

The state of the art of cognitive functioning in OCD: an alternative pathway to understanding neuropsychological heterogeneity

O estado da arte do funcionamento cognitivo no TOC: um caminho alternativo para a compreensão da heterogeneidade neuropsicológica

DOI: 10.1590/0047-2085000000427

Traditional classification systems (DSM and ICD) still represent the primary means for grouping psychiatric nosology. Nonetheless, mounting evidence suggests that these classification systems do not fully capture the natural organization of psychopathology symptoms, preventing the identification of underlying neurobiological substrates^{1,2}. Considering that mental disorders share symptoms (e.g. affective processing, cognitive impairment, dysfunctional behaviors)³, a transdiagnostic approach appears to be more effective than the traditional classifications systems⁴. Also, a given mental disorder (e.g., depression) can show very different clinical presentations, with a huge heterogeneity regarding its psychopathology symptoms, both in nature and magnitude⁵. This heterogeneity can prevent grouping the same disorder in a homogeneous group, and therefore, restrict the ability of clinicians to stipulate treatment options, and to predict treatment outcomes and/or clinical course accurately⁶. The identification of distinct groups within the same mental disorder contributes to accuracy in clinical practice and in research. It may be particularly important in neuropsychology, where unidentified heterogeneity may leave significant sources of overlooked variance⁷.

Obsessive-compulsive disorder (OCD) is a disabling mental disorder that affects 2% to 3% of general population and show a high heterogeneity in clinical presentations⁸. Additionally, the neurobiological abnormalities present in OCD patients play a crucial role in its etiology and course⁹. Thus, neuropsychological impairment has been proposed as the intermediate phenotype between the clinical manifestation of the disorder and its neurobiological etiology¹⁰.

Cognitive deficits in OCD exhibit inconsistency in results with differential performances on identical or similar tasks, often due to methodological discrepancies¹⁰. OCD patients frequently show cognitive deficits in episodic and short term memory¹¹⁻¹³; executive functions¹⁴; visuoconstructive skills¹³, and processing speed¹⁵. The deficits in memorizing and recalling presented by these patients may be due to problems in executive function: the organization of information^{16,17}. The difficulty in organizing events compromises the encoding of stimuli, resulting in a weaker memory trace. Another extensively studied executive function in patients with OCD is planning. OCD patients require more time to generate an alternative hypothesis due to a previous error or to verify if the next move is correct¹⁸. This suggests that a deficit in selective attention leads to excessive control of movement. This control arises from the fear of making mistakes or the difficulty in finding novel cognitive strategies. Additionally, deficits in planning may be due to difficulty initiating and executing moves. This deficit has been associated with psychomotor impairment¹⁹. Planning deficits differs for easier and more difficult tasks. In easier tasks, OCD patients only differ in execution time. On the other hand, in more difficult tasks, OCD patients differ in both time and accuracy²⁰.

Considering the heterogeneity in clinical presentations of OCD, there is a need of an alternative approach for studying cognitive deficits in patients suffering from this disorder.

Received in: Oct/10/2023. Approved in: Oct/16/2023

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A possible solution is to group patients with similar symptom patterns and establish associated neuropsychological profiles. The understanding of the neuropsychological profiles underlying the subtypes of OCD can provide more effective and individualized treatments. A recent review²¹ identified three symptom patterns present in almost every factor analytic study, which are: “Symmetry obsessions/Ordering compulsions”; “Contamination obsessions/Cleaning compulsions” and “Checking compulsions”.

In general, the “Checking compulsions” dimension shows the lowest neuropsychological performance in all dimensions. This supports the hypothesis of potential involvement of atypical assessment of fear or attentional bias directed towards fear-based, which may impair such executive functions²². Furthermore, Cameron *et al.*, 2020²¹, showed three cognitive clusters associated with the dimensions or subtypes of OCD, namely: 1) “executive function cluster”; 2) “episodic memory cluster”; and 3) “visuospatial skills cluster”. The Symmetry obsessions/Ordering compulsions are associated with more prominent deficits in verbal and visual episodic memory, while checking symptom patterns are linked to impairments primarily in visuospatial skills. Finally, contamination symptom patterns are associated with deficits in executive functions (core components and higher level).

In sum, current literature suggests that there is a relationship between the neuropsychological profile and the symptom pattern in OCD. Nevertheless, it is possible that the differences in observed results are partially due to methodological differences between studies, and further research linking neuropsychological profiles with symptom dimensions is necessary.

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