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Susan Thomas
*University of Wollongong, sthomas@uow.edu.au*

Craig J. Gonsalvez
*University of Wollongong, craiggg@uow.edu.au*

Stuart Johnstone
*University of Wollongong, sjohnsto@uow.edu.au*

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

Susan J. Thomas¹, ²*, Craig J. Gonsalvez², ³ and Stuart J. Johnstone², ³

¹Graduate School of Medicine, University of Wollongong, Australia
²University of Wollongong, Brain & Behaviour Research Institute, Australia
³University of Wollongong, School of Psychology, Australia

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-switching 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-switching, OCD, inhibition, ERPs, Panic Disorder, P3, N2


* Correspondence: Dr. Susan J. Thomas, Graduate School of Medicine, University of Wollongong, University of Wollongong, Wollongong, NSW, Australia, sthomas@uow.edu.au