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Review

# Memory and executive functioning in obsessive–compulsive disorder: A selective review

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**Abstract**

*Background:* The neurocognitive deficits that underlie the unique features of obsessive–compulsive disorder (OCD) are not yet completely understood. This paper reviews the main neuropsychological findings in memory and executive functioning in this disorder, and examines a number of challenges facing this area of research.
*Method:* A selective review of the neuropsychological literature on OCD was conducted using MEDLINE and drawing on literature known to the authors.
*Results:* The neuropsychological profile of OCD appears to be one of primary executive dysfunction. Although memory functioning may be affected, these deficits appear secondary to an executive failure of organizational strategies during encoding. On tasks of executive functioning patients with OCD demonstrate increased response latencies, perseveration of responses, and difficulties utilizing feedback to adapt to change.
*Limitations:* A statistical meta-analysis was not performed and only the cognitive domains of memory and executive functioning were examined.
*Conclusions:* Given the prominence of chronic doubt and indecision in clinical settings, it is surprising that decision making as a cognitive construct as related to OCD has not received greater attention in the neuropsychological literature. On the basis of emerging literature we suggest that it is a potential area of dysfunction and one that warrants further investigation as it may assist in enhancing our understanding of the pathophysiology of OCD.


*Keywords:* Obsessive–compulsive disorder; Neuropsychology; Decision making; Executive functioning

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## 1. Introduction

Obsessive–Compulsive Disorder (OCD) is a debilitating illness characterized by recurrent, intrusive and unwanted thoughts, impulses and images, often associated with compulsive behaviors that are repetitive, time consuming and often ritualized. The most common obsessions involve contamination, doubting, ordering or symmetry, aggressive thoughts, sexual imagery and religion. Compulsions are generally performed in an attempt to either avoid or neutralize the obsessions, or more specifically, the anxiety associated with them (American Psychiatric Association, 2000). Common compulsions include washing or cleaning, checking, ordering, counting and repeating actions or words.

Obsessive–Compulsive Disorder is currently classified as an anxiety disorder, and other anxiety disorders, such as specific phobias, panic disorder and generalized anxiety disorder (GAD), are frequently comorbid with it. Major depression is however the psychiatric disorder most frequently associated with OCD, with lifetime occurrence of approximately 67% (Rasmussen and Eisen, 1992). It is distinguished from other anxiety spectrum disorders (e.g., specific and social phobias) in that the content of the obsessions or compulsions is not restricted to a particular stimulus, and it does not manifest the excessive concerns of GAD sufferers pertaining to real-life situations. The DSM-IV-TR (APA, 2000) distinguishes the ego-dystonic nature of obsessions, i.e., the sense that obsessive thoughts are alien to the sufferer, from delusions of insertion, in that sufferers recognize their obsessions as their own, whilst still perceiving them as being outside their control. It is noteworthy however, that individuals that lack the ability to recognize their obsessions or compulsions as excessive or unreasonable, may venture into the delusional spectrum. In contrast, obsessive–compulsive personality disorder does not involve 'true obsessions' or compulsions, rather a preoccupation with "orderliness, perfectionism, and mental and interpersonal control" (APA, 2000, pg 725).

In addition to anxiety and depression, OCD is also associated with other mental disorders, either through comorbidity or commonality of symptoms. The impulse control disorders for instance, particularly trichotillomania, kleptomania and pathological gambling, are deemed to be part of the compulsive spectrum, with OCD a common comorbidity (APA, 2000). True compulsions differ from failures in impulse control or 'impulsions', as the former lack associated gratification or pleasure.

While sharing features with both anxiety spectrum and impulse control disorders and aspects of personality disorders, OCD remains a unique clinical disorder. The stereotyped nature of its symptoms, its chronicity and its occurrence in a number of neurological settings have prompted a number of neurobiological models of this disorder to be proposed (Aouizerate et al., 2004), however further research and clarification of such models is needed. One approach to understanding the neurobiology of OCD is to examine the neuropsychological deficits that underlie the symptoms, with the expectation that cogent neuropsychiatric models would emerge. Neuropsychological functioning has been proposed as a potential intermediary or, as suggested by Chamberlain et al (2005), an '*endophenotype*' that lies somewhere between the clinical manifestation of the disorder and it's neurobiological etiology. In this context, neuropsychological studies of OCD continue to provide interesting but inconsistent results with differential performances on identical or similar tasks arising often due to methodological factors. This review attempts to distill the key neuropsychological findings to date that have clinical salience and provides a cognitive profile of OCD.

## 2. Neuropsychology of OCD

It was initially thought that the repetitive thoughts and behaviors of OCD reflected impaired memory