Stress, habits and attachment in obsessive-compulsive disorder

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Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Anxiety disorders and symptoms
Study type	Observational invasive

Summary

ID

NL-OMON44537

Source
ToetsingOnline

Brief title
Stress, habits and attachment in OCD

Condition

- Anxiety disorders and symptoms

Synonym
Compulsive disorder; Compulsive neurosis

Research involving
Human

Sponsors and support

Primary sponsor: Psychiatrie
Source(s) of monetary or material Support: ZonMW van NWO

Intervention

Keyword: Attachment, Habits, OCD, Stress

Outcome measures

Primary outcome

Our main study endpoints include 1.) The balance between goal-directed and habitual responding as measured by the appetitive and avoidance habit task; 2.) The amount of compulsive checking behavior and experienced intolerance of uncertainty as measured in the checking task; 3.) Brain activation patterns as measured with fMRI during these tasks, and an additional emotional face matching task, resting-state condition and DTI; and 4.) The correlation between attachment style as measured with the AAI and ERC with the behavorial and neurobiological study end points of 1-3.

Secondary outcome

nvt

Study description

Background summary

In this study we investigate the triad of stress, habits and attachment in the context of obsessive-compulsive disorder (OCD). Patients with OCD suffer from repetitive behaviors like washing and checking. Currently, two apparently opposing theories exist to explain compulsivity, focusing either on compulsive behaviour to reduce obsession-related anxiety/distress or compulsive behavior resulting from an overreliance on habitual behaviour. Recent data show that acute stress in healthy humans results in a shift from goal-directed towards habitual behaviour. Furthermore, using similar instrumental learning tasks, patients with OCD have recently been found to exhibit an overreliance on habits. Neuro-anatomically, the habit system consists of the putamen and the goal-directed system of the medial prefrontal cortex (mPFC) and caudate nucleus. Furthermore, in animals the switch towards habitual behaviour is

dependent on intact function of the amygdala, which is additionally known to critically mediate the stress response. In part 1 of the study, we follow-up on these data and test the integrative hypothesis that a stress-induced shift from goal-directed towards habitual control, driven by facilitated amygdala input to the striatum and reduced mPFC control, underlies compulsive behavior in OCD. To this end, we will combine neuroimaging (fMRI) with controlled stress-induction in OCD patients and healthy controls while implementing two recently developed two-stage habit tasks to separately track the development of appetitive and avoidant habit behavior. To test whether stress leads to an increase in compulsive, checking behavior in OCD through an enhancement of experienced intolerance of uncertainty, as opposed to habit formation per se, we will implement a delayed matching-to-sample checking task (with the unrestricted possibility of checking a decision) in the same experimental set-up and study population. Furthermore, due to the crucial role of the amygdala in our hypothesis, we will additionally investigate amygdala function using a short emotional face matching task. And finally in part 1, we will also test both functional and structural connectivity of implicated neuronal networks, like the frontostriatal, stress/salience and default mode network, within OCD and their relation to stress induction, by implementing resting-state fMRI and diffusion tensor imaging (DTI).

In part 2, we investigate the role of attachment style on the vulnerability of OCD patients to develop habitual, compulsive behaviour under influence of stress. Attachment theory holds that interpersonal interactions with protective others during youth are internalized as mental representations of self and others, which have an impact on relationships, self-esteem, emotion regulation, and mental health throughout life. The quality of these internalized interactions determines the adult attachment style, which can be classified as secure, dismissive or preoccupied attachment. Especially, the last two categories (grouped as insecure attachment), have been linked to OCD by predicting dysfunctional OCD-related beliefs concerning responsibility, blame, control, perfectionism and threat estimation. On a neurobiological level, recent fMRI studies link preoccupied attachment style to enhanced processing in threat-related regions, such as the amygdala, and dismissive attachment style to attenuated activation of reward circuitry, such as the ventral striatum, and an aberrant cognitive regulation capacity of the mPFC. Together, this is the same neural circuitry as implicated in the stress-induced shift to habitual, compulsive behaviour described in part 1. In part 2, we will hence test the hypothesis that insecurely attached OCD patients show a more profound shift from goal-directed to habitual behaviour under influence of stress than either securely attached OCD patients or (in)securely attached healthy controls. We further hypothesize that in OCD patients with a preoccupied attachment this effect is driven by heightened amygdala input to the striatum, while in dismissively attached OCD patients the effect is related to relatively less regulatory activation of the mPFC. To test these hypotheses, we will correlate individual attachment styles, as measured with the Adult Attachment Interview (AAI) and the Experiences in Close Relationships inventory (ECR), to the

behavioural and neuroimaging outcome measures of the appetitive and avoidant habit task, and all additional tasks as described in Part 1 (checking task, emotional face matching task, resting-state fMRI and DTI).

Study objective

Our primary objectives are to study in patients with OCD 1.) Whether stress facilitates a shift from goal-directed to habitual behaviour (both appetitive and avoidant); 2.) Whether stress facilitates compulsive behavior through an enhancement of experienced intolerance of uncertainty; 3.) The neural pathways underlying these effects using fMRI; and 4.) Whether the behavioural and neuroimaging effects of 1-3 are associated with individual attachment style as measured with AAI and ECR.
Our secondary objectives are to study in patients with OCD 1.) Whether stress results in a heightened amygdala response to biologically salient stimuli; 2.) How stress affects the functional integrity of implicated neural networks as measured with resting-state fMRI; 3.) The structural integrity of the implicated neural networks as measured with DTI; and 4.) Whether the behavioral and neuroimaging effects of 1-3 are associated with individual attachment style.

Study design

A cross-over design with a counterbalanced order of stress induction vs. neutral control condition (separated by a 1 week interval) is used to study primary and secondary objectives. Behavioral and neurobiological outcome measures in OCD patients will be compared to those in an age, sex and educational level matched healthy control group.

Study burden and risks

The risk associated with participation can be considered negligible and the burden can be considered minimal. Total participation time is approximately 6 hours.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

Age
Adults (18-64 years)
Elderly (65 years and older)

Inclusion criteria

Patients:
- Diagnosis of OCD with obsessions and compulsions assessed with the MINI Neuropsychiatric Interview (MINI)
- Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) score cut-off of 12
- 18-65 years of age
- Willingness and ability to give written informed consent and willingness and ability to understand, to participate and to comply with the study requirements;Controls:
- 18-65 years of age
- Willingness and ability to give written informed consent and willingness and ability to understand, to participate and to comply with the study requirements

Exclusion criteria

Patients:
- Current major depressive disorder, bipolar disorder, psychotic disorder, alcohol or substance dependence, or any cognitive disorder as assessed with the MINI
- Major head trauma or neurological disease, current or in history
- MRI contraindications such as metal implants, claustrophobia, pregnancy
- Self-reported inability or unease to cease smoking for 3 hours prior to testing
- Endocrinological disorders or regular use of corticosteroids
- Current treatment with antipsychotic medication

- Use of other psychotropic medication (apart from SSRI's and tricyclic antidepressants), or of recreational drugs over a period of 72 hours prior to each test session, and use of alcohol within the last 24 hours before each measurement
- Irregular sleep/wake rhythm (e.g., regular nightshifts or cross timeline travel).;Controls:
- A current or past psychiatric diagnosis as assessed with the MINI
- Major head trauma or neurological disease, current or in history
- MRI contraindications such as metal implants, claustrophobia , pregnancy
- Self-reported inability or unease to cease smoking for 3 hours prior to testing
- Endocrinological disorders or regular use of corticosteroids
- Use of psychotropic medication, or of recreational drugs over a period of 72 hours prior to each test session, and use of alcohol within the last 24 hours before each measurement
- Irregular sleep/wake rhythm (e.g., regular nightshifts or cross timeline travel)

Study design

Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

Primary purpose: Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	25-01-2016
Enrollment:	62
Type:	Actual

Ethics review

Approved WMO

Date:	22-08-2014
Application type:	First submission
Review commission:	METC Amsterdam UMC

Approved WMO

Date:	12-09-2016
Application type:	Amendment
Review commission:	METC Amsterdam UMC
Approved WMO Date:	24-02-2017
Application type:	Amendment
Review commission:	METC Amsterdam UMC

Study registrations

Followed up by the following (possibly more current) registration

No registrations found.

Other (possibly less up-to-date) registrations in this register

No registrations found.

In other registers

Register	ID
CCMO	NL49200.018.14