

OCD Linked With Broad Impairments in Executive Function

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Obsessive-compulsive disorder (OCD), characterized by intrusive and persistent thoughts that are often accompanied by repetitive or ritualized acts, is a serious clinical disorder that can significantly impact a person's ability to function and go about daily life. Neuroimaging data have hinted at a link between OCD and brain areas that contribute to executive function (EF), a group of critical cognitive abilities that regulate lower-level cognitive processes.



As researcher Hannah Snyder of the University of Denver and colleagues explain, EFs allow us to “break out of habits, make decisions and evaluate risks, plan for the future, prioritize and sequence actions, and cope with novel situations.” EF deficits, therefore, could contribute to an inability to shift between tasks and the repetition and perseveration so often seen in individuals with OCD.

Despite evidence linking OCD with deficits in EF, the results have been inconsistent. Snyder and colleagues decided to conduct a [meta-analysis](#) — combining and analyzing data across many existing studies — to provide a more robust investigation.

For their analyses, the researchers chose to include studies that compared individuals with an OCD diagnosis to a healthy control group on at least one EF task and that reported sufficient information for the calculation of effects sizes. Given these criteria, they identified 110 studies, comprising a total of 3,162 individuals with OCD and 3,153 health control participants.

In analyses of the pooled data, OCD groups showed deficits across various EF tasks — including measures of inhibition (e.g., Stroop incongruent condition time, stop signal RTs), shifting (e.g., Wisconsin Card Sorting Test), updating (e.g., n-back test), verbal working memory (e.g., digit-span backward), visuospatial working memory (e.g., block span), and planning (e.g., accuracy and latency measures) — with most effect sizes (Cohen's *d*) ranging from 0.3 to 0.5.

Taken together, these [findings](#) suggest that OCD is associated with broad deficits in EF, not just selective deficits in shifting or inhibition, as some researchers have hypothesized.

Furthermore, while individuals with OCD often show slower motor response and often have a comorbid diagnosis of major depression, analyses indicated that neither of these factors fully accounted for the link between EF deficits and OCD.

According to Snyder and colleagues, the findings offer evidence suggesting that EF deficits, driven by dysfunction in prefrontal-striatal circuits, may underlie OCD – but they caution that more research is required in order to build an accurate neurobiological model.

“A better understanding of when and how EF impairments arise for individuals with OCD may have important implications for treatment, such as pharmacological interventions that target specific aspects of prefrontal function or training programs to improve EF or teach compensatory strategies to mitigate the effects of EF impairments,” Snyder and colleagues explain.

“Given the centrality of EF to our ability to successfully navigate daily life, such research has the potential to improve outcomes for many individuals affected by OCD.”

Snyder, H., Kaiser, R., Warren, S., & Heller, W. (2014). Obsessive-Compulsive Disorder Is Associated With Broad Impairments in Executive Function: A Meta-Analysis. *Clinical Psychological Science*. DOI: [10.1177/2167702614534210](https://doi.org/10.1177/2167702614534210)