
The Neuropsychology of Obsessive-Compulsive Symptoms

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Certificate of Originality

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the University or other institute of higher learning, except where due acknowledgement is made in the text.

I also declare that the intellectual content of this thesis is the product of my own work, even though I may have received assistance from others on style, presentation and language expression.

Signature _____

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Acknowledgements

“I was working on a proof of one of my poems all morning, and took out a comma. In the afternoon I put it back again.” Oscar Wilde

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Abstract

Obsessive-compulsive (OC) symptoms occur in a variety of clinical conditions, but the underlying pathogenesis of these symptoms remains elusive. Few neuropsychological investigations have compared idiopathic Obsessive-Compulsive Disorder (OCD) with patient groups where OC symptoms are acquired. The present study investigated the neuropsychological correlates of OC symptoms in OCD and frontotemporal dementia (FTD), a neurodegenerative illness in which OC symptoms are often acquired. Neuroimaging in OCD has consistently implicated the frontal-striatal-thalamic circuit, particularly the orbitofrontal cortex and basal ganglia. These areas overlap considerably with the sites of cerebral pathology found in FTD. OCD has been associated with a number of neuropsychological deficits, with most consistent findings pointing towards impaired executive function (EF), and less commonly reported deficits in visual memory and visuospatial ability. The neuropsychological hallmark of FTD is deficits in EF. However in both OCD and FTD, the relationship between cognitive deficits and OC symptoms remains unclear. Further, the extent to which OC symptoms are comparable between the groups is ambiguous. Part I of the present study compared 19 OCD subjects to 20 age, education and IQ-matched healthy controls on a battery of neuropsychological tests of all major cognitive domains with emphasis on EF. A measure of Theory of Mind (ToM) thought to be sensitive to orbitofrontal function was also administered. OCD subjects performed worse than controls on a measure of visual memory, visuospatial reasoning and on only one measure of EF. OCD symptom subtypes, as measured by the Obsessive-Compulsive Inventory (OCI), were not correlated with any cognitive deficits. No group differences in ToM were found. It is suggested that prior research has overestimated the severity and significance of EF deficits in OCD. Part II of the study compared 9 FTD participants with 10 matched healthy controls on the same neuropsychological test battery and OC symptom measures. In addition, a measure of compulsive behaviours used in neurological populations was administered to carers. While the incidence of OC symptoms was comparable to reports in previous studies (78%), the OCI was not sensitive in the detection of OC symptoms in FTD. The similarities and differences in OC symptoms between the two patient groups are discussed.

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List of Abbreviations

ACE	Addenbrooke's Cognitive Examination
AD	Alzheimer's disease
ADA	Anxiety Disorders Alliance
ANOVA	Analysis of Variance
APA	American Psychiatric Association
ATRU	Anxiety Treatment and Research Unit
BADS	Behavioral Assessment of Dysexecutive Syndrome
BNT	Boston Naming Test
CANTAB	Cambridge Neuropsychological Test Automated Battery
DASS	Depression, Anxiety and Stress Scale
DSM-IV	Diagnostic and Statistical Manual (4 th Edition)
EF	Executive Function
ESL	English as a second language
fMRI	Functional Magnetic Resonance Imaging
FSIQ	Full Scale Intellectual Quotient
FTD	Frontotemporal dementia
HRSD	Hamilton Rating Scale for Depression
IQ	Intellectual Quotient
MANOVA	Multivariate Analysis of Variance
MMSE	Mini Mental Status Examination
MRI	Magnetic Resonance Imaging
NART	National Adult Reading Test
NPI	Neuropsychiatric Inventory
OC	Obsessive-Compulsive
OCD	Obsessive-Compulsive Disorder
OCI	Obsessive-Compulsive Inventory
PET	Positron Emission Tomography
PIQ	Performance Intellectual Quotient
PTSD	Post Traumatic Stress Disorder
RCFT	Rey Complex Figure Test
SRB	Stereotypic and Ritualistic Behaviour
SSRI	Specific Serotonin Reuptake Inhibitor
TCA	Tricyclic antidepressant
ToM	Theory of Mind
VIQ	Verbal Intellectual Quotient
WAIS-III	Wechsler Adult Intelligence Scale-III
WASI	Wechsler Abbreviated Scale of Intelligence
WCST	Wisconsin Card String Test
WMS-III	Wechsler Memory Scale-III
YBOCS	Yale-Brown Obsessive-Compulsive Scale