Set-switching in obsessive-compulsive disorder: an ERP comparison with panic disorder

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**Recommended Citation**

Thomas, Susan; Gonsalvez, Craig J.; and Johnstone, Stuart, "Set-switching in obsessive-compulsive disorder: an ERP comparison with panic disorder" (2013). *Faculty of Science, Medicine and Health Papers: part A*. 1686.  
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Abstract
Abstract of paper that was presented at 23rd Australasian Society for Psychophysiology Conference & Annual Meeting of the Australasian Society for Psychophysiology, 20-22 Nov 2013, University of Wollongong, Australia.

Disciplines
Medicine and Health Sciences | Social and Behavioral Sciences

Publication Details

This conference paper is available at Research Online: https://ro.uow.edu.au/smhpapers/1686
Set-switching in obsessive-compulsive disorder: An ERP comparison with panic disorder

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Aims: Cognitive flexibility, including the ability to shift adaptively between changing tasks or rules, may be impaired in obsessive-compulsive disorder (OCD), contributing to repetitive symptoms. Brain mechanisms and the specificity of set-shifting difficulties to OCD are inadequately understood. We investigated the neurophysiology of set-shifting in participants with OCD versus healthy and anxious controls. Method: Participants with OCD (n=20) versus healthy (n=20) and anxious controls with panic disorder (n=20) performed a specially designed Go/ NoGo task, where some stimuli had switching, and some had fixed, response requirements. ERPs, response time (RT) and accuracy were compared between groups. Results: Switch costs occurred in terms of higher errors to switching stimuli across participant groups, particularly commission errors to switching NoGo stimuli. For N2, there was a Switch by Go/NoGo interaction, with the largest N2 amplitude occurring to switching NoGo stimuli. Additionally, N2 latency was longer to switching stimuli. Classic NoGo enlargement and anteriorisation occurred for N2-P3, across groups. Both clinical groups had higher switching versus non-switching P3 amplitude, compared to healthy controls. Additionally, clinical groups shared general RT impairments and atypical topography of N2. Conclusions: We identified similar general deficits and ERP anomalies during task-switching in OCD and panic disorder, precluding OCD-specific interpretations. Both conditions may be characterised by shared anomalies in cognitive flexibility and control.

Keywords: set-shifting, OCD, inhibition, ERPs, Panic Disorder, P3, N2


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