



**S10 Fig. Comparisons between the neuroimaging results with and without z-normalisation of reward prediction errors.**

- (a) Variability of positive reward prediction error in reward trials. Each point denotes the standard deviation of the prediction error in one participant. SD, standard deviation.
- (b) Variability of negative reward prediction error in reward trials. The format is the same as in (a).
- (c) Positive reward prediction error in the anterior insula for reward trials: PG vs HC (left: *Cohen's*  $d = 0.666$ ,  $t = 2.430$ , and  $P = 0.020$ ; right: *Cohen's*  $d = 0.447$ ,  $t = 1.683$ , and  $P = 0.100$ ). The format is the same as in Fig. 6a. *Left*, the original fMRI data analysis results without z-normalisation of the prediction error. *Right*, results of the post-hoc fMRI data analysis with z-normalisation of the prediction error.  $d$  indicates the effect size, *Cohen's*  $d$ .
- (d) Negative reward prediction error in the dmPFC for reward trials: OCD vs HC (left: *Cohen's*  $d = 0.579$ ,  $t = 2.359$ , and  $P = 0.022$ ; right: *Cohen's*  $d = 0.401$ ,  $t = 1.543$ , and  $P = 0.129$ ). The format is the same as in (c).
- (e) Negative reward prediction error in the dorsal striatum for reward trials: OCD vs HC (left: *Cohen's*  $d = 0.731$ ,  $t = 2.831$ , and  $P = 0.006$ ; right: *Cohen's*  $d = 0.525$ ,  $t = 2.050$ , and  $P = 0.045$ ). The format is the same as in (c).

Summary data to reproduce the figure are available at <https://osf.io/v7em5/>.