affect brain function (e.g., anxiolytics, antipsychotics, or mood stabilizers). ANX/DEP participants who reported current use of antidepressants (SSRIs) and some other psychotropic medications were still included if their dosage had been stable for 6 weeks prior. HC participants had no history of psychiatric diagnoses nor were they taking any psychotropic medications.

Of the 217 participants who completed fMRI, 41 in total (21 ANX/DEP, 20 HC) were excluded due to poor fMRI data quality (e.g., excess motion, scanner acquisition errors, software malfunctions). Excess motion was defined as 20% or more MRI repetition times [TRs] with an average Euclidean norm value of 0.3 or greater. A consort diagram with detailed exclusion information is provided in Figure S1. The final sample of 176 included 118 adults with anxiety/depression and 58 healthy adults, and each of these samples' demographic and clinical

characteristics are reported in Table 1. The characteristics reported include age, gender, racial/ethnic minority status, presence of anxiety/depression diagnosis, recreational use of cannabis/alcohol/tobacco in the 30 days before screening, and PROMIS Anxiety and Depression scores. To examine for potential bias based on data exclusions,[8,9] the included and excluded samples were compared on demographic characteristics, and there were no differences found between them on age, sex, or ethnic/racial minority status (Table S1). Participants provided informed consent and received monetary compensation for study procedures following the guidelines of the Western Institutional Review Board, who approved the study protocol. Research was conducted in accordance with the World Medical Association Declaration of Helsinki.

Expanded experimental paradigm and stimuli description

The approach-avoidance conflict task used in this study had three phases: decision-making, affective outcome, and reward feedback.[10] During the decision-making phase, participants were presented with a runway that had pictures on each side to represent two possible outcomes. The possible outcomes included both an image (i.e., sun or cloud) indicative of an affective stimulus and a level of monetary reward (i.e., United States' cents/¢) on each side. The image of a sun indicated a positively valenced stimulus outcome, and a cloud indicated a negatively valenced stimulus outcome. Level of reward was indicated by the amount of red ink filling a rectangular meter adjacent to the sun or cloud. Participants used a joystick to move an avatar on the runway to indicate their preference for the potential outcomes. At the end of the decision phase, the avatar's location corresponded to the probability of each of the two outcomes occurring, with each marker on the runway varying the probability of the outcomes by 10%. If

the participant moved the avatar to the middle of the runway, there was a 50% chance of either outcome. The participant could raise the probability of an outcome to as high as 90% by moving the avatar all the way to one side. While participants could determine likelihood of either outcome, they could not determine the outcome with complete certainty. To control for potential influence of the avatar's starting position on reaction time or decisions, the avatar starting position was counterbalanced across trials.

During the outcome phase, participants were presented with either positively valenced or negatively valenced pictures and sounds that were drawn from the International Affective Picture System [IAPS],[11] the International Affective Digitized Sounds [IADS],[12] and other public domain audio files. During the reward feedback phase, participants were given 0¢, 2¢, 4¢, or 6¢, and different tones played depending if a reward was given or not. Given all of these parameters, the task was designed with three trial types based on the expected behavioral motivation during decision-making in relation to possible outcomes and rewards. The first trial type was 'Approach-reward' (APP), in which a reward of 2¢ was offered for a positive outcome on one side and 0¢ for positive outcome on the other side. This was intended to motivate participants to move the avatar toward the positive image/sound outcome that also had a reward. The second trial type was 'Avoid-threat' (AV), in which a reward of 0¢ was offered for both a positive and negative outcome on each side. This was intended to motivate participants to move the avatar away from the negative image/sound outcome. The third trial type was 'Conflict' (CONF), in which 2¢ (CONF2), 4¢ (CONF4), or 6¢ (CONF6) were offered for the negative outcome while 0¢ were offered for the positive outcome. These trials intended to produce "approach-avoidance conflict" in participants such that a decision to approach the reward also presented greater risk of

a negative image/sound outcome. The varying levels of reward sought to increase motivation for participants to approach the reward despite the increased risk of a negative outcome.

The task was programmed in PsychoPy (Version 1.84.2) and used an event-related design with a total of 90 trials (18 of each trial type: AV, APP, CONF2, CONF4, CONF6) over three fMRI scans (i.e., 30 trials per scan). Prior to performing the task, participants received detailed instructions and completed four practice trials to ensure sufficient understanding. Practice stimuli were included in the sample of stimuli during the main task. The full sample of affective images and sounds was the same across the fMRI scans at each time point. However, the individual set of affective stimuli differed for each of the three fMRI runs, and the block order was randomized for each time point. Additionally, note that the specific outcomes individuals were exposed to differed based on the choices they made during the decision-making phase. Each trial of the task provided participants with 4 seconds during the decision-making phase, 6 seconds of affective stimuli outcome presentation, 2 seconds of reward presentation, and an intertrial interval of 1-7 seconds (mean = 4 seconds). Each individual scan lasted 480 seconds (i.e., 8 minutes), which is a total of 1,440 seconds (i.e., 24 minutes) across the three scans. The task was divided across three scans to provide participants the opportunity to rest in-between each run and therefore maintain alertness during task performance. Task performance was measured through (i) approach behavior and (ii) reaction time (RT). Approach behavior was measured by the avatar's end position on the runway in relation to the negative outcome and/or reward, and this ranged from -4 (full avoidance from the negative outcome and/or reward) to +4 (full approach to the negative outcome and/or reward). Reaction time was defined as when participants initially moved the joystick during the decision-making phase (i.e., first avatar position change). Approach behavior

and RT were calculated for each participant and averaged by trial type. Due to a software error in the joystick configuration, RT data were unavailable for nine subjects.

Expanded description of composite regions-of-interest (ROI) construction

A priori composite ROIs were constructed using subregions of the Brainnetome atlas[13] [atlas.brainnetome.org]. The Brainnetome atlas is an open-access resource that provides a map of anatomical subregions of the human brain. These subregions were constructed using a comprehensive, multimodal neuroimaging approach that utilized both structural and functional connectivity information in addition to standard structural imaging [13]. The Brainnetome atlas was utilized in the present study due to its basis in both structural and functional neuroimaging and the availability of subregion specificity within cortical and subcortical regions. These composite ROIs overlapped with clusters identified in the previous fMRI study using the approach-avoidance conflict task.[10] A total of six ROIs were constructed (see Figure 2), including bilateral amygdala (4 subregions), bilateral dACC (4 subregions), bilateral striatum (6 subregions), left dlPFC (3 subregions), right dlPFC (3 subregions), and bilateral anterior insula (4 subregions). Left and right dlPFC ROIs were separated to account for laterality effects observed in the Aupperle and colleagues (2015) study. Analyses used mean PSC data extracted from all voxels within composite ROIs depending on the task phase. Decision-making analyses included amygdala, dACC, striatum (i.e., combined dorsal caudate, ventral caudate, and nucleus accumbens subregions), and left/right dlPFC; affective outcome analyses included amygdala (separated into left/right to account for valence effects), dACC, striatum, and anterior insula; reward feedback analyses included only striatum.

Expanded description of statistical analyses

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Statistical analyses of behavioral and ROI data were conducted using the R statistical package[14] with the primary analytic approach being linear mixed-effects models (LMEs). Before conducting any statistical comparisons between or within groups, data were examined for normality using skewness and kurtosis statistics [R package: psych[15]], and individual outliers were identified using the combined distribution across the groups with a standard deviation cutoff of +/- 3 standard deviations from the grand mean [R package: Routliers[16]]. Cook's D was then used to confirm that these outliers were having a significant impact on each statistical model [R package: influence.ME[17]], with the recommended "4/n" cutoff of 0.023 (i.e., 4/176). These examinations were conducted for each behavioral and ROI measure independently, and thus, a participant's data could be considered an outlier for one measure but not another to preserve the statistical power of the sample. In the most extreme cases, only three participants' data (i.e., 3/176 = 1.7% of participants) were excluded for any individual measure, which is unlikely to affect the representativeness of the sample while leaving outliers in would be likely to do so.[18] Sample sizes are reported in corresponding tables for each statistical test to indicate outlier differences.

For each of the behavioral (i.e., approach behavior, RT) and ROI (i.e., mean PSC for the *a priori* ROIs during decision-making, affective outcomes, and reward feedback) measures, LMEs were used to examine for fixed effects of AAC task phase trial type and group status (i.e., ANX/DEP or HC) with participant included as a random effect. All effects that were significant at $p<.05$ are reported. During the decision-making and affective outcome task phases, findings that exceed a Bonferroni-corrected α threshold of $p<.01$ based on five ROIs are denoted. Because the full ANX/DEP sample significantly differed from HC on age and sex (Table 1), these were

included as covariates in the LMEs. For those interested, whole-brain LMEs are posted within the online data repository for this study https://osf.io/cdxqj/. These were conducted using AFNI's 3dLME package to examine the effects of group, trial type, and the group-by-trial type interaction for each phase of the task. As in the ROI analyses, approach behavior, age, and sex were included as covariates. Supplemental sensitivity analyses were conducted with an ANX/DEP subsample (n=58) propensity-matched on age and sex to HC (n=58) as an additional check to ensure that the findings in the unmatched samples were not driven by age and sex differences. For ROI data analyses, approach behavior was included as a covariate to model the relationship with neural activity and to ensure that effects of the other variables of interest (e.g., trial type and group) were not confounded by task behavior. During decision-making, the approach behavior covariate was separated by individual trial type (i.e., APP/AV/CONF2/CONF4/CONF6). During affective outcomes and reward feedback phases, the approach behavior covariate was averaged across conflict trial types (i.e., CONF2/CONF4/CONF6). For each statistical model, effect sizes for significant findings are estimated using Cohen's d, Pearson's r, or eta-squared ($\eta 2$).

A follow-up exploratory analysis was conducted to examine for differences based on diagnostic presentation by dividing the adults with anxiety/depression into three diagnostic subgroups for either anxiety diagnosis only (ANX), depression diagnosis only (DEP), or both anxiety and depression diagnoses (ANX+DEP). These comparisons used the same LME approach described above with the effect of group re-coded into these three subgroups for the adults with anxiety and depression. Note that these models were expected to have an unbalanced design based upon differences in sex characteristics of these diagnoses as reported in

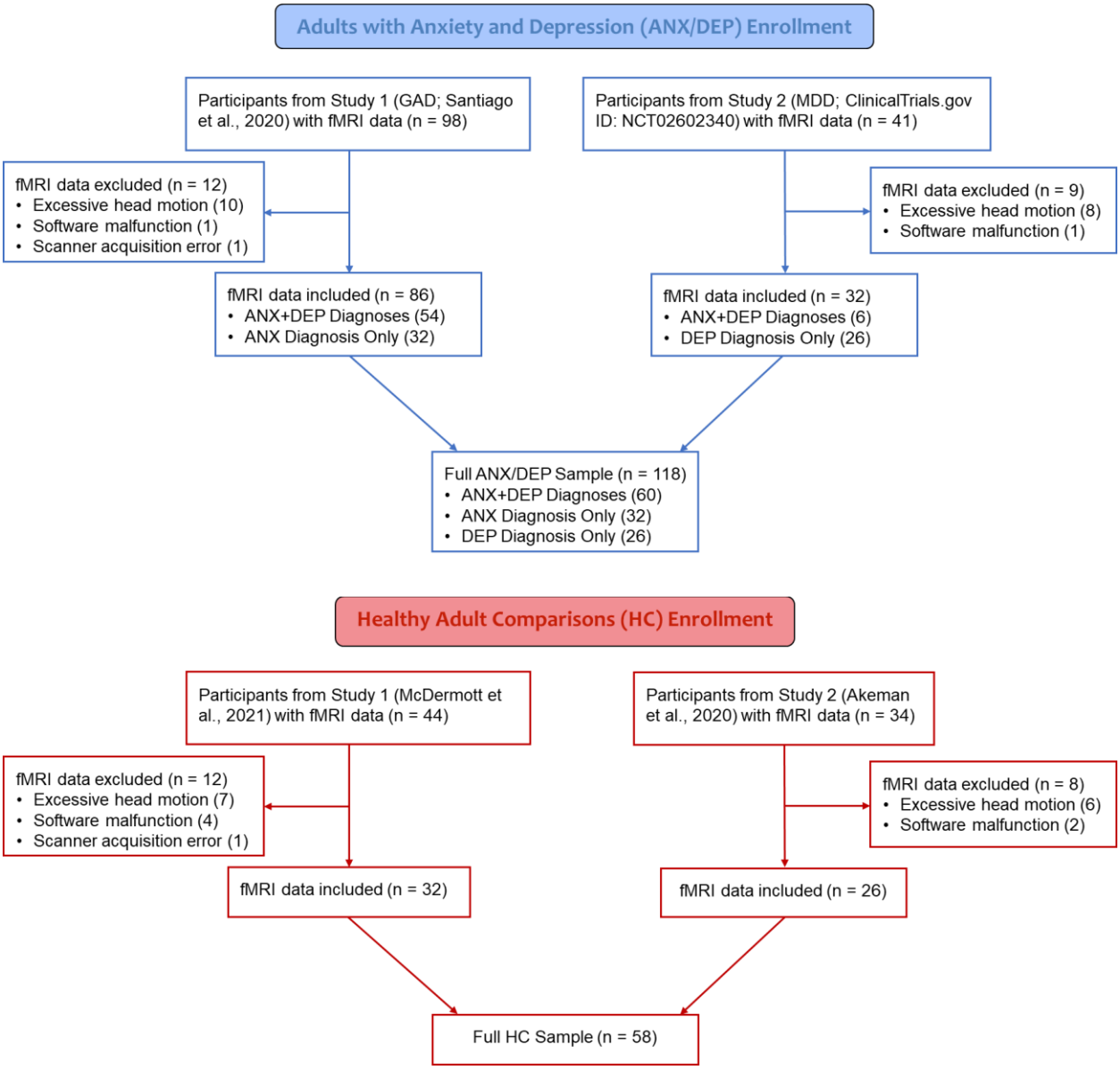
epidemiological studies[19]. As before, age and sex were included as covariates. Table 2 includes demographic and clinical characteristics of the ANX/DEP subgroups.

Propensity-matched behavioral and ROI analyses results

For behavioral results, matched and unmatched comparisons are provided in Table S2. For ROI results, matched and unmatched comparisons are provided in Table S4 for the decision-making phase and in Table S5 for the affective outcome and reward feedback phases. All significant group effects found in the unmatched sample comparisons remained significant in the propensity-matched comparisons, which provides an indication that the results found in the unmatched groups are not confounded by age and sex differences between the groups. More specifically, in the unmatched comparisons, there was a significant difference (p=.002; d=-.31) between groups on the absolute value of approach behavior [i.e., abs(approach)]. Following propensity-matching, this group effect on abs(approach) remained significant (p=.009; d=-.29). During decision-making, there was a significant main effect of group found in the bilateral amygdala (p=.023; d=-.32) in the unmatched samples, and this effect remained significant in the propensity-matched analysis (p=.012; d=-.41). During affective outcomes, the group effect was significant in striatum (p=.008; d=.31) in the unmatched samples, and this group effect remained significant in the propensity-matched analysis (p=.038; d=.27). During reward feedback, the group effect was significant in striatum (p=.046; d=-.27) in the unmatched samples, and this group effect remained significant in the propensity-matched analysis (p=.047; d=-.34).

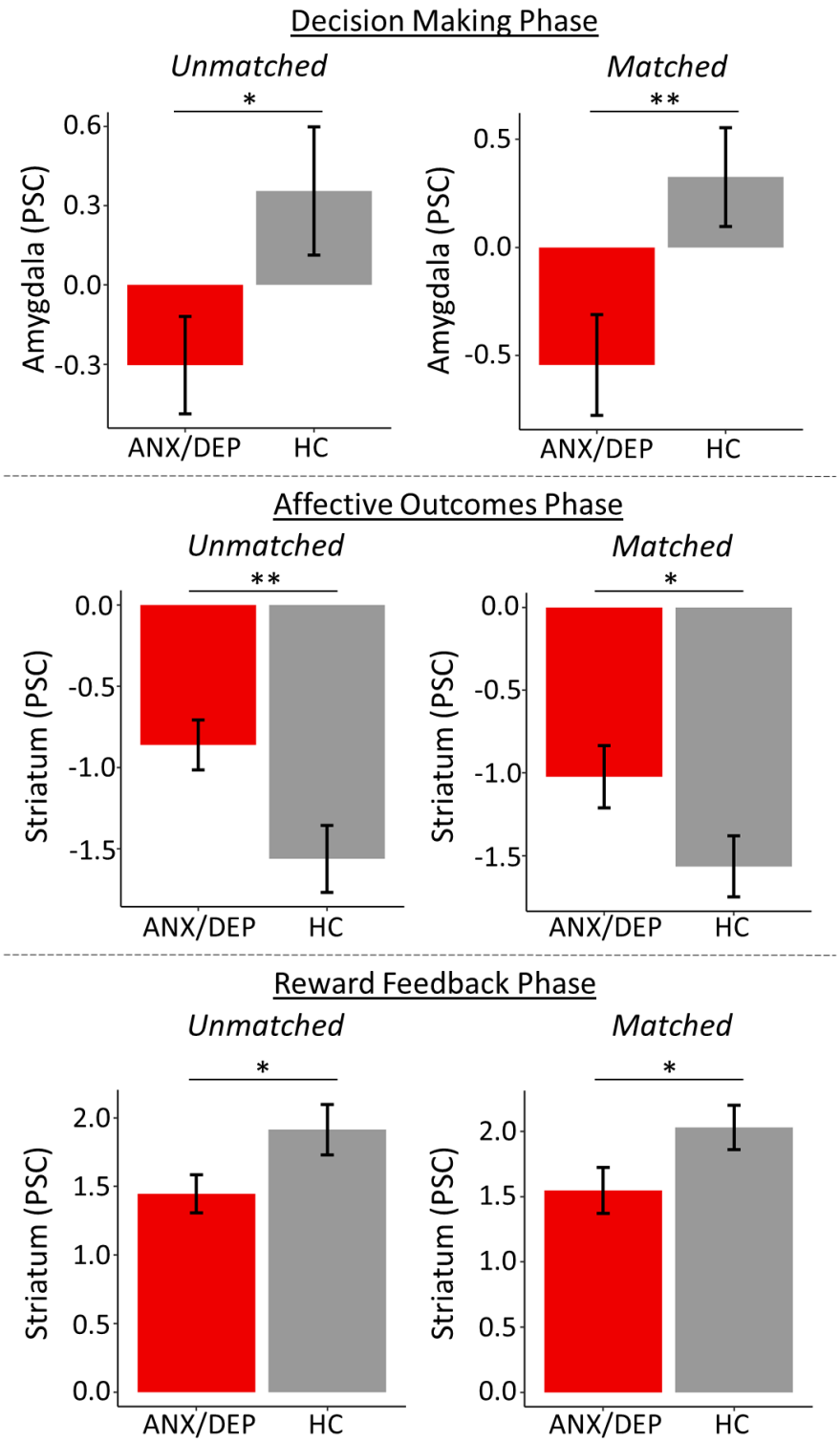
Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Figure S1. Consort Diagram for ANX/DEP and HC Samples



Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

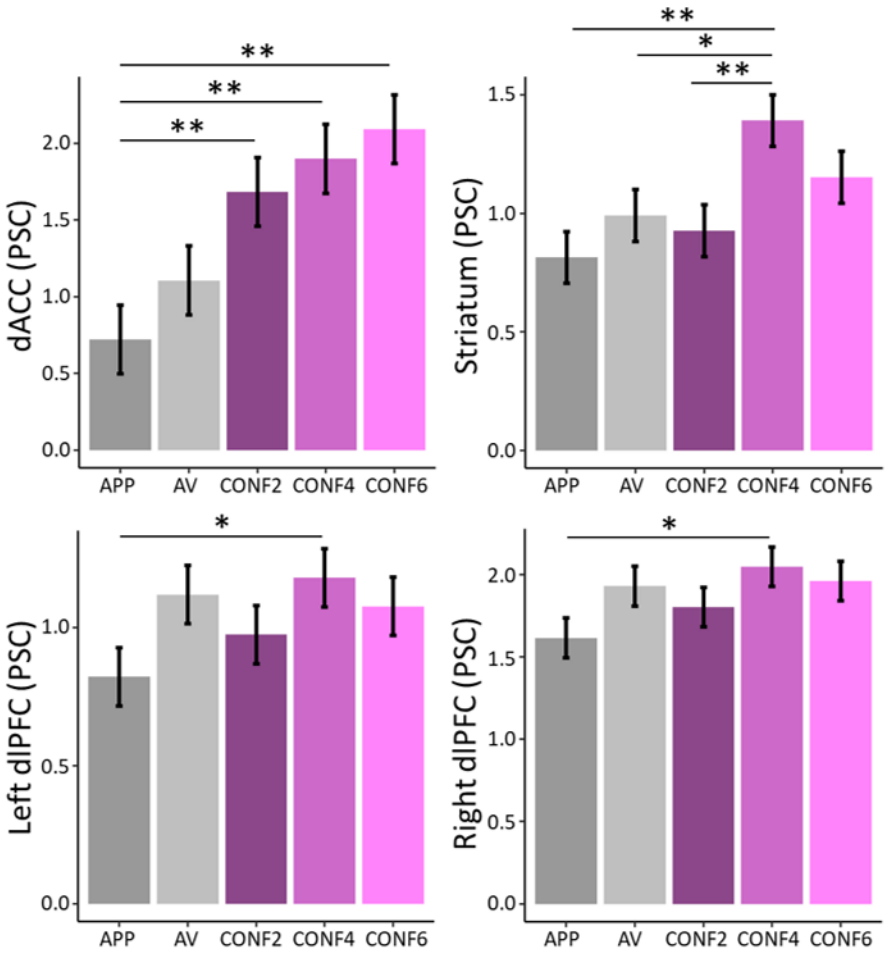
Figure S2. Unmatched and Propensity-Matched Group Effects for ROI Data Analyses



Note: ANX/DEP=adults with anxiety/depression; HC=healthy adult comparisons *p<.05; **p<.01

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

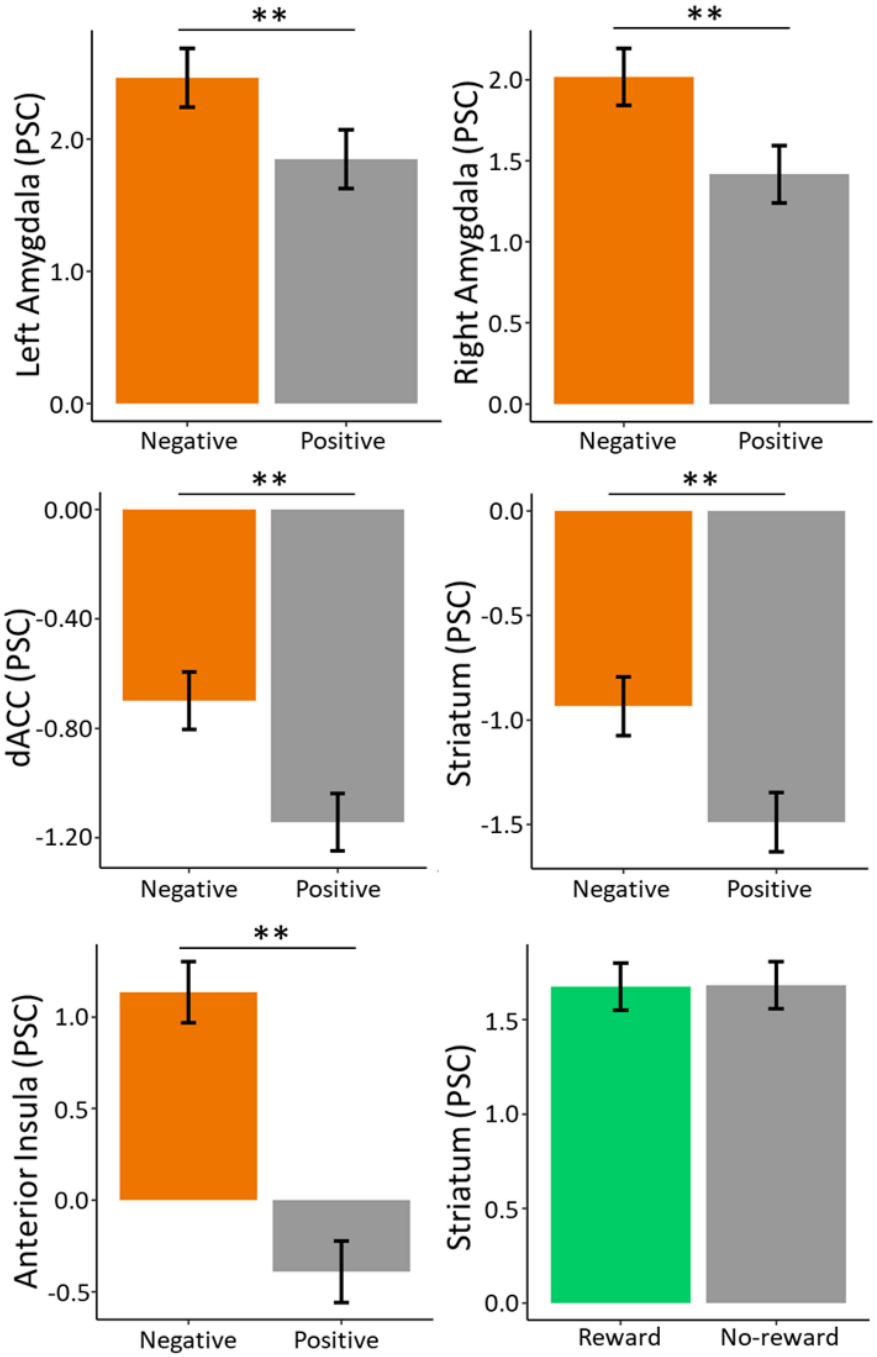
Figure S3. Decision-making Trial Type Effects for ROI Measures



Bar graphs depict PSC estimated marginal means (error bars depict ±1 standard error) for significant trial type effects for ROI measures during the decision-making phase. Pairwise comparisons are denoted with * if significant at $p<.05$ or ** if significant at $p<.01$. Across groups, there were significant trial type effects in dACC ($p<.001$), striatum ($p<.001$), left dlPFC ($p=.041$) and right dlPFC ($p=.014$). Pairwise comparisons showed that dACC activation was higher for all CONF trials (violet) compared to APP trials (dark gray), that striatum activation was higher for CONF4 trials compared to APP/AV/CONF2 trials, and that left/right dlPFC activation was higher for CONF4 compared to APP trials (light gray).

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

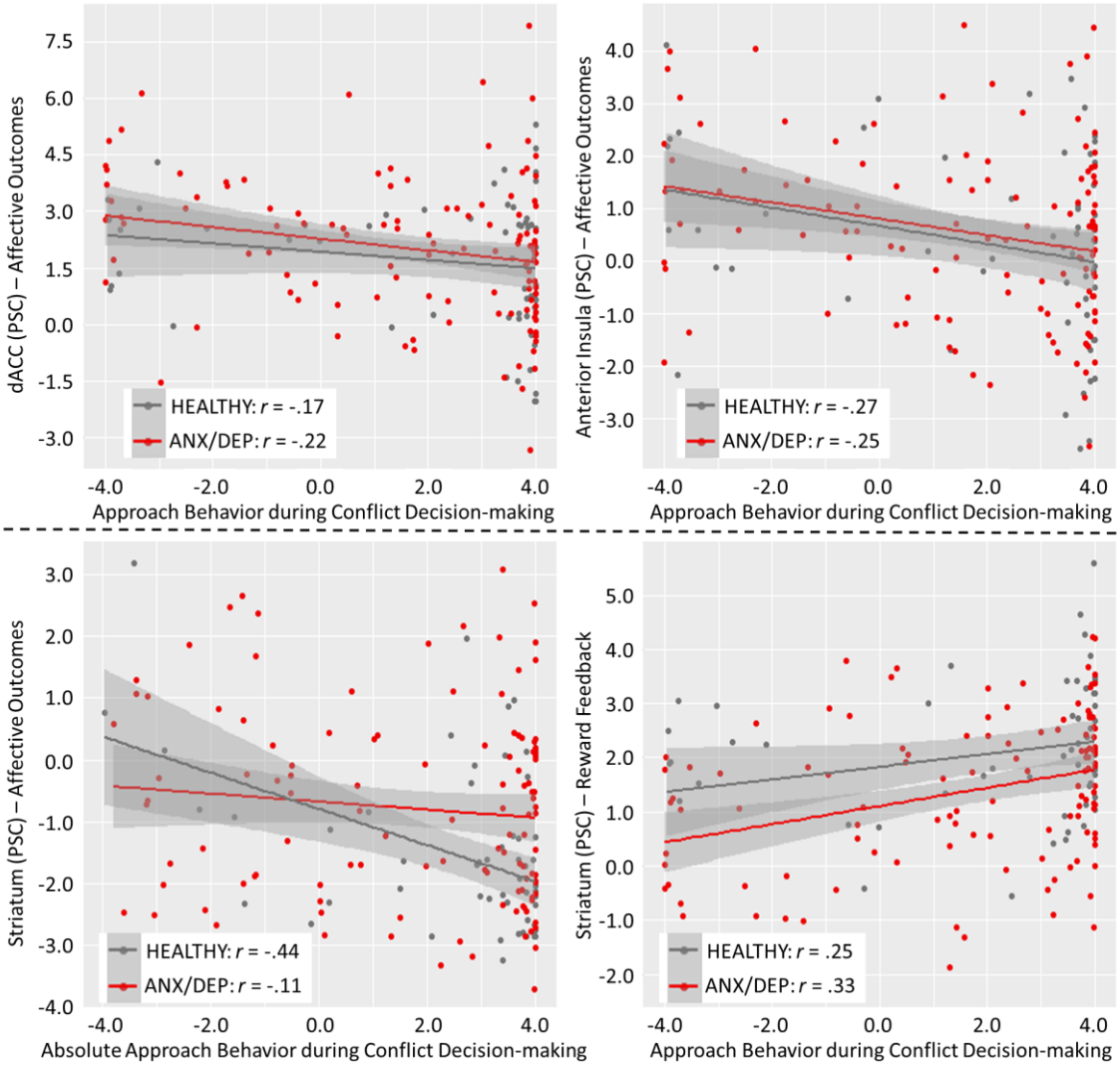
Figure S4. Affective Outcomes and Reward Feedback Trial Type Effects for ROI Measures



Bar graphs depict PSC estimated marginal means (error bars depict ±1 standard error) for significant trial type effects for ROI measures during the affective outcomes and a non-significant trial type effect for the striatum ROI during reward feedback. Effects are denoted with ** if significant at $p<.01$. During affective outcomes, negative outcomes (orange) showed increased activation compared to positive outcomes (gray) in all *a priori* ROIs [i.e., left/right amygdala, dACC, striatum, anterior insula]. During reward feedback, there was no activation difference between 'reward' (green) and 'no-reward' (gray) feedback.

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Figure S5. Associations Between Brain and Behavior Equivalent Across Groups



[Top] Scatter plots depict the linear relationships between PSC in right amygdala and anterior insula with approach behavior during conflict decision-making trials (i.e., CONF/2/CONF4/CONF6), and the line of best fit for each group is plotted with ±1 standard error. Approach behavior during conflict decision-making trials was inversely associated with neural activation in these ROIs during affective outcomes, and the magnitude of the association was similar between HC (gray) and ANX/DEP groups (red). [Bottom Left] Scatter plots depict the linear relationships between PSC in striatum during affective outcomes with the *absolute value* of approach behavior during conflict decision-making trials. The magnitude of this negative association did not significantly differ between the HC and ANX/DEP groups. [Bottom Right] Scatter plots depict the linear relationships between PSC in striatum during reward feedback with approach behavior during conflict decision-making trials with similar HC & ANX/DEP magnitudes.

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Table S1. Demographic Characteristics for Included and Excluded Based on fMRI Data Quality

	Full Sample (*N*=217)		
Measure	Included	Excluded	Difference (*p*-value)
Sample Size	*n*=176	*n*=41	-
Mean Age (years)	30.82 *(11.11)*	30.33 *(11.65)*	*p*=.805
Sex (% female)	73.30%	66.67%	*p*=.341
Ethnic/racial Minority (%)	36.36%	34.15%	*p*=.858
Non-Hispanic White	*n*=112	*n*=27	-
American Indian/ Native American	*n*=31	*n*=1	-
Asian/Pacific Islander	*n*=9	*n*=1	-
Black/African American	*n*=14	*n*=8	-
Hispanic/Latino	*n*=7	*n*=3	-
Multiracial	*n*=3	*n*=1	-
Education (years)	14.47 *(2.33)*	14.21 *(2.25)*	*p*=.516

Note: Independent samples *t*-tests were used for comparisons of continuous variables between groups, and Fisher's exact tests were used for frequency comparisons of categorical variables between groups. The included/excluded samples were not compared on individual racial/ethnic group representation as the individual sample sizes were extremely small within the excluded sample. However, frequency counts for each ethnic/racial group are included for each sample.

Abbreviations: Dx=diagnosis; PROMIS= Patient-Reported Outcomes Measurement Information System

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083. Online appendices are unedited and posted as supplied by the authors.

Table S2. Unmatched and Propensity-Matched Data for Behavioral Data Analyses

UNMATCHED	**Approach Behavior (*N*=176)**				
Group	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=118)	3.48 (0.23)	-3.28 (0.23)	1.33 (0.23)	1.89 (0.23)	2.07 (0.23)
Healthy Adults (*n*=58)	3.91 (0.31)	-3.92 (0.31)	1.77 (0.31)	2.20 (0.31)	2.34 (0.31)
Group Effect	*p*=.596 / *d*=-.112				
Trial Type Effect	***p*<.001 / η^2=.539				
Group x Trial Type	**p*=.020 / η^2=.003				
Age Covariate Effect	*p*=.451 / *r*=-.026				
Sex Covariate Effect	*p*=.094 / *d*=.256				

MATCHED	**Approach Behavior (*N*=116)**				
Group	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=58)	3.57 (0.30)	-3.37 (0.30)	1.50 (0.30)	2.03 (0.30)	2.17 (0.30)
Healthy Adults (*n*=58)	3.92 (0.29)	-3.91 (0.29)	1.77 (0.29)	2.21 (0.29)	2.35 (0.29)
Group Effect	*p*=.779 / *d*=-.099				
Trial Type Effect	***p*<.001 / η^2=.566				
Group x Trial Type	*p*=.225 / η^2=.002				
Age Covariate Effect	*p*=.148 / *r*=-.061				
Sex Covariate Effect	*p*=.330 / *d*=.185				

UNMATCHED	**Reaction Time (*N*=167)**				
Group	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=114)	1.03 (0.03)	1.10 (0.03)	1.13 (0.03)	1.07 (0.03)	1.07 (0.03)
Healthy Adults (*n*=53)	0.89 (0.05)	1.01 (0.05)	0.98 (0.05)	0.96 (0.05)	0.95 (0.05)
Group Effect	*p*=.192 / *d*=.197				
Trial Type Effect	***p*<.001 / η^2=.009				
Group x Trial Type	*p*=.506 / η^2<.001				
Age Covariate Effect	*p*=.086 / *r*=.111				
Sex Covariate Effect	*p*=.121 / *d*=-.244				

MATCHED	**Reaction Time (*N*=110)**				
Group	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=57)	0.95 (0.05)	1.02 (0.05)	1.05 (0.05)	0.98 (0.05)	0.98 (0.05)
Healthy Adults (*n*=53)	0.88 (0.05)	1.00 (0.05)	0.97 (0.05)	0.95 (0.05)	0.95 (0.05)
Group Effect	*p*=.459 / *d*=.161				
Trial Type Effect	***p*<.001 / η_p^2=.011				
Group x Trial Type	*p*=.590 / η^2=.001				
Age Covariate Effect	*p*=.787 / *r*=.009				
Sex Covariate Effect	*p*=.306 / *d*=-.200				

UNMATCHED	**Absolute Approach Behavior (*N*=176)**				
Group	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=118)	3.39 (0.11)	3.48 (0.11)	2.74 (0.11)	2.98 (0.11)	3.15 (0.11)
Healthy Adults (*n*=58)	3.96 (0.15)	3.95 (0.15)	3.20 (0.15)	3.51 (0.15)	3.55 (0.15)
Group Effect	***p*=.002 / *d*=-.311				
Trial Type Effect	***p*<.001 / η^2=.058				
Group x Trial Type	*p*=.882 / η^2<.001				
Age Covariate Effect	*p*=.645 / *r*=-.029				

MATCHED	**Absolute Approach Behavior (*N*=116)**				
Group	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=58)	3.48 (0.14)	3.46 (0.14)	2.74 (0.14)	3.09 (0.14)	3.29 (0.14)
Healthy Adults (*n*=58)	3.93 (0.13)	3.92 (0.13)	3.17 (0.13)	3.48 (0.13)	3.52 (0.13)
Group Effect	***p*=.009 / *d*=-.288				
Trial Type Effect	***p*<.001 / η^2=.071				
Group x Trial Type	*p*=.710 / η^2=.002				
Age Covariate Effect	*p*=.597 / *r*=-.038				

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Sex Covariate Effect	p=.302 / d=.158		Sex Covariate Effect	p=.926 / d=.018

Note: Behavioral data estimated marginal means and standard errors of the mean are listed from linear mixed-effects models. *p<.05; **p<.01

Abbreviations: APP=approach-reward trials; AV=avoid-threat trials; CONF2=conflict trials with 2¢; CONF4=conflict trials with 4¢; CONF6=conflict trials with 6¢

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Table S3. Behavioral Data for ANX/DEP Subgroups

Subgroups	Approach Behavior (*N*=118)				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=32)	3.45 (0.44)	-3.30 (0.44)	1.33 (0.44)	1.81 (0.44)	1.87 (0.44)
Adults with DEP (*n*=25)	3.47 (0.47)	-3.25 (0.47)	1.63 (0.47)	2.04 (0.47)	2.27 (0.47)
Adults with ANX+DEP (*n*=61)	3.39 (0.33)	-3.39 (0.33)	1.09 (0.33)	1.76 (0.33)	1.98 (0.33)
Subgroup Effect	p=.823 / η^2=.004				
Trial Type Effect	**p<.001 / η^2=.511				
Subgroup x Trial Type	p=.996 / η^2<.001				
Age Covariate Effect	p=.499 / r=-.028				
Sex Covariate Effect	p=.151 / d=.271				
Medication Covariate Effect	p=.393 / d=-.162				
Subgroups	**Reaction Time (*N*=114)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=29)	1.01 (0.08)	1.07 (0.08)	1.09 (0.08)	1.02 (0.08)	1.00 (0.08)
Adults with DEP (*n*=25)	1.08 (0.08)	1.19 (0.08)	1.18 (0.08)	1.15 (0.08)	1.15 (0.08)
Adults with ANX+DEP (*n*=60)	0.99 (0.06)	1.04 (0.06)	1.10 (0.06)	1.04 (0.06)	1.03 (0.06)
Subgroup Effect	p=.408 / η^2=.010				
Trial Type Effect	**p=.003 / η^2=.008				
Subgroup x Trial Type	p=.914 / η^2=.001				
Age Covariate Effect	p=.128 / r=.128				
Sex Covariate Effect	p=.427 / d=-.153				
Medication Covariate Effect	p=.917 / d=.020				
Subgroups	**Absolute Approach Behavior (*N*=118)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=32)	3.47 (0.23)	3.63 (0.23)	3.16 (0.23)	3.27 (0.23)	3.39 (0.23)
Adults with DEP (*n*=25)	3.52 (0.25)	3.15 (0.25)	2.53 (0.25)	2.86 (0.25)	3.17 (0.25)
Adults with ANX+DEP (*n*=61)	3.37 (0.18)	3.62 (0.18)	2.69 (0.18)	2.95 (0.18)	3.10 (0.18)
Subgroup Effect	p=.399 / η^2=.006				
Trial Type Effect	**p<.001 / η^2=.049				
Subgroup x Trial Type	p=.208 / η^2=.008				

Note: Behavioral data estimated marginal means and standard errors of the mean are listed from linear mixed-effects models. *p<.05; **p<.01

Abbreviations: APP=approach-reward trials; AV=avoid-threat trials; CONF2=conflict trials with 2¢; CONF4=conflict trials with 4¢; CONF6=conflict trials with 6¢

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083. Online appendices are unedited and posted as supplied by the authors.

Age Covariate Effect	*p*=.626 / *r*=-.042
Sex Covariate Effect	*p*=.150 / *d*=.273
Medication Covariate Effect	*p*=.577 / *d*=-.106

Table S4. Decision-Making Phase Mean PSC for ROI Data for Unmatched and Propensity-matched Groups

UNMATCHED	**Amygdala (*N*=172)**					**MATCHED**	**Amygdala (*N*=113)**				
Group	APP	AV	CONF2	CONF4	CONF6	**Group**	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=115)	-0.69 (0.25)	0.07 (0.28)	-0.40 (0.24)	-0.11 (0.24)	-0.44 (0.24)	Adults with ANX/DEP (*n*=56)	-1.28 (0.36)	-0.02 (0.41)	-0.55 (0.34)	-0.23 (0.35)	-0.60 (0.35)
Healthy Adults (*n*=57)	0.64 (0.33)	0.75 (0.37)	0.28 (0.32)	0.39 (0.32)	-0.11 (0.32)	Healthy Adults (*n*=57)	0.55 (0.36)	0.70 (0.42)	0.21 (0.33)	0.31 (0.34)	-0.19 (0.34)
Group Effect	*p=.023 / d=-.317					Group Effect	*p=.012 / d=-.414				
Trial Type Effect	p=.124 / η^2=.006					Trial Type Effect	p=.280 / η^2=.007				
Approach Behavior Covariate Effect	p=.522 / r=.042					Approach Behavior Covariate Effect	p=.518 / r=.085				
Group x Trial Type	p=.136 / η^2=.005					Group x Trial Type	p=.060 / η^2=.010				
Age Covariate Effect	p=.357 / r=-.050					Age Covariate Effect	p=.738 / r=-.017				
Sex Covariate Effect	p=.586 / d=-.084					Sex Covariate Effect	p=.986 / d=.003				
UNMATCHED	**dACC (*N*=174)**					**MATCHED**	**dACC (*N*=115)**				
Group	APP	AV	CONF2	CONF4	CONF6	**Group**	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=117)	0.62 (0.29)	0.76 (0.32)	1.49 (0.27)	1.90 (0.27)	1.90 (0.27)	Adults with ANX/DEP (*n*=57)	0.91 (0.36)	1.46 (0.41)	1.99 (0.35)	1.70 (0.35)	2.01 (0.35)
Healthy Adults (*n*=57)	0.72 (0.38)	1.72 (0.41)	1.89 (0.36)	1.88 (0.37)	2.27 (0.37)	Healthy Adults (*n*=58)	0.79 (0.36)	1.92 (0.41)	1.99 (0.34)	1.98 (0.34)	2.36 (0.34)
Group Effect	p=.323 / d=-.023					Group Effect	p=.603 / d=.031				
Trial Type Effect	**p<.001 / η^2=.038					Trial Type Effect	**p<.001 / η^2=.031				
Approach Behavior Covariate Effect	p=.518 / r=.021					Approach Behavior Covariate Effect	p=.372 / r=.054				
Group x Trial Type	p=.183 / η^2=.003					Group x Trial Type	p=.717 / η^2=.002				
Age Covariate Effect	p=.203 / r=-.073					Age Covariate Effect	p=.229 / r=-.080				
Sex Covariate Effect	p=.817 / d=.035					Sex Covariate Effect	p=.615 / d=.096				
UNMATCHED	**Striatum (*N*=173)**					**MATCHED**	**Striatum (*N*=113)**				
Group	APP	AV	CONF2	CONF4	CONF6	**Group**	APP	AV	CONF2	CONF4	CONF6

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Adults with ANX/DEP (*n*=116)	0.97 (0.14)	0.95 (0.16)	0.87 (0.13)	1.40 (0.13)	1.12 (0.13)	Adults with ANX/DEP (*n*=56)	0.91 (0.19)	1.06 (0.21)	0.94 (0.18)	1.39 (0.18)	0.95 (0.18)
Healthy Adults (*n*=57)	0.73 (0.19)	0.94 (0.21)	1.01 (0.18)	1.42 (0.18)	1.22 (0.18)	Healthy Adults (*n*=57)	0.74 (0.19)	0.89 (0.22)	1.01 (0.17)	1.42 (0.17)	1.22 (0.18)
Group Effect	*p*=.978 / *d*=.099					Group Effect	*p*=.959 / *d*=.070				
Trial Type Effect	***p*<.001 / η^2=.022					Trial Type Effect	***p*<.001 / η^2=.024				
Approach Behavior Covariate Effect	*p*=.590 / *r*=-.025					Approach Behavior Covariate Effect	*p*=.473 / *r*=-.049				
Group x Trial Type	*p*=.512 / η^2=.002					Group x Trial Type	*p*=.480 / η^2=.004				
Age Covariate Effect	*p*=.983 / *r*<.001					Age Covariate Effect	*p*=.529 / *r*=.036				
Sex Covariate Effect	*p*=.445 / *d*=.117					Sex Covariate Effect	*p*=.533 / *d*=.120				
UNMATCHED	**Left dlPFC (*N*=173)**					**MATCHED**	**Left dlPFC (*N*=114)**				
Group	APP	AV	CONF2	CONF4	CONF6	**Group**	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=116)	1.02 (0.14)	1.10 (0.15)	1.05 (0.13)	1.24 (0.13)	1.22 (0.13)	Adults with ANX/DEP (*n*=57)	1.13 (0.18)	1.22 (0.21)	1.13 (0.17)	1.05 (0.17)	1.09 (0.18)
Healthy Adults (*n*=57)	0.68 (0.18)	1.14 (0.20)	0.94 (0.17)	1.16 (0.17)	0.97 (0.17)	Healthy Adults (*n*=57)	0.71 (0.19)	1.06 (0.22)	0.94 (0.17)	1.17 (0.17)	0.98 (0.17)
Group Effect	*p*=.362 / *d*=.142					Group Effect	*p*=.370 / *d*=.188				
Trial Type Effect	**p*=.042 / η^2=.008					Trial Type Effect	*p*=.745 / η^2=.008				
Approach Behavior Covariate Effect	*p*=.855 / *r*=-.021					Approach Behavior Covariate Effect	*p*=.509 / *r*=-.057				
Group x Trial Type	*p*=.503 / η^2=.002					Group x Trial Type	*p*=.400 / η^2=.004				
Age Covariate Effect	*p*=.582 / *r*=.030					Age Covariate Effect	*p*=.274 / *r*=.076				
Sex Covariate Effect	*p*=.493 / *d*=.105					Sex Covariate Effect	*p*=.658 / *d*=.085				
UNMATCHED	**Right dlPFC (*N*=175)**					**MATCHED**	**Right dlPFC (*N*=115)**				
Group	APP	AV	CONF2	CONF4	CONF6	**Group**	APP	AV	CONF2	CONF4	CONF6
Adults with ANX/DEP (*n*=117)	1.99 (0.15)	1.80 (0.17)	1.97 (0.14)	2.24 (0.14)	2.10 (0.15)	Adults with ANX/DEP (*n*=57)	2.09 (0.20)	1.87 (0.23)	2.12 (0.19)	2.16 (0.19)	2.02 (0.19)
Healthy Adults (*n*=58)	1.47 (0.21)	1.74 (0.22)	1.70 (0.20)	1.96 (0.20)	1.97 (0.20)	Healthy Adults (*n*=58)	1.50 (0.20)	1.71 (0.23)	1.75 (0.19)	2.01 (0.19)	2.00 (0.19)
Group Effect	*p*=.161 / *d*=.201					Group Effect	*p*=.172 / *d*=.210				
Trial Type Effect	**p*=.014 / η^2=.009					Trial Type Effect	*p*=.298 / η^2=.009				
Approach Behavior Covariate Effect	*p*=.089 / *r*=-.064					Approach Behavior Covariate Effect	*p*=.066 / *r*=-.105				

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Group x Trial Type	p=.425 / η^2=.003		Group x Trial Type	p=.449 / η^2=.004
Age Covariate Effect	p=.419 / r=-.039		Age Covariate Effect	p=.994 / r=-.019
Sex Covariate Effect	p=.054 / d=.296		Sex Covariate Effect	p=.052 / d=.373

Note: Percent signal change estimated marginal means and standard errors of the mean are listed for linear mixed-effects models. *p<.05; **p<.01

Abbreviations: PSC=percent signal change; ROI=region-of-interest; ANX/DEP=anxiety and/or depressive disorder diagnoses; APP=approach-reward trials; AV=avoid-threat trials; CONF2=conflict trials with 2¢; CONF4=conflict trials with 4¢; CONF6=conflict trials with 6¢; dACC=dorsal anterior cingulate cortex; dlPFC=dorsolateral prefrontal cortex

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083. Online appendices are unedited and posted as supplied by the authors.

Table S5. Outcome and Reward Phase Mean PSC for ROI Data for Unmatched and Propensity-matched Groups

UNMATCHED	**Left Amygdala (*N*=173)**	
Group	NEG	POS
Adults with ANX/DEP (*n*=116)	2.68 (0.27)	1.96 (0.27)
Healthy Adults (*n*=57)	2.24 (0.36)	1.74 (0.36)
Group Effect	*p*=.426 / *d*=.129	
Trial Type Effect	***p*<.001 / *d*=.544	
Approach Behavior Covariate Effect	*p*=.119 / *r*=-.110	
Group x Trial Type	*p*=.544 / η^2<.001	
Age Covariate Effect	*p*=.469 / *r*=-.052	
Sex Covariate Effect	*p*=.512 / *d*=-.101	

MATCHED	**Left Amygdala (*N*=113)**	
Group	NEG	POS
Adults with ANX/DEP (*n*=56)	2.47 (0.36)	1.84 (0.36)
Healthy Adults (*n*=57)	2.30 (0.35)	1.79 (0.35)
Group Effect	*p*=.795 / *d*=.056	
Trial Type Effect	**p*=.011 / *d*=.380	
Approach Behavior Covariate Effect	*p*=.760 / *r*=-.013	
Group x Trial Type	*p*=.790 / η^2<.001	
Age Covariate Effect	*p*=.249 / *r*=-.098	
Sex Covariate Effect	*p*=.900 / *d*=.024	

UNMATCHED	**Right Amygdala (*N*=175)**	
Group	NEG	POS
Adults with ANX/DEP (*n*=117)	2.26 (0.21)	1.70 (0.21)
Healthy Adults (*n*=58)	1.77 (0.28)	1.13 (0.28)
Group Effect	*p*=.104 / *d*=.175	
Trial Type Effect	***p*<.001 / *d*=.480	
Approach Behavior Covariate Effect	***p*=.007 / *r*=-.177	
Group x Trial Type	*p*=.802 / η^2<.001	
Age Covariate Effect	**p*=.010 / *r*=-.171	
Sex Covariate Effect	*p*=.140 / *d*=-.228	

MATCHED	**Right Amygdala (*N*=115)**	
Group	NEG	POS
Adults with ANX/DEP (*n*=57)	2.11 (0.29)	1.91 (0.29)
Healthy Adults (*n*=58)	1.95 (0.28)	1.31 (0.28)
Group Effect	*p*=.276 / *d*=.062	
Trial Type Effect	**p*=.031 / *d*=.140	
Approach Behavior Covariate Effect	*p*=.281 / *r*=-.068	
Group x Trial Type	*p*=.263 / η^2=.003	
Age Covariate Effect	**p*=.042 / *r*=-.174	
Sex Covariate Effect	*p*=.628 / *d*=-.093	

UNMATCHED	**dACC (*N*=175)**	
Group	NEG	POS
Adults with ANX/DEP (*n*=117)	-0.06 (0.26)	-0.82 (0.26)
Healthy Adults (*n*=58)	-0.31 (0.35)	-1.20 (0.35)
Group Effect	*p*=.424 / *d*=.070	

MATCHED	**dACC (*N*=115)**	
Group	NEG	POS
Adults with ANX/DEP (*n*=57)	-0.15 (0.33)	-0.92 (0.33)
Healthy Adults (*n*=58)	-0.39 (0.32)	-1.27 (0.32)
Group Effect	*p*=.462 / *d*=.078	

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083. Online appendices are unedited and posted as supplied by the authors.

Trial Type Effect	**p<.001 / d=.475				Trial Type Effect	**p<.001 / d=.449			
Approach Behavior Covariate Effect	**p<.001 / r=-.279				Approach Behavior Covariate Effect	**p<.001 / r=-.353			
Group x Trial Type	p=.781 / η^2<.001				Group x Trial Type	p=.809 / η^2<.001			
Age Covariate Effect	p=.955 / r=-.004				Age Covariate Effect	p=.471 / r=-.045			
Sex Covariate Effect	p=.886 / d=.022				Sex Covariate Effect	p=.400 / d=.161			
UNMATCHED	**Striatum (N=174)**				**MATCHED**	**Striatum (N=115)**			
Group	NEG	POS	REW	NO-REW	**Group**	NEG	POS	REW	NO-REW
Adults with ANX/DEP (n=117)	-0.59 (0.17)	-1.14 (0.17)	1.42 (0.15)	1.47 (0.15)	Adults with ANX/DEP (n=58)	-0.79 (0.21)	-1.26 (0.21)	1.47 (0.20)	1.62 (0.20)
Healthy Adults (n=57)	-1.28 (0.23)	-1.84 (0.23)	1.95 (0.20)	1.88 (0.20)	Healthy Adults (n=57)	-1.28 (0.21)	-1.85 (0.21)	2.06 (0.19)	2.00 (0.19)
Group Effect	**p=.008 / d=.310		**p=.046 / d=-.271		Group Effect	*p=.038 / d=.266		*p=.047 / d=-.388	
Trial Type Effect	**p<.001 / d=.598		p=.941 / d=.064		Trial Type Effect	**p<.001 / d=.472		p=.738 / d=.158	
Approach Behavior Covariate Effect	**p<.001 / r=-.276		**p<.001 / r=.267		Approach Behavior Covariate Effect	**p<.001 / r=-.295		*p=.014 / r=.225	
Group x Trial Type	p=.947 / η^2<.001		p=.575 / η^2<.001		Group x Trial Type	p=.735 / η^2<.001		p=.393 / η^2=.001	
Age Covariate Effect	p=.484 / r=.047		p=.096 / r=-.108		Age Covariate Effect	p=.460 / r=.072		*p=.027 / r=-.172	
Sex Covariate Effect	p=.344 / d=-.146		p=.905 / d=-.018		Sex Covariate Effect	p=.324 / d=-.189		p=.595 / d=.296	
UNMATCHED	**Anterior Insula (N=175)**				**MATCHED**	**Anterior Insula (N=115)**			
Group	NEG		POS		**Group**	NEG		POS	
Adults with ANX/DEP (n=117)	1.21 (0.20)		-0.33 (0.20)		Adults with ANX/DEP (n=57)	0.94 (0.27)		-0.36 (0.27)	
Healthy Adults (n=58)	1.06 (0.27)		-0.46 (0.27)		Healthy Adults (n=58)	1.03 (0.26)		-0.48 (0.26)	
Group Effect	p=.635 / d=.058				Group Effect	p=.967 / d=-.039			
Trial Type Effect	**p<.001 / d=1.28				Trial Type Effect	**p<.001 / d=.980			
Approach Behavior Covariate Effect	**p=.001 / r=-.207				Approach Behavior Covariate Effect	**p=.005 / r=-.206			
Group x Trial Type	p=.928 / η^2<.001				Group x Trial Type	p=.540 / η^2<.001			
Age Covariate Effect	p=.787 / r=.021				Age Covariate Effect	p=.153 / r=.121			
Sex Covariate Effect	p=.216 / d=-.190				Sex Covariate Effect	p=.510 / d=-.126			

Note: Percent signal change estimated marginal means and standard errors of the mean are listed for linear mixed-effects models. *p<.05; **p<.01

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Abbreviations: PSC=percent signal change; ROI=region-of-interest; ANX/DEP=anxiety and/or depressive disorder diagnoses; NEG=negative affective outcome trials; POS=positive affective outcome trials; dACC=dorsal anterior cingulate cortex; REW=trials with monetary reward; NO-REW=trials without monetary reward

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Table S6. Decision-Making Phase Mean PSC for ROI Data for ANX/DEP Subgroups

Subgroups	**Amygdala (*N*=115)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=32)	-0.59 (0.48)	0.60 (0.50)	-0.03 (0.46)	0.05 (0.46)	0.33 (0.47)
Adults with DEP (*n*=25)	-0.76 (0.51)	0.10 (0.53)	-0.20 (0.49)	-0.12 (0.50)	-0.18 (0.50)
Adults with ANX+DEP (*n*=58)	-0.41 (0.38)	-0.28 (0.41)	-0.49 (0.36)	0.03 (0.36)	-0.74 (0.36)
Subgroup Effect	*p*=.519 / η^2=.008				
Trial Type Effect	*p*=.241 / η^2=.009				
Approach Behavior Covariate	*p*=.950 / *r*=.010				
Subgroup x Trial Type	*p*=.414 / η^2=.008				
Age Covariate Effect	*p*=.398 / *r*=-.052				
Sex Covariate Effect	*p*=.654 / *d*=-.086				
Medication Covariate Effect	*p*=.389 / *d*=.166				
Subgroups	**dACC (*N*=117)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=31)	0.23 (0.58)	0.81 (0.60)	1.59 (0.56)	1.84 (0.56)	1.71 (0.56)
Adults with DEP (*n*=25)	0.15 (0.59)	0.44 (0.62)	1.41 (0.58)	1.32 (0.58)	1.17 (0.58)
Adults with ANX+DEP (*n*=61)	0.48 (0.43)	0.20 (0.47)	0.89 (0.41)	1.61 (0.42)	1.73 (0.42)
Subgroup Effect	*p*=.839 / η^2=002				
Trial Type Effect	**p<.001 / η^2=.040				
Approach Behavior Covariate	*p*=.782 / *r*=.028				
Subgroup x Trial Type	*p*=.691 / η^2=.005				
Age Covariate Effect	*p*=.188 / *r*=-.088				
Sex Covariate Effect	*p*=.564 / *d*=-.110				
Medication Covariate Effect	*p*=.177 / *d*=-.258				
Subgroups	**Striatum (*N*=116)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=31)	0.95 (0.26)	0.99 (0.27)	1.13 (0.25)	1.30 (0.25)	1.25 (0.25)

Note: Behavioral data estimated marginal means and standard errors of the mean are listed from linear mixed-effects models. *p<.05; **p<.01

Abbreviations: APP=approach-reward trials; AV=avoid-threat trials; CONF2=conflict trials with 2¢; CONF4=conflict trials with 4¢; CONF6=conflict trials with 6¢

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Adults with DEP (*n*=25)	0.84 (0.27)	0.97 (0.28)	0.33 (0.27)	1.24 (0.27)	1.12 (0.27)
Adults with ANX+DEP (*n*=60)	0.95 (0.20)	0.95 (0.21)	0.91 (0.19)	1.47 (0.19)	1.00 (0.19)
Subgroup Effect	p=.692 / η^2=.002				
Trial Type Effect	**p=.003 / η^2=.020				
Approach Behavior Covariate	p=.898 / r=-.031				
Subgroup x Trial Type	p=.424 / η^2=.009				
Age Covariate Effect	p=.855 / r=-.016				
Sex Covariate Effect	p=.568 / d=.109				
Medication Covariate Effect	p=.524 / d=-.122				
Subgroups	**Left dlPFC (*N*=116)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=32)	0.95 (0.24)	0.99 (0.25)	1.30 (0.23)	1.25 (0.24)	1.17 (0.24)
Adults with DEP (*n*=25)	1.06 (0.26)	1.09 (0.27)	0.76 (0.25)	0.88 (0.25)	0.83 (0.25)
Adults with ANX+DEP (*n*=59)	0.89 (0.19)	1.21 (0.20)	0.96 (0.18)	1.29 (0.18)	1.32 (0.18)
Subgroup Effect	p=.627 / η^2=.004				
Trial Type Effect	p=.693 / η^2=.006				
Approach Behavior Covariate	p=.678 / r=-.018				
Subgroup x Trial Type	p=.279 / η^2=.010				
Age Covariate Effect	p=.496 / r=.051				
Sex Covariate Effect	p=.985 / d=.003				
Medication Covariate Effect	p=.531 / d=-.120				
Subgroups	**Right dlPFC (*N*=117)**				
	APP	AV	CONF2	CONF4	CONF6
Adults with ANX (*n*=32)	1.83 (0.27)	1.48 (0.28)	2.04 (0.26)	2.04 (0.26)	1.98 (0.26)
Adults with DEP (*n*=25)	1.64 (0.29)	1.60 (0.30)	1.51 (0.28)	1.70 (0.28)	1.50 (0.28)
Adults with ANX+DEP (*n*=60)	1.90 (0.21)	2.01 (0.23)	1.90 (0.20)	2.31 (0.20)	2.14 (0.20)
Subgroup Effect	p=.186 / η^2=.015				

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Trial Type Effect	p=.354 / η^2=.006
Approach Behavior Covariate	p=.534 / r=-.016
Subgroup x Trial Type	p=.566 / η^2=.007
Age Covariate Effect	p=.529 / r=-.036
Sex Covariate Effect	p=.643 / d=.088
Medication Covariate Effect	p=.367 / d=-.172

Table S7. Outcome and Reward Phase Mean PSC for ROI Data for ANX/DEP Subgroups

Subgroups	**Left Amygdala (*N*=116)**	
	NEG	POS
Adults with ANX (n=31)	3.31 (0.53)	2.61 (0.53)
Adults with DEP (n=24)	2.29 (0.55)	1.69 (0.55)
Adults with ANX+DEP (n=61)	2.57 (0.39)	1.78 (0.39)
Subgroup Effect	p=.237 / η^2=.021	
Trial Type Effect	**p=.003 / d=.321	
Approach Behavior Covariate	*p=.047 / r=-.160	
Subgroup x Trial Type	p=.946 / η^2<.001	
Age Covariate Effect	p=.596 / r=-.039	
Sex Covariate Effect	p=.891 / d=.026	
Medication Covariate Effect	p=.597 / d=-.102	
Subgroups	**Right Amygdala (*N*=117)**	
	NEG	POS
Adults with ANX (n=32)	2.69 (0.42)	2.33 (0.42)
Adults with DEP (n=24)	2.34 (0.45)	1.58 (0.45)
Adults with ANX+DEP (n=61)	2.12 (0.32)	1.53 (0.32)
Subgroup Effect	p=.240 / η^2=.021	
Trial Type Effect	**p=.005 / d=.188	
Approach Behavior Covariate	*p=.019 / r=-.186	
Subgroup x Trial Type	p=.749 / η^2=.001	

Note: Behavioral data estimated marginal means and standard errors of the mean are listed from linear mixed-effects models. *p<.05; **p<.01

Abbreviations: APP=approach-reward trials; AV=avoid-threat trials; CONF2=conflict trials with 2¢; CONF4=conflict trials with 4¢; CONF6=conflict trials with 6¢

Appendix 1 to McDermott TJ, Berg H, Touthang J, et al. Striatal reactivity during emotion and reward relates to approach–avoidance conflict behaviour and is altered in adults with anxiety or depression. J Psychiatry Neurosci 2022. doi: 10.1503/jpn.220083.

Age Covariate Effect	*p=.014 / r=-.205			
Sex Covariate Effect	p=.714 / d=-.070			
Medication Covariate Effect	p=.391 / d=.164			
Subgroups	**dACC (*N*=117)**			
	NEG		POS	
Adults with ANX (n=32)	-0.35 (0.49)		-1.00 (0.49)	
Adults with DEP (n=24)	0.39 (0.53)		0.19 (0.53)	
Adults with ANX+DEP (n=61)	-0.03 (0.37)		-1.07 (0.37)	
Subgroup Effect	p=.228 / η^2=.022			
Trial Type Effect	*p=.021 / d=.256			
Approach Behavior Covariate	*p=.024 / r=-.166			
Subgroup x Trial Type	p=.420 / η^2=.004			
Age Covariate Effect	p=.414 / r=.056			
Sex Covariate Effect	p=.694 / d=.075			
Medication Covariate Effect	p=.474 / d=-.137			
Subgroups	**Striatum (*N*=117)**			
	NEG	POS	REW	NO-REW
Adults with ANX (n=32)	-0.29 (0.34)	-0.81 (0.34)	1.03 (0.29)	0.91 (0.29)
Adults with DEP (n=24)	-0.27 (0.36)	-0.67 (0.36)	0.95 (0.31)	1.27 (0.31)
Adults with ANX+DEP (n=61)	-0.66 (0.26)	-1.28 (0.26)	1.50 (0.22)	1.33 (0.22)
Subgroup Effect	p=.289 / η^2=.013		p=.264 / η^2=.017	
Trial Type Effect	**p=.002 / d=.338		p=.903 / d = .091	
Approach Behavior Covariate	**p=.005 / r=-.229		**p<.001 / r=.299	
Subgroup x Trial Type	p=.840 / η^2<.001		p=.295 / η^2=.004	
Age Covariate Effect	p=.436 / r=.066		p=.655 / r=-.024	
Sex Covariate Effect	p=.942 / d=.014		p=.499 / d=-.130	
Medication Covariate Effect	p=.619 / d=.095		p=.099 / d=-.318	
Subgroups	**Anterior Insula (*N*=117)**			

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	NEG	POS
Adults with ANX (*n*=31)	1.21 (0.40)	-0.44 (0.40)
Adults with DEP (*n*=25)	1.04 (0.41)	-0.20 (0.41)
Adults with ANX+DEP (*n*=61)	1.22 (0.29)	-0.40 (0.29)
Subgroup Effect	p=.997 / η^2=.002	
Trial Type Effect	**p<.001 / d=.813	
Approach Behavior Covariate	*p=.011 / r =-.194	
Subgroup x Trial Type	p=.716 / η^2=.001	
Age Covariate Effect	p=.805 / r=.018	
Sex Covariate Effect	p=.323 / d=-.188	
Medication Covariate Effect	p=.560 / d=-.111	

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