



# Cognitive flexibility in OCD: challenging the paradigm

By Dr. Jessica K. Edwards

Data from a new study by Nicole Wolff and colleagues suggest that cognitive flexibility can be better in children with obsessive-compulsive disorder (OCD) than typically developing controls. The researchers examined cognitive flexibility in 20 adolescents with OCD and 22 controls using a backward inhibition (BI) paradigm.<sup>1</sup>

This paradigm is based on task switching, whereby efficient activation of a new task and concurrent inhibition of a redundant task is required for cognitive flexibility. BI thus describes the cost of overcoming the inhibition of a recently abandoned mental set when it becomes relevant again; therefore, those with a strong BI effect exhibit low cognitive flexibility. The researchers estimated this BI effect by EEG, recording the source and magnitude of event-related potentials in the brain known to reflect processes that inhibit task-irrelevant mental representations.<sup>2</sup>

They found that patients with OCD had a smaller BI effect than controls, with neural activation differences found in the inferior frontal gyrus (BA47). Interestingly, this brain region is associated with the core characteristics of OCD, namely repetition, control and obsessive thoughts. These data support the counterintuitive view that patients with OCD show increased cognitive flexibility when there is a need to reuse recently abandoned, repeating mental sets.

## Referring to:

Wolff, N., Giller, F., Buse, J., Roessner, V. and Beste, C. (2018), When repetitive mental sets increase cognitive flexibility in adolescent obsessive-compulsive disorder. *J. Child Psychol. Psychiatr.* 59: 1024-1032. doi: 10.1111/jcpp.12901.

## Further reading:

<sup>1</sup>Koch, I. et al. (2004), Inhibition of response mode in task switching. *Exp. Psychol.* 51:52-58. doi: 10.1027/1618-3169.51.1.52.

<sup>2</sup>Klimesch, W. (2011), Evoked alpha and early access to the knowledge system: The P1 inhibition timing hypothesis. *Brain Res.* 1408: 52-71. doi: 10.1016/j.brainres.2011.06.003.

## Glossary:

**Backward inhibition (BI):** an inhibitory mechanism whereby an executed task must be inhibited or suppressed to permit a new task to be completed. This mechanism is required for effective task switching.

**Event-related potentials (ERPs):** the measured electrophysiological response to a stimulus; the ERP waveform is measured by electroencephalography and consists of a series of positive and negative voltage deflections.