



BOOK OF ABSTRACTS

Seventh EABCT Meeting on Obsessive-Compulsive Disorder

Assisi, Italy

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In order to foster discussion and questions, parallel sessions were never planned for the EABCT Meetings on OCD: the conference is designed to have a single plenary session so to maximise debate and exchanges among participants. Besides, continual comings and goings disturb both the speakers and the audience; thus, in the best tradition of the EABCT Meetings, **participants are warmly invited to attend all presentations.**

Certificates of attendance will be issued to participants who attend the Meeting for its entire duration.

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The Experience of Agency in Obsessive-Compulsive Disorder: A Review and Meta-Analysis

Background

The construct of sense of agency (SoA) has proven useful for understanding mechanisms underlying obsessive-compulsive disorder (OCD) phenomenology, especially in explaining the apparent desynchrony in OCD between actual and perceived control over one's actions. Paradoxically, people with OCD appear to experience both diminished SoA (feeling unable to control their actions) and inflated SoA (having "magical" control over events). The present review investigated the extent to which the SoA is distorted in OCD, in terms of both implicit (i.e., inferred from correlates and outcomes of voluntary actions) and explicit (i.e., subjective judgment of one's control over an outcome) measures of SoA.

Methods

We searched the literature for studies in which SoA was investigated in clinical OCD as well as in analogue OCD samples, and which included an appropriate control group. We additionally considered studies that examined the general implicit or explicit sense of control over one's behavior in relation to OCD symptoms. Our search resulted in 15 studies that met the criteria for inclusion in a meta-analysis, where we examined also the potential moderating effects of the type of measure (explicit vs. implicit) and of the actual control participants had over the outcome.

Results

We found that implicit measures of SoA (e.g., sensory attenuation, temporal binding) were lower in obsessive-compulsive (OC) than in control participants, $Z = 2.697$, $p = .007$. With regards to the explicit measures, a mixed pattern emerged: in situations in which participants had in fact full control over the outcomes, OC participants reported lower SoA than controls, $Z = -4.361$, $p < .001$; Conversely, in situations in which participants had no control over the outcomes, (e.g., judgments of agency), OC participants reported higher SoA than controls, $Z = 4.089$, $p < .001$.

Conclusions

The results of this meta-analysis indicate that implicit measures of the SoA, which are believed to reflect the integration of internal cues such as proprioception, movement and interoception, are attenuated in OC individuals. With regards to explicit reports of the SoA, the pattern of findings is consistent with the Seeking Proxies for Internal States model, which proposes that people with OCD have diminished access to their internal states, including the SoA.

Keywords: obsessive-compulsive disorder, sense of agency, sense of control.

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Disgust as a moderator of the role of insecure attachment style in contamination-washing OCD

Background: According to the cognitive-behavioral model and well-established evidence, obsessive-compulsive symptoms develop as a consequence of obsessive beliefs. Disgust propensity/sensitivity, more specifically, seems to be closely associated with contamination obsessions and washing rituals. Another factor recently found to have a role is insecure attachment style, which can develop from early mother-infant relationships. Research suggests that attachment insecurities, particularly the avoidance-based attachment style is related to an increased propensity/sensitivity to disgust and contamination OCD symptoms, as both share an avoidant behavioral response pattern. Regarding the role of attachment style, the available studies are, however, ambiguous. Therefore, further studies are necessary to establish its specific role in the development of OCD.

To this end, we tested the specificity of insecure attachment style in OCD patients comparing attachment insecurity between OCD patients and those with Anxiety/Depressive Disorders. Secondly, considering the involvement of disgust, we investigated whether disgust propensity/sensitivity can moderate the association between insecure attachment and OCD diagnosis, after controlling for obsessive beliefs. We hypothesized that (a) both disgust propensity/sensitivity is related to contamination-based OCD, (b) disgust propensity/sensitivity moderates the association between avoidant attachment styles and contamination OCD.

Methods: 90 OCD (30 with contamination-washing and 60 other OCD symptoms) and 36 Anxiety/Depressive Disorder adult patients completed the Obsessive-Compulsive Inventory-Revised, Obsessive Beliefs Questionnaire-46, Disgust Propensity and Sensitivity Scale-revised, and Attachment Style Questionnaire. Patients were included in the OCD group if they had a primary OCD diagnosis without any Anxiety/Depressive Disorder; the inclusion criteria for the other group were the presence of any Anxiety/Depressive Disorder without OCD (animal phobias/emetophobia were excluded, since they are related to disgust). ANOVAs and multinomial logistic regressions were conducted.

Results: OCD patients had significantly higher insecure attachment levels based on relationships perceived as secondary than the other clinical group [$t_{(124)} = 2.42, p < .05$]. A significant main effect of Relationships as Secondary emerged on the likelihood of having a diagnosis of OCD other than contamination/washing as compared with the

diagnosis of contamination/washing OCD: patients with other OCD symptoms were more likely to have high levels in this attachment style than the other OCD group. However, when we considered disgust propensity/sensitivity, a significant moderation effect emerged by this insecure attachment style on the link between disgust propensity/sensitivity and contamination/washing OCD symptoms ($B = -.008$, $p = .035$, Nagelkerke $R^2 = 0.44$): patients who considered their relationships secondary and had higher disgust propensity/sensitivity were more likely to report contamination/washing OCD than other OCD symptoms.

Conclusions: OCD patients seem to present an avoidant attachment pattern (i.e., relationships as secondary), compared to patients with Anxiety/Depressive Disorders. The predictive effect of this insecure style is moderated by disgust: patients with avoidant attachment would have a greater probability of presenting OCD with contamination-washing symptoms when disgust levels are high. Knowing that disgust propensity/sensitivity predicts an avoidant behavioral response pattern, we speculate that it could be a protective mechanism against the fear of getting close to others for OCD patients with contamination/washing symptoms and avoidant attachment styles. These results suggest the importance of evaluating attachment style and disgust propensity/sensitivity levels in OCD patients during psychotherapeutic treatment, but also the need of further longitudinal studies.

Keywords: Obsessive-Compulsive Disorder, Attachment style, Disgust, Relationships as Secondary, Fears of Contamination.

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Can Virtual Reality Exposure be an Alternative to In Vivo and Imaginal Exposure in Reducing Contamination Related Obsessive Compulsive Symptoms?

Background: Although virtual reality (VR) technology in treating obsessive-compulsive disorder (OCD) has a recent history of use, studies have provided promising results about its effectiveness. This research aimed to compare the efficacy of VR exposure (VRE) with in vivo (IVE) and imaginal exposure (IE) in reducing anxiety, disgust sensitivity, and contamination-related OCD symptoms of individuals diagnosed with OCD. With this aim, we first wanted to evaluate the effectiveness of VR scenarios with gradually increased dirtiness in provoking anxiety, disgust, and the need to wash.

Method: The pilot study sample consisted of 18 undergraduate students aged between 18 and 22 to assess the effectiveness of VR scenarios in evoking contamination-related ratings. The main study sample was composed of 18 patients with OCD ranging in age from 18 to 45. The volunteered participants were randomly assigned to IVE, IE, VRE, and control (CG) groups. On average, ten sessions of exposure were carried out twice a week. Yale-Brown Obsessive Compulsive Scale (YBOCS) and a set of questionnaires were used as pretest and posttest measures. We completed the exposure sessions of the 18 patients ($n_{IVE} = 6$, $n_{VR} = 4$, $n_{IE} = 4$, $n_{CG} = 4$). The data collection is still in progress.

Results: Results of the one-way repeated measures ANOVA for the pilot study indicated that the degree of anxiety [$F(1.37, 21.98) = 18.26$, $p < .001$], disgust [$F(2,32) = 16.57$, $p < .001$] and the urge to wash increased [$F(1.12, 17.93) = 12.28$, $p < .05$] as the degree of dirtiness in the scenarios increased. A 4 (Group) x 2 (Time) mixed design ANOVA was conducted on YBOCS Scores. The results indicated that the main effect of the time ($Wilks' \lambda = 0.69$, $F[1, 14] = 6.38$, $p < .05$, $\eta p^2 = 0.31$) and the interaction between group and time ($Wilks' \lambda = 0.45$, $F[3, 14] = 5.50$, $p < .05$, $\eta p^2 = 0.54$) were significant. Bonferroni post-hoc comparisons showed that the patients in IVE and VRE groups had significantly lower mean scores on the post-test of the YBOCS. However, no significant difference was found between the pre and post-test scores of the IE and CG.

Conclusions: VR exposure can be an efficient and alternative exposure tool in inducing anxiety, disgust, and the urge to wash, and it may be used to reduce the severity of OCD symptoms. The theoretical and clinical applications of VR exposure in treating contamination-related OCD symptoms will be discussed in light of our final findings.

Keywords: OCD, Contamination symptoms, Exposure Therapy, Visual Reality, In vivo Exposure, Imaginal Exposure

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Position Paper: A Hyper-Control Model of OCD

Abstract:

Controlled and automatic processing are two developmentally and qualitatively distinct information-processing modes. The interplay between these two processing modes has a vital role in constructing, guiding, and regulating one's everyday subjective experiences and actions. Previous research suggests an apparent dissociation and a complementary role between these two processes. However, when control is exerted over well-practiced and automatic behaviors, a paradoxical, detrimental effect on performances often ensues. Accumulating body of evidence associates obsessive-compulsive disorder (OCD) with a strong preference toward reliance on controlled, rather than automatic information processing strategies. This has been supported by our own experimental work reflecting an intense and prolonged exertion of control in tasks where non-clinical controls rely on less effortful, automatic processing. This preference implies that individuals with OCD are more prone to the paradoxical and often-detrimental effects that excessive exertion of control over automatic implicit behaviors. In this talk I will present the proposed Hyper Control Model of OCD, including supporting experimental evidence, and a review of the various effects that result from the preference toward controlled processing, and link them to the formation, manifestation, and maintenance of OCD. Specifically, the model attempts to integrate between basic cognitive processes (i.e., controlled and automatic processing) to motivational (e.g., fear of losing control, avoiding making a mistake), neuroanatomical (i.e., Frontal-striatal circuitry) and behavioral findings, as well as to the phenomenological and epistemological aspects of OCD (i.e., impaired feeling of knowing, undermined sense of confidence). Additionally, this talk will address the relevance of this model to the prevailing psychological model of OCD, vis a vis the model's insight into a novel psychopathological mechanism in OCD. This mechanism illustrates how similar to compulsive rituals and avoidance, exertion of control over automatic processing may bring short-term relief, but is ultimately a self-defeating strategy that amplifies the OC cycle and contributed to the maintain of OCD. Finally, insight into OCD treatments as well as implications for future research corresponding to the model predictions will be offered.

Keywords: automatic processing; controlled processing; implicit learning; explicit learning; obsessive-compulsive disorder.

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New treatment: Can compulsive hand washes be automatically detected using smartwatches?

Background: One of the obstacles that compromises efficacy of CBT for OCD is adherence to exposure exercises outside the therapist's office. This series of studies investigates whether automatic detection of compulsive hand washing is feasible using customer-off-the-shelf devices, i.e. smartwatches. If feasible, this feature might prove useful in assisting OCD patients to perform exposure exercises at home. We investigated whether (enacted) compulsive hand washes can be reliably discriminated from routine hand washes (study 1), everyday routine activities that include repetitive hand motions (study 2), and against the background of natural everyday activities (study 3).

Methods: In study 1, N = 21 participants attended two sessions in the laboratory. Participants were asked to wash their hands, first, in a routine way and, second, they were trained to wash their hands according to one of six randomly allocated types of compulsive hand washes. Participants wore a smartwatch and hand washes were video-recorded. In study 2, the study design was extended by asking N = 23 participants to additionally perform three repetitive activities (tooth brushing, cup rinsing and carrot peeling). In study 3, N = 21 individuals with compulsive hand washes were asked to wear a smartwatch continuously for a period of four weeks.

Results: Study 1 showed that routine and enacted compulsive hand washes could be distinguished with high sensitivity (0.84). However, specificity was low (0.30). In study 2, specificity could be improved (0.79) by including further confounding repetitive activities and using a deep learning model. In study 3, we collected sensor data of approx. 6250 h. The mean number of compulsive hand washes was M = 70,8 per participant. Sensor data and video data are currently being pre-processed and initial results will be presented at the conference.

Conclusions: Results from studies 1 and 2 indicate that (enacted) compulsive hand washes can be reliably discriminated from routine hand washes and everyday routine activities. Thus, the reliable detection of compulsive hand washes using smartwatches is feasible with good sensitivity and specificity. However, the detection was based on enacted hand washes in the laboratory with limited ecological validity. Its real-world applicability, i.e., longitudinal real-time detection of compulsive washes, was investigated in study 3. Initial results will be presented.

Keywords: apps, machine learning, treatment of OCD, wearable technology, human activity recognition

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The relationship of dissociation with obsessive-compulsive symptoms: a long-term longitudinal exploration on a heterogeneous clinical and non-clinical sample

Background: Recently it is becoming evident that there is a robust and specific relationship between dissociative experiences and obsessive-compulsive disorder/symptoms (OCD/OCS), in both clinical and analog samples. Moreover, high dissociation at the beginning of treatment for OCD predicts poor prognosis and high drop-out rate, even when controlling for depression or medication use. The dissociation-OCD relationship is not attributable to trauma, neuroticism, or inattention, suggesting that it is not sufficiently understood. One central question is that of directionality; both directions of influence have been previously suggested. The present study aimed to examine the clinical value of each construct in predicting the course of the other over a significant time-span, in a mixed clinical and non-clinical sample. Assessing change over a time span of several months has clinical value in understanding naturally-occurring directional dynamics.

Methods: Two self-report assessments were taken 6 months apart, on a heterogeneous sample (N=98); half (n=49) were adult outpatients suffering from either anxiety, depression, or OCD, or any mixture of those, and half were age- and gender-matched healthy community controls. Diagnoses, or lack thereof, were established using a structured clinical interview at Time 1. Individuals suffering from psychoticism, bipolar disorder, or post-traumatic disorder were excluded. Two prospective-longitudinal regression models focused on each Time-1 construct as a predictor of Time-1-to-Time-2 change in the other construct.

Results: In this mixed sample, the stability effect of OCS across 6 months was much higher than that of dissociation, suggesting that change would be harder to predict. Accordingly, general dissociation at T1 did not predict a T1-to-T2 increase in OCS ($b = -0.03 [-0.29, 0.23]$, $\beta = -.02$, $p = .81$), whereas OCS at T1 significantly predicted a T1-to-T2 increase in general dissociation ($b = 0.18 [0.04, 0.32]$, $\beta = .26$, $p = .01$). When exploring specific dissociative subscales, evidence for both directions of prediction were found for depersonalization-derealization.

Conclusions: OCS may play a causal relationship in the intensification of dissociative symptoms over time, and depersonalization may represent a risk factor or intensifying factor for OCS. To better understand this relationship, additional studies are needed, including experimental research. Several potentially intervening constructs are suggested.

Keywords: obsessive-compulsive symptoms, dissociation, absorption, depersonalization, longitudinal.

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Ritualized Compulsions as Proxies

Background: Individuals with OCD often have ritualized ways of performing compulsions, such as rules about duration, number of times, location, order, or requisite focus. Consider how one determines when they have handwashed sufficiently. Unless one's hands are visibly dirty, this requires a subjective judgment or sense (e.g., Purdon, 2018; Wahl et al., 2008), which is particularly difficult for individuals with OCD, who struggle to access internal states and use external proxies to determine them (Lazarov et al., 2014). We hypothesized that having rules about how to perform a compulsion functions as such a proxy, and thereby provides a stop signal for its completion. Instead of relying on an internal sense of having handwashed enough, the individual can follow the ritualized handwashing procedure and then stop. As a first step to investigate this possibility, we explored whether the tendency to rely on external proxies for internal states predicts ritualization in the performance of compulsions.

Methods: Participants with self-reported contamination OCD completed several self-report measures, including the Seeking Proxies for Internal States Inventory (SPISI; Lieberman & Dar, 2018), and answered a number of questions about the phenomenology of their compulsions, including (a) the extent to which they try to perform their primary compulsion exactly the same way every time, (b) the extent to which skipping or messing up the specific ritualized requirements or preferences require them to repeat the compulsion, and (c) the number of different ritualized requirements when they perform the compulsion.

Data collection is ongoing. As of this submission, more than 130 participants completed the survey. We report preliminary results from the first 52 participants, whose data were analyzed for a student thesis project. However, in order to avoid questionable research practices (data-peeking), we will wait to conduct further analyses until data collection is complete.

Results: As predicted, SPISI scores were correlated with all three indices of ritualization and effect sizes were small-to-moderate ($r = .20-.22$). In the partial, underpowered sample of 52, these correlations were nonsignificant ($p = .12-.16$).

Conclusions: If a greater tendency to rely on external proxies for internal states predicts the degree to which compulsions are ritualized, future research should investigate directly whether ritualized rules function as proxies for internal states and stop signals.

Keywords: compulsions, rituals, obsessive-compulsive disorder, proxies, handwashing, contamination

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Position Paper - OCD and metacognition: A road map

More than two decades ago, Purdon and Clark illustrated the importance of a comprehensive and integrated theory for the role of metacognition in OCD. They brought together existing models of OCD that contained metacognitive elements and proposed a model for the role of metacognition in OCD. These early cognitive models of OCD, termed here 'the first-wave', emphasized the importance of metacognitive beliefs and processes as driving factors in the development and maintenance of the disorder. In these models, metacognition is primarily discussed in terms of beliefs about the thought process and elevated tendency for preoccupation with mental content. More recent approaches, 'the second-wave', propose that such impairments are not restricted to the thought process but also apply to memory and perception and are reflected in lower confidence in these domains. This bias in confidence (termed "under-confidence"), in turn, can explain primary OCD symptoms such as repeated checking, which may arise from poor confidence in recall accuracy. Contemporary models of metacognition, 'the third-wave', have challenged how we measure metacognition. Using newly developed computational models, they allow for a precise distinction between sub-parts of metacognition, such as sensitivity (correspondence between one's accuracy and confidence in a trial-by-trial experiment) and bias (as detailed above). These state-of-the-art concepts reveal interesting dissociations between previously reported measures of bias with sensitivity and task performance.

Despite the large amount of knowledge accrued in the field of metacognition in OCD, it appears there is no cohesive and exhaustive framework that integrates these sparse approaches, viewed here as three waves of metacognition. In my presentation, I will stress the need for a comprehensive and integrated theory for the role of metacognition in OCD and suggest a hierarchy model of metacognitive evaluation that could incorporate these dispersed theories.

Keywords: metacognition, obsessive-compulsive disorder, under-confidence, comprehensive model.

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Reducing Disgust and Moral Rigidity through Transcranial Direct Current Stimulation (tDCS): A Promising Therapeutic Tool for Obsessive-Compulsive Disorder (OCD)

Background: Previous studies supported the existence of a distinctive relation between deontological guilt and both disgust and obsessive-compulsive (OC) symptoms. Specifically, the experience of deontological guilt has been found to selectively activate the insula, a structure implicated in disgust processing, which seems to be more easily activated in OCD patients. The present study hypothesized that indirect inhibition of the insula via cathodal tDCS would decrease disgust and moral rigidity. Correlational analyses were also performed driven by the hypothesis that these expected results would be larger in individuals with higher levels of OC tendencies.

Methods: A randomized, sham-controlled, within-subject design was used. 36 healthy students (18 women) underwent 15-min anodal, cathodal, and sham tDCS over T3 in three different days. Levels of trait anxiety, depression, disgust sensitivity, scrupulosity, and altruism as well as pre- and post- stimulation momentary emotional states were assessed. Heart rate (HR) was recorded to derive measures of parasympathetic activity (HR Variability, HRV). After the first 10-min of tDCS stimulation, participants were asked to 1) rate the immorality of a series of vignettes, 2) complete a word-stem completion task with either disgust-related words or neutral alternatives.

Results: Taking into account baseline levels, results showed a main effect of condition (anodal, cathodal, sham) on self-reported disgust ($p = .007$) and HRV ($p = .02$), as well as deontological morality ($p = .016$). Compared to sham, anodal stimulation significantly (all $ps < .01$) enhanced self-reported disgust ($d = 0.18$), HRV ($d = 0.24$) and deontological morality ($d = 0.09$), whereas cathodal stimulation decreased self-reported disgust ($d = 0.54$), HRV ($d = 0.30$) and deontological morality ($d = 0.26$). Interestingly, changes in self-reported levels of disgust following cathodal tDCS were inversely correlated with the Fear of Sin subscale of the PIOS ($r = -.48$; $p = .003$), and with the washing ($r = -.49$; $p = .002$) subscale of the OCI-R.

Conclusion: A decrease in self-reported and physiological disgust (HRV), as well as deontological moral rigidity were found after cathodal tDCS over T3. As suggested by the correlational analyses, the inhibitory effect of cathodal tDCS on subjective levels of disgust were stronger in individuals with higher OC tendencies, thereby advising for future investigations of the long-term impact of this intervention on OCD symptoms.

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**Position Paper: Use, abuse, and misuse of cognitive neuroscience in OCD:
The intoxicating appeal of neo-reductionism**

Abstract:

Over three decades of cognitive neuroscience research in OCD has yielded hundreds of published studies examining cognitive functions and their associations with neurobiological processes and structures. This ever-growing body of research, utilizing increasingly more sophisticated technologies and methodologies, has increased our understanding of OCD. However, this work raises important questions concerning aetiology and causality, ecological validity, and the association between cognitive neuroscience and psychopathological mechanisms of OCD. In this talk, I will review this body of research from a critical perspective while focusing on those questions, as well as issues related to the progression in the field, common pitfalls, systematic interpretational biases, and the potential 'cost' of directing the field's focus and funding to neuroscience research and adhering to its paradigms. I will also critically review the state of the field and our knowledge of cognitive neuroscience of OCD and attempt to answer the question of whether the perpetual conclusion that 'more research is needed' is legitimate across several research themes in the cognitive neuroscience of OCD. Furthermore, I will review some oft-neglected aspects related to cognitive neuroscience of OCD that warrant further research, and that may enhance our understanding of the intersection between cognitive neuroscience and psychopathological mechanisms of OCD. Finally, I will examine a critically important, but seldom discussed question: Did this body of research directly benefit individuals with OCD? Did this investment of tens of millions of dollars and thousands of hours of labor-intensive efforts help us attain the ultimate goal of improving the lives of people suffering from OCD?

Keywords: Neuroscience, OCD, critical review, cognitive.

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The development and pilot testing of ambiguous scenarios for an interpretation bias training targeting importance and control of thoughts

Background: The cognitive bias "importance and control of thoughts" (ICT) refers to the tendency to interpret the occurrence or content of unwanted intrusive thoughts as meaningful (= importance) and interpret failures of controlling one's thoughts as a threat to oneself or other people (= control). Previous cognitive bias modification studies targeting ICT found a robust, medium-sized reduction of ICT-consistent interpretations compared to control training but failed to produce downstream effects on emotional and behavioral responses to an ICT stressor task. Such downstream effects are particularly relevant to individuals with repugnant obsessive thoughts. The overall aim of our research project is to investigate whether a methodologically improved interpretation bias training targeting ICT will have downstream effects in individuals with repugnant thoughts. The aim of the present study was to evaluate the appropriateness of our newly developed training scenarios in terms of ambiguity, identification and vividness.

Methods: Initially, 60 everyday scenarios in which a repugnant thought occurs with its interpretation left ambiguous were developed. In Study 1, a community sample of N = 259 participants resolved the ambiguity by providing the missing last word. Additionally, the degree of identification and vividness was rated. Answers were rated for ambiguity by two trained raters, blind to the study's purpose (interrater reliability, Cohen's Kappa = .85 to .97). In Study 2, 62 revised or novel scenarios were evaluated for a second time in terms of their ambiguity, identification and vividness in a student sample of N = 110 participants.

Results: In Study 1, 18 (30%) of the scenarios resulted in balanced ICT-consistent/ICT-inconsistent resolutions. In Study 2, 41 (66 %) of the scenarios resulted in balanced ICT-consistent/ICT-inconsistent resolutions. All scenarios in both studies were rated as easy to identify with and possessed high vividness. Additionally, number of ICT-consistent ratings were positively correlated with standardized questionnaires assessing ICT ($r = .50$ to $.56$).

Conclusions: In total, 59 ambiguous scenarios were appropriate. Positive associations of ICT-consistent ratings with standardized questionnaires assessing ICT can be considered a first indication of their validity. The next steps are to establish the scenario's relevance for individuals with repugnant thoughts.

Keywords: repugnant thoughts, cognitive bias modification, interpretation bias modification, importance and control of thoughts

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Predictors of Obsessive-Compulsive Disorder Trajectories: Findings from a Six-Year Longitudinal Cohort Study from the Netherlands Obsessive-Compulsive Disorder Association Study

Background: Despite the vast number of studies investigating treatment effectiveness, the natural long-term course of OCD is less studied. The current study examines three types of OCD natural course trajectories and their predictors, using data from the Netherlands Obsessive Compulsive Disorder Association (NOCDA) study, a six-year multicenter naturalistic cohort study of psychological, biological, and social factors that influence OCD in a clinical sample.

Methods: Our sample included 236 participants who were 18 years and older and referred to mental health care centers. The participants met the diagnostic criteria for OCD according to The Diagnostic and Statistical Manual of Mental Disorders fourth edition. The sample was classified into one of three illness trajectories based on their 6-year follow-up measurement results: (1) participants presented with a chronic course and fulfilled the diagnostic criteria for OCD in all the follow-up measurements, (2) patients presented with an episodic course, who intermittently met OCD criteria in the follow-up measurements, and (3) patients who remitted and did not fulfil OCD criteria in any of the follow-up measurements. Followed by variable selection process, we conducted a multinomial logistic regression model with OCD trajectory as an outcome variable and four predictors: baseline symptom severity, early onset of OCD, age at baseline, and education years.

Results: The study demonstrates that low symptom severity and late age of onset may lower the chances for a chronic course, although the chances for an episodic course remained high. Education and young age were found to improve the chances of a more favorable course. The final model was statistically significant ($\chi^2 = 57.7$, $df = 8$, 518, $p < 0.001$), explaining 12.4% of the variance.

Conclusions: Results suggest that most OCD cases should be treated with continued monitoring and maintenance, except for very mild cases. In consistency with previous research, symptom severity and age of onset may serve as markers to identify high-risk patients. Healthcare professionals looking to provide evidence-based medicine could use these findings to develop personalized clinical guidelines.

Keywords: naturalistic study, longitudinal, trajectories, obsessive-compulsive disorder.

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The therapeutic alliance in cognitive-behavioral therapy for obsessive-compulsive disorder: A systematic review and meta-analysis

Background: The therapeutic alliance has been recognized as one of the most researched key elements of treatment across different therapeutic approaches and diagnostic domains. Despite its importance, our current understanding of its clinical relevance in patients with obsessive-compulsive disorder (OCD) is still debated. This study aimed to examine empirical evidence on the effect of alliance on treatment outcomes in Cognitive Behavioral Therapy (CBT) in patients with OCD in a systematic review and meta-analysis.

Methods: Original peer-reviewed articles were included if they were (1) written in English; (2) included a clinical group with a current primary OCD diagnosis; (3) involved individual CBT; (4) used a validated therapeutic alliance scale that was related to the outcome measurement; (5) reported an effect size.

Results: We searched through Pubmed, Scopus, PsycINFO, PsychArticles, and Web of Science. Original peer-reviewed articles were included if they were (1) written in English; (2) included a clinical group with a current primary OCD diagnosis; (3) involved individual psychotherapy; (4) used a validated therapeutic alliance scale; (5) reported an effect or statistic that could be converted to an effect size. Thirteen studies were included, six of which contained sufficient statistical information to be included in the meta-analysis. A total of 897 patients took part in all reviewed studies. We found a modest effect of alliance on post-treatment outcome [$r_z = -0.1562$ (C.I. 95%: -0.2542 to -0.0582)]. This effect was driven by the task/goal dimension [$r_z = -0.1977$ (95% CI: -0.3149 to -0.0805)] but not by the bond dimension of alliance [$r_z = -0.1372$ (95% CI: -0.3669 to -0.0924)].

Conclusions: Overall, we found a modest effect of alliance on post-treatment outcomes and the existence of considerable variability and methodological inconsistencies across studies. We discuss the role of methodological factors that could account for this divergence, the research limitations, and the implications for current research. We further hypothesize the influence of other variables in the complex relationship between therapeutic alliance and outcome. Specifically, sharing case formulation may be a crucial factor for a good alliance and successful treatment outcome. In this line, we propose a protocol to investigate the effect of shared case formulation on the relationship between therapeutic alliance and treatment outcomes.

Keywords: therapeutic alliance, working alliance, therapeutic relationship, alliance-outcome association, shared case formulation,

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Position Paper:

A vulnerable base: a broad perspective on the relationship between attachment style and OCD

Research findings suggest that despite the effectiveness of cognitive-behavioral therapy for OCD, a significant percentage of patients demonstrate an insufficient response to evidence-based treatment. Therefore, in recent years, various new theoretic and empirical directions have been examined to facilitate the understanding of the disorder and promote novel interventions. In particular, there is a growing recognition of the importance of interpersonal processes in the development, maintenance, and treatment of OCD. This presentation will focus on the relationship between OCD and the attachment system which is fundamental to the understanding of interpersonal and psychological functioning. Differences in the attachment style echo differences in the perception of the self and the other, and expressed in distinct thinking patterns, emotional and behavioral regulation. In this presentation we will examine the way in which attachment style contributes to the understanding of the characteristics and treatment of OCD.

In particular, we will review the existing research on the multiple relations between the attachment system and OCD. These include the association between attachment style and (1) symptoms of OCD that are relevant within the interpersonal context (e.g., compulsive reassurance seeking), and (2) the naturalistic course OCD and (3) the outcome of cognitive behavioural therapy for OCD. Furthermore, inspired by emerging research in the past decades concerning the domain of self-vulnerabilities and OCD [Doron G, Kyrios M. Obsessive compulsive disorder: A review of possible specific internal representations within a broader cognitive theory. *Clin Psychol Rev.* 2005;25(4):415-432], we will address self-related mechanisms that were found to be relevant to OCD, and its relationship with attachment style. Finally, we will discuss the possible therapeutic implications for the enhancement of treatment effects.

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A Delphi Study Developing a Cognitive-Behavioural Measure of Shame in the Context of Unacceptable Obsessions in OCD

Background: Shame has been associated with obsessions perceived as unacceptable (UO's) in Obsessive Compulsive Disorder (OCD). However, there is a lack of consensus on the cognitive, affective, and behavioural markers of shame associated with UO's in OCD, and there are no outcome measures to evaluate the efficacy of interventions targeting shame associated with UO's in OCD.

Methods: This project used a three-round Delphi study to develop a preliminary self-report questionnaire to measure the common cognitions, feelings, and behaviours that people who experience shame in the context of UO's in OCD report. In Round 1, eight people with lived experience of shame regarding UO's in OCD, four clinicians trained in cognitive behaviour therapy and who had supported people with shame regarding UO's in OCD, and four researchers who had published on shame regarding UO's in OCD (n = 16) were interviewed. They were asked to generate cognitive, behavioural, and affective items for the questionnaire, capturing both internalised and externalised shame. In Round 2, four clinicians, four researchers, and 11 experts by experience (n = 19) rated how appropriate the items generated were for the questionnaire on a five-point Likert scale (split into three categories of 'inappropriate', 'neither inappropriate or appropriate', and 'appropriate'). In Round 3, three clinicians, four researchers, and 11 experts by experience (n = 18) re-rated their answers based on their previous rating and the rating of the other participants for each item in Round 2. Items were included in the questionnaire if they achieved 'high consensus', defined as when more than 83.3% of the participants rated it 'appropriate'.

Results: In Round 1 69 items were generated and rated by the participants in Rounds 2 and 3. After Round 3 35 items reached high consensus. 23 cognitions, eight feelings, and four behaviours were rated 'appropriate' for a questionnaire measuring shame in the context of UO's in OCD by more than 83.3% of the participants.

Conclusions: The 35 items that reached high consensus were used to develop the Response to Unacceptable Obsessions Scale (RUOS). The development of this preliminary measure identified common cognitions, feelings, and behaviours that people who experience shame in the context of UO's in OCD report; however, the validity and reliability of the measure still needs to be tested.

Keywords: Shame, OCD, Questionnaire Development, Unacceptable Obsessions.

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Position Paper: obsessive-compulsive symptoms and dissociative experiences: suggested underlying mechanisms and implications for science and practice.

Background: A strong and specific link between obsessive-compulsive disorder or symptoms (OCD/S) and a tendency for dissociative experiences (e.g., depersonalization-derealization, absorption and imaginative involvement) has been demonstrated in recent years. This link is specific in that it could not be explained by trauma, general psychopathology, depression, or medication use. Moreover, several studies have found that patients with OCD who are high in dissociation scales at baseline are less likely to improve in their treatment for OCD and more likely to drop out. Yet, this relationship is poorly understood. Current conceptualizations focus on: (1) trauma, but trauma cannot statistically account for the relationship; and (2) a tendency to detach from negative emotion during exposure, but this latter explanation does not account for the specificity of the link between dissociation and OCD. Thus, novel frameworks are needed to shed light on this association.

Methods: The present theoretical formulation proposes five different models conceptualizing the relationship, based on an extensive review of various related literatures.

Results: According to Model 1, dissociative experiences result from OCD/S through inwards-focused attention and repetition. Conversely, according to Model 2, dissociative absorption causally brings about both OCD/S and associated cognitive risk factors, such as thought-action fusion, partly through impoverished sense of agency. This reversed causality suggests that the experiential domain generates cognitive schemas. The remaining models highlight shared underlying causal mechanisms: temporo-parietal abnormalities impairing embodiment and sensory integration (Model 3); sleep alterations causing sleepiness and dreamlike thought or mixed sleep-wake states (Model 4); and a hyperactive, intrusive imagery system with a tendency for pictorial thinking (Model 5). The latter model relates to Maladaptive Daydreaming, a suggested dissociative syndrome with strong ties to the obsessive-compulsive spectrum.

Conclusions: These five models point to potential directions for future research, as these theoretical accounts may aid the two fields in interacting with each other, to the benefit of both. Finally, and perhaps most importantly, several dissociation-informed paths for further developing clinical intervention in OCD are identified.

Key words: Obsessive-compulsive disorder, dissociation, agency, embodiment, attention, imagery

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Scrupulosity and Insecure Attachment

Background: Attachment styles during childhood may shape interpersonal attachments into adulthood and influence relationships with others and with God. Furthermore, individuals with OCD report higher levels of attachment anxiety than do others (Doron et al., 2011), perhaps as a function of obsessional beliefs (Yarbro et al., 2013), and attachment anxiety in interpersonal relationships and in relation to God predicted symptoms of scrupulosity in a non-clinical sample (Fergus & Rowatt, 2014). The aim of this study was to examine attachment and scrupulosity in an OCD sample.

Methods: 75 participants with self-reported OCD completed measures of scrupulosity, interpersonal attachment, attachment to God, positive and negative conceptions of God, and religiosity.

Results: Zero-order correlations indicated that scrupulosity was related to religiosity ($r = .34$, $p = .002$), interpersonal attachment anxiety ($r = .32$, $p = .002$) and a negative conception of God ($r = .34$, $p = .003$), but not to interpersonal attachment avoidance, either type of attachment to God, or a positive conception of God ($r_s < .17$, $p_s > .14$).

Scrupulosity was regressed on religiosity (Block 1), interpersonal attachment styles (Block 2), attachment to God styles (Block 3), and conceptions of God (Block 4). The overall model was significant, $R^2 = .32$, $p < .001$, as were Blocks 1 ($R^2 = .12$, $p = .003$), 2 ($\Delta R^2 = .09$, $p = .026$), and 4 ($\Delta R^2 = .09$, $p = .019$). In contrast, attachment to God did not predict scrupulosity (Block 3: $\Delta R^2 = .03$, $p = .28$).

In the final model with all of the predictors, religiosity ($\beta = .43$, $p = .002$), interpersonal attachment anxiety ($\beta = .24$, $p = .033$), and a negative conception of God ($\beta = .33$, $p = .006$) all independently predicted scrupulosity.

Conclusions: These results regarding interpersonal attachment are consistent with previous research about OCD in general, and implicate the same insecure attachment style (anxious, but not avoidant) vis-à-vis scrupulosity. Surprisingly, there was no specific relationship between attachment to God and scrupulosity, which stands in contrast with previous work in a non-clinical sample. However, in a non-OCD sample, the scrupulosity measure may simply measure religiosity, not scrupulosity. Indeed, in the present OCD sample, avoidant attachment to God was strongly correlated with religiosity, but not scrupulosity. We will also consider the role of obsessional cognitions in the relationship between attachment and scrupulosity.

Keywords: scrupulosity, obsessive-compulsive disorder, attachment, religiosity

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Impact of the COVID-19 Pandemic on Obsessive-Compulsive Symptoms in the Swiss General Population

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Background: In the early stages of the COVID-19 pandemic, mental-health experts called attention to a possible deterioration of obsessive-compulsive symptoms (OCSs). In particular, people suffering from contamination fear were thought to be a vulnerable population. As the pandemic progressed, studies emerged that showed a negative impact on people suffering from contamination OCD (C-OCD). But this raises the question of whether only people with C-OCD or also those with OCSs in general were affected. The aim of this study was to investigate the change in the severity of OCSs from prepandemic to during the COVID-19 pandemic within a large sample from the Swiss general population ($N = 3,655$) and to examine the relationship of OCSs to stress and anxiety.

Methods: This cross-sectional study was implemented as an anonymized online survey ($N = 3,655$). The Obsessive-Compulsive Inventory Revised (OCI-R) was used to assess overall OCS severity (range: 0-72 clinical cut-off > 18) and the severity of specific symptom dimensions (range: 0-12) during the second wave of the pandemic and retrospectively for prepandemic. Stress and anxiety levels were rated for two weeks prior to the survey.

Results: Participants reported significantly higher mean total scores on the OCI-R for the time during the pandemic (12.87) compared to prepandemic (9.04), with $p < 0.001$. Also, significantly more people reported an OCI-R total score exceeding the clinical threshold of 18 during the pandemic (24%) than prepandemic (13%), with $p < 0.001$. OCS severity increased on all symptom dimensions, but this was most pronounced on the washing dimension (all with $p < 0.001$). Stress and anxiety in the two weeks prior to the survey was weakly associated with differences in severity in the total score and in symptom dimensions (with $R^2 < 0.1$, $p < 0.001$).

Conclusion: This study supports the hypothesis that the COVID-19 pandemic affected multiple types of obsessions and compulsions within the general population and that its negative effects were not limited to the fear of contamination. However, the findings should be taken with caution as they are based on retrospective and self-report data. Studies with clinically determined diagnoses of OCD and longitudinal designs are indicated before large-scale interventions for patients with OCD are implemented.

Keywords: obsessive-compulsive disorder subtypes, COVID-19, fear of contamination, Obsessive-Compulsive Inventory Revised, stress

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OCD is OCD – A Multi-Site Examination of OCD in College Students

Background: The field of psychology has been increasingly criticized for relying primarily on student samples. In the context of psychopathology research, it has been argued that active students are inherently 'high functioning' limiting generalizability. Indeed, although approximately 70% of people with psychopathology do not seek treatment, it has been argued that students differ significantly from treatment-seeking individuals on the pattern and types of comorbid conditions and severity. Although recent studies find that psychopathology profiles among students generally do not differ than non-student peers, and that students sample may be equally heterogenous compared to the general population, studying a particular disorder using student samples is seen as highly problematic in the peer-review process, and practically forbidden in most grant applications. The goal of the present study was to examine whether student samples diagnosed with OCD differ from treatment-seeking samples, and community samples. The second goal was to learn about OCD among students – a surprisingly under-researched field.

Methods: Three Samples of students from universities in the US and in Belgium were carefully screened using valid semi structured interviews (MINI, and SCID) and completed multiple symptomatic and demographic measures. Data harmonization procedure was conducted between the samples to enable comparisons to large published OCD studies.

Results: A total of 36 students with OCD were identified. Similar to national comorbidity surveys from the US and UK, the most prevalent comorbidity was with depression, followed by anxiety disorders. The prevalence and distribution of comorbidities was similar to community samples, but lower rates of bipolar disorder were found when compared to clinical samples. Severity (assessed by the OCI-R) did not differ from large community samples, but YBOCS scores were somewhat lower than clinical samples. Compared to non-OCD students, OCD in students was found to be associated with elevated symptomatology, and lower Grade Point Average (GPA).

Conclusions: Considering severity, pattern of comorbidity, and associated symptomatology, OCD among college students is similar in its presentation to OCD seen in community samples, and with minor and expected differences compared to outpatient OCD samples. These results support the notion that when using valid screening interviews, OCD identified in college students is a viable population for studying OCD, permitting generalizability.

Keywords: OCD, Students, treatment-seeking, community, comorbidity

**Position paper: Making the most of the 'C' in cognitive behavioral therapy (CBT):
The case of mobile mental health**

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Obsessive compulsive disorder (OCD) and related disorders are disabling, relatively common and associated with significant impairment. Cognitive behavioral therapy (CBT) is considered the gold standard treatment for these disorders and has demonstrated efficacy in their treatment. Nevertheless, high cost, lack of available professionals and stigma prevent many individuals with OCD and related disorders (OCDs) symptoms from seeking CBT treatments. App delivered CBT-based interventions are often provided at a lower cost than face-to-face CBT treatments, are continuously available (24 hours a day), discrete and have a wide reach (i.e., are scalable). Indeed, CBT-based mental health apps have been shown to lead to significant reductions in a variety of mental health symptoms including OCDs. However, most mental health apps for OCDs use behavioral interventions such as exposure and response prevention and behavioral activation. Although such behavioral interventions are evidence-based, they require strong internal motivation, significant 'offline' time commitment and high persistence from users. I argue that purely cognitive interventions can take advantage of the unique capabilities of mobile platforms by creating personalized, engaging, less time consuming, less effortful yet effective mobile interventions. I will use the GGtude platform as an example of such a purely cognitive mobile intervention. The GGtude platform comprises brief, gamelike, personalized exercises that target users' maladaptive cognitions. I will start by briefly reviewing existing CBT-based app solutions for OCDs. I will then describe the GGtude platform and present evidence relating to its efficacy and effectiveness including 12 RCTs in the USA, Spain, Italy, Israel and Turkey and real world data of over 13,000 users. I will conclude with a discussion of the advantages and limitations of purely cognitive interventions for OCDs on mobile devices.

Keywords: OCD, mHealth, Cognitive behavioral therapy, Digital health, Internet-based therapy, App