**Image acquisition protocols**

All MRI scans were acquired at the Danish Research Centre for Magnetic Resonance (DRCMR) at Copenhagen University Hospital Hvidovre using a 3 Tesla Siemens Verio scanner (Siemens Trio, Erlangen, Germany) and a 32-channel head array receive coil. During the performance of the card paradigm Blood-oxygen-level Dependent (BOLD) sensitive fMRI was acquired using a T2\*-weighted gradient echo-planar imaging (EPI) sequence. A total of 312 volumes were acquired using parallel imaging (GRAPPA) and whole-brain field of view (acceleration factor = 2, FOV = 192 mm2, matrix size = 64 x 64, imaging plane = axial, slice thickness = 3 mm, no. of slices = 42, acquisition order = interleaved upwards, echo time = 30 ms, repetition time = 2320 ms, flip angle = 80°). The BOLD images were registered to T1-weighted structural images which were acquired using an MPRAGE sequence (FOV = 230 mm2, ST = 1.9 mm, no. of slices = 224, slice thickness = 1 mm, repetition time = 1900 ms, echo time = 2320 ms, flip angle = 9°). A standard B0 field map sequence was also acquired with the same field-of-view and resolution as the fMRI sequence and used for geometric distortions correction of the BOLD images. A good image quality at acquisition time was ascertained by visual inspection of all individual images.

**The card guessing fMRI paradigm**

The fMRI paradigm was a card guessing game adapted from Chase et al. (2017) and designed to assess neural responses to expected value (EV) and reward prediction error (RPE), (Figure 1). Each trial started with a *choice* event where the participant guessed by button press if the value of a card shown later will be higher or lower than 5. The choice was made visible by either the “high” or “low” words. The choice event had a fixed duration of 3 s. Next followed an *anticipation* event when one of four possible prediction conditions symbols were shown with a jittered duration of 2-6 seconds: i) a deck of cards accompanied by an arrow pointing upwards was associated with a possible gain or neutral outcome, ii) a deck of cards accompanied by an arrow pointing downwards was associated with a possible loss or neutral outcome, iii) a deck of cards accompanied by both an arrow pointing up -and downwards was associated with a possible gain or loss, and lastly iv) a deck of cards with no arrows represented no possible gain or loss. The trial ended with a predetermined outcome event when the value of the card to be guessed was shown for 500 ms followed by a feedback symbol for 500 ms. This value was a random number between 1-4 for low cards or 6-9 for high cards, and the feedback could be one of three symbols: a green dollar symbol accompanied by an arrow pointing upwards represented gain (6 DKK), a red dollar symbol with accompanied by an arrow pointing downwards represented loss (4.5 DKK), and a yellow circle represented neutral outcome (0 DKK). The feedback with either high or low cards was given so that each of the four reward anticipation conditions ended up with ten correct and ten incorrect trials. Between trials a fixation cross with duration of jittered 0.5-1.5 seconds was shown. The paradigm had a total duration of 12 minutes and consisted of 80 repetitions of the trial with each of the four different prediction conditions appearing 20 times in randomized order. Every participant received a net gain of 30 DKK following the fMRI investigation.

**Definition of the regions of interest**

Based on our a priori hypothesis (se Introduction), we first limited our search volume for the encoding of the reward signals to bilateral ventral striatum region-of-interest (ROI). Ventral striatum was defined as nucleus accumbens according to the Oxford-Imanova Striatal Structural Atlas (Tziortzi *et al.* 2011). We secondly explored for significant effects in the entire prefrontal cortex. The prefrontal cortex was defined by adding bilateral cortical regions anterior to the precentral sulcus: superior, middle and inferior frontal gyri, the frontal medial cortex, ventrolateral, medial orbitofrontal and subgenual cortices and the frontal poles. The prefrontal ROI further included the insula and anterior cingulate cortex. The prefrontal structures were based on the Howard-Oxford Cortical Structural Atlas (Desikan *et al.* 2006) thresholded at 25%. The ROIs were generated using the FSLeyes tool in FSL 6.0.1.

**Reference**

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