When conducting parameter recovery of EW model in our new paradigm, we followed the instructions of {Wilson, 2019 #22}. First of all, in order to make sure that our simulation parameters were in the right range, we fitted the model to the SA (suicide attempts) group using STAN as an example. We observed that the distribution of estimated parameters was more like Gamma distribution than normal distribution, so we fitted a Gamma distribution for each parameter (5 parameters in this model) with these posterior estimations. Next, we sampled from these Gamma distributions independently 200 times to build up a “simulation group” (so there were 200 participants in this group with known ground-truth parameters). We next simulated the behavioural data of these 200 participants with 50 trials each. Finally, we used the EW model to fit these data (the method was the same as the fitting to real data), estimated and plotted the correlation between the true parameters and recovered ones. (See Supplementary Figure X).

We can see that overall, there were strong correlations between the ground-truth and recovered parameters. Parameter recovery of performed well, suggesting that the EW model could give meaningful values on the parameters that we cared most. The recovery of did not perform so well. The possible explanation of this would be indicates stochasticity of behaviour, which might be susceptible to the interaction with other parameters in this model. Therefore, we did not calculate the group difference of , and did not link it to any psychological measurements either.

Wilson, R.C., and Collins, A.G. (2019). Ten simple rules for the computational modeling of behavioral data. Elife *8*.