



# **BOOK OF ABSTRACTS**

## **SIXTH EABCT MEETING ON OBSESSIVE-COMPULSIVE DISORDER**

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E-mail Address: [ruvidar@post.tau.ac.il](mailto:ruvidar@post.tau.ac.il)**Authors:** Reuven Dar<sup>1</sup>, Tal Eden<sup>1</sup>, Michal van Dongen<sup>1</sup>, Marit Hauschildt<sup>1</sup>, Nira Liberman<sup>1</sup><sup>1</sup>School of Psychological Sciences, Tel Aviv University**Relying on proxies for understanding: relationship to feedback on progress and to obsessive-compulsive tendencies**

**Background:** The Seeking Proxies for Internal States (SPIS) model of obsessive-compulsive disorder (OCD) postulates that obsessive-compulsive (OC) individuals have reduced access to their internal states and must therefore seek and rely on external proxies for these states. This study extended the SPIS model to the sense of understanding, which is often impaired in OCD. Specifically, we investigated the hypothesis that OC individuals would rely excessively on external proxies for understanding a text, even if these proxies are uncorrelated with text comprehension. In addition, we predicted that lacking ongoing feedback on level of understanding would likewise increase the use of proxies, and that this factor would interact with OC tendencies, such that high OC participants would be especially prone to use proxies when lacking feedback on understanding.

**Methods:** In a computerized experimental task, participants (N = 148) were asked to read and understand (i.e. answer questions about) a complex text that was presented in several segments on the screen. Participants were randomly assigned to a feedback condition (comprehension quiz and answers provided after each text segment) or a no-feedback condition (quiz and answers provided only after reading the full text). Throughout, all participants were offered proxies in the form of "learning aids" that were tested to be uncorrelated with text comprehension.

**Results:** Participants were divided to high vs. low OC tendencies based on a median split on a measure of OCD symptoms (OCI-R). Two-way ANOVA showed that as predicted, OC tendencies ( $p = .002$ ,  $\eta^2 = .067$ ) and lacking feedback on understanding ( $p < .001$ ,  $\eta^2 = .084$ ) were associated with using more "learning aides," even though their use did not contribute to actual comprehension of the text. The predicted interaction between the two factors was in the predicted direction but was not statistically significant.

**Conclusion:** These findings support the main tenets of the SPIS model and extend them to the sense of understanding, which is highly relevant for individuals with OCD. The conclusions from this study may be integrated into cognitive therapy for OCD.

**Keywords:** Obsessive-Compulsive Disorder, Text Comprehension, Feeling of Knowing, Uncertainty, Feedback

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**A brief CBT dyadic family intervention for patients with obsessive compulsive disorder: a pilot study**

**Background:** Certain responses of family members to patients with obsessive compulsive disorder (OCD) contribute to an unfavourable outcome of cognitive behaviour therapy (CBT). These responses are accommodating (adapting, participating) and antagonizing (criticizing, opposing). Focusing on these responses in treatment may enhance CBT outcome. There are protocols for treating unfavourable family responses, however, most of them only address the accommodating response. One controlled study has focused on the antagonizing response as well, however, this study used a group format and research has indicated superiority of individual family formats. We developed a brief CBT dyadic family intervention focusing on the accommodating as well as the antagonizing family response. Moreover, contrasting previous studies, we aimed at normalizing the family relationship by encouraging pleasurable, joint activities. This way we positively and contingently reinforced response prevention of OCD. The intervention was added to regular CBT and offered to a couple consisting of a patient with OCD and a family member. A pilot study investigated the brief CBT dyadic family intervention.

**Methods:** Sixteen patients with OCD and a family member were included in the study. Pre-tests included the Yale Brown Obsessive Compulsive Scale (Y-BOCS), Family Accommodation Scale, Perceived Criticism Measure (PCM), World Health Organization Disability Assessment Schedule (WHODAS) and atmosphere at home. Post-tests included all mentioned instruments and assessment of satisfaction with the brief CBT dyadic family intervention.

**Results:** In patients, OC symptoms significantly decreased (Y-BOCS mean(SD): pre-treatment 23.1(4.5); post-treatment 18.5(6.7);  $t(15)=3.43$ ;  $p<0.01$ ). In family members, accommodation decreased (FAS: pre-treatment 19.1(7.6); post-treatment: 12.5(11.0);  $t(15)=4.03$ ;  $p<0.01$ ). Antagonism did not change significantly (PCM: pre-treatment 6.8 (1.6); post-treatment 6.9(1.3);  $t(15)=-0.46$ ;  $p=0.65$ ). Six couples dropped-out, possibly because the intervention triggered much anxiety. Patients and family members who completed the family intervention were satisfied with it.

**Conclusions:** Our conclusion is that our treatment package including CBT and the brief CBT dyadic family intervention is promising. Limitation is that we did not have a control group and therefore, it is not possible to attribute the results to either of the two interventions.

**Keywords:** Obsessive-Compulsive Disorder, Family Therapy, Couples Therapy, Cognitive Behaviour Therapy, Accommodation, Antagonism

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**Parsing the compulsive ritual**

**Background:** We may know less than we think we do about compulsive rituals, and assume more than we realize. One leading assumption of current models of OCD is that compulsions are performed to reduce distress and/or prevent harm. Our exposure-based treatment is meant to extinguish the distress over obsessions by allowing distress to dissipate naturally in the absence of the compulsion. However, to our knowledge, there is no research in which people with OCD have systematically been asked about the goals of their compulsion. Taylor and Purdon (in prep) found that people high vs. low in contamination fears under conditions of high responsibility framed their handwashing goals as absolute, avoidance-oriented goals (e.g., to get rid of ALL germs) but not under low responsibility conditions (e.g., to get rid of germs). Approach goals and goals framed in absolute terms were associated with longer duration of handwashing. It was noteworthy that very few people reported distress reduction as a goal. Instead it appeared that distress reduction was a distal goal that was met by accomplishment of a series of proximal goals. The current study further examined compulsion goals in people with OCD.

**Methods:** People with a formal diagnosis of OCD ( $N = 35$ ) reported on one episode of the same compulsion every day for six days in a row, using a tablet. Participants primarily reported contamination fears with washing compulsions, but a subset ( $n = 10$ ) primarily reported checking compulsions. The tablet was programmed such that when the compulsion started participants tapped a button, which started a timer (but no display of the time elapsing). Once the compulsion was complete they tapped again, which stopped the timer and presented a series of questions about the compulsive episode, including rating the importance of a number of goals. Prior to commencing the records at home, participants met one on one with the researcher to review their compulsions, identify one they do daily and that interferes, and go through the tablet step by step. Participants returned the tablet on the seventh day later and were given an honorarium in appreciation of their time.

**Results:** Participants reported a number of proximal goals that were the route to distress reduction, and distress reduction seemed to be realized in ensuring others could not hold one responsible if harm should occur.

**Conclusions:** The findings suggest that we may benefit from developing a richer understanding of the proximal goals of compulsions, attending to how they are framed, and addressing appraisal that endows performance of the compulsion with such importance. Furthermore, broadening attentional scope may result in recognition of all goals (not just those relevant to the compulsion) and more adaptive prioritization of goals.

**Keywords:** compulsions, rituals, obsessive-compulsive disorder.

## POSITION PAPER

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### **The neuropsychology of OCD across the life span: A critical perspective**

#### **Abstract:**

A vast and body of literature on the cognitive neuropsychology of obsessive-compulsive disorder (OCD) has accumulated in recent decades yielding notoriously inconsistent results. Indeed, recent meta-analytic investigations indicated small to moderate effect size across neuropsychological domains, characterized by significant heterogeneity that remained largely unaccounted for following extensive moderator analyses. In addition, this field has been subject to several controversies, and some unanswered questions have been highlighted in the recent decade. This presentation will include a review of the state of the field of neuropsychology of OCD, including a synopsis of specific cognitive domains, in children and adults. The second part of the presentation will offer a critical perspective on the state of the field, highlighting contemporary controversies and potential solutions. These include: the state versus trait debate; the definition of 'cognitive impairment'; theoretical conceptualization and construct validity of various tasks; the concept of 'disorder-specific' cognitive markers and endophenotypes; the controversy surrounding inhibitory functions in OCD; and the challenge of ecologically sound predictive validity of neuropsychological tests. This presentation will also focus on less known challenges in the field of cognitive neuropsychology of OCD, such as, the historical inconsistency in neuropsychological research results, the transition from pediatric to adult OCD, and neuropsychological test selection in OCD. This will be followed by suggestions for future directions, and specific recommendations and implications emanating from these insights. Finally, the state of the field of cognitive neuropsychology of OCD will be discussed in the context of a broader framework of cognitive neuropsychology across DSM conditions, as well as a critical view of the premise of contemporary neurobiological research.

**Keywords:** Neuropsychology, pediatric, adult, OCD, cognitive functions

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**Efficacy of Imagery with Rescripting in treating OCD: a case series experimental design (preliminary results)**

**Background:** one of the most used methodologies in Schema Therapy is Imagery with Re-scripting, an emotion-focused technique that binds actual stressful emotions to past memories where similar feelings were activated. This technique is used to change the meaning of emotionally distressing memories, turning aversive mental images into positive ones, achieving a healthier prospective on the event and fulfilling past unmet core needs. Imagery with Re-scripting has been applied to several psychopathological conditions including Axis I and II diagnoses and has shown promising results (Arntz et al., 2012). It has also been successfully applied to obsessive-compulsive disorder (OCD) (Veale et al., 2015). It is well-known that guilt plays a significant role in OCD onset and maintenance (Mancini, 2016). The aim of this study is to verify the efficacy of this technique on obsessive symptoms reduction; in particular, at the best of our knowledge, this is the first study addressing sensitivity to fear of been guilty by imagery techniques.

**Methods:** Until now, ten patients with OCD were recruited for this study. After baseline of symptoms monitoring subjects underwent three sessions of Imagery with Re-scripting, followed by symptoms monitoring and a further monitoring after three months. Measures about obsessive symptomatology, depression and anxiety, and guilt indexes were collected.

**Results:** Preliminary analyses showed that patients reported a significant decrease in OCD related symptoms, (a decrease at the Yale-Brown Obsessive-Compulsive scale from a mean of 27 to 13 clinically significant change RCI=5.70 ) and in overall anxiety measures, after three single Imagery with Re-scripting sessions. Conversely, no differences were detected in levels of depression.

**Conclusions:** Although these are very preliminary data, including few patients, our findings suggest that Imagery with Re-scripting interventions focusing on patients' blame and reproach early experiences significantly decrease OCD symptomatology, without affecting levels of depression. These data strengthen the role of Imagery with Re-scripting interventions in reducing psychopathological conditions without a direct intervention on active clinical symptoms (Veale et al., 2015). Our findings also support previous cognitive models on OCD (Mancini, 2016), highlighting the role of guilt-related early life experiences, that seem to be specific to this disorder and to contribute to the historical vulnerability to OCD.

**Keywords:** OCD, Imagery with rescripting, memories, guilt, early life experiences.



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E-mail Address: [assafs@post.tau.ac.il](mailto:assafs@post.tau.ac.il)**Authors:** Assaf Soref<sup>1</sup>, Nira Liberman<sup>2</sup>, Amitai Abramovitch <sup>3</sup>, Yael Poznanski<sup>4</sup> Reuven Dar<sup>2</sup><sup>1</sup>The Jaime and Joan Constantiner School of Education, Tel Aviv University, Israel.<sup>2</sup>School of Psychological Sciences, Tel Aviv University, Israel.<sup>3</sup>Department of Psychology, Texas State University, TX, USA.<sup>4</sup>Achva Academic College, Shikmim, Israel.**Intact Capacity for Automatic Processing in Obsessive-Compulsive Disorder (OCD)**

**Background:** Previous studies have shown that people with OCD tend to rely on explicit processing when performing implicit learning tasks. However, it is unclear whether these findings reflect an impaired capacity for implicit-automatic processing, or a strategic preference toward explicit-controlled processes. The study examined the hypothesis that people with OCD have an intact capacity for implicit-automatic processing.

**Methods:** Twenty-four participants with OCD and 24 non-psychiatric controls performed a modified artificial grammar learning task. The stimuli consisted of letter strings generated according to an artificial grammar. In the acquisition phase, the strings were written in one to four different fonts, and participants were asked to indicate the number of fonts in each string. Half of the participants from each group were not informed of the existence of the underlying grammatical rules and were expected to acquire it automatically. An exploratory intentional learning condition was employed for the second half of the participants, who were informed that the strings were generated according to a complex set of rules and were instructed to try to search for the underlying rule while counting the number of fonts. In the test phase, all participants were presented with three types of strings written in one font: previously presented strings from the acquisition phase, new-grammatical strings, and new-ungrammatical strings (new strings in which two letters were switched to violate the grammar). Participants then were asked to indicate which presented strings were familiar from the acquisition phase, and which were new. Acquiring the underlying grammar automatically was evident by the errors participants made when classifying new-grammatical strings as previously presented, which indicated that rule-based knowledge superseded recognition-based judgments.

**Results:** Participants diagnosed with OCD demonstrated automatic acquisition and retrieval of knowledge, which did not differ from that of the control group. There was no difference between learning conditions as participants from the intentional learning condition remained focused mainly on the primary font-counting task.

**Conclusion:** The combined picture arising from the current and previous studies suggests that OCD is associated with an intact automatic processing capacity together with a strategic preference for controlled processing that tends to override and interfere with automatic processing.

**Keywords:** automatic processing, implicit learning, obsessive-compulsive disorder.

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### **Obsessions and Moral Emotions in Turkey and Belgium**

**Background:** Research on the link between moral emotions and OCD, in both clinical and non-clinical samples, has been restricted to guilt and disgust, although there is no reason to assume that other negative moral emotions would not be part of OCD also. Starting from work on cultural differences in morality, we expected that culturally different emotions may be associated to obsessional intrusions in non-clinical samples. We compared students in Belgian and Turkish contexts because these cultural contexts are characterized by different types of morality: personal responsibility morality in Belgium, and a relational morality in Turkey. We expected that the moral emotions associated with obsessions would differ in ways understandable from the respective types of morality: anger and guilt (personal responsibility emotions) in the Belgian context, and shame and contempt (relational morality emotions) in the Turkish context.

**Methods:** Both cultural groups ( $N_{\text{Turkish}} = 362$  and  $N_{\text{Belgian}} = 247$ ) completed a cross-culturally validated questionnaire on obsessions. For each obsession, respondents rated the frequency of six moral emotions (anger, contempt, disgust, guilt, shame, and embarrassment) in response to the domain of obsession.

**Results:** We conducted multiple regression analyses with cultural group as the moderator. Follow-up analyses on simple slope analyses showed that, partially consistent with our predictions, Belgian students reported more anger in response to obsessions than their Turkish counterpart. Fully consistent with our expectations, Turkish participants reported more shame and contempt in response to obsessions. The main cross-cultural differences in terms of the self-reported emotions were observed in the dimensions of sexual, aggressive and contamination-related obsessions. In contrast, the emotions associated to the doubting dimension was culturally invariant. Participants from both cultures reported guilt and shame with regard to their doubting intrusions.

**Conclusions:** The results indicated that non-clinical individuals from different cultural backgrounds experience different negative moral emotions with regard to their obsessional intrusions. Future research should investigate whether the observations made in this study will hold in the clinical samples. If that is the case, this insight may have major implications for how we define, measure, and treat OCD across different cultural contexts.

Keywords: Obsessions, Morality, Moral emotions, Cross-cultural differences.



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### **Enhanced Action Tendencies in OCD under Response Conflict: An ERP Study**

**Background:** Obsessive-compulsive disorder (OCD) is a debilitating mental disorder characterized by recurrent, persistent and intrusive thoughts and/or behaviors. OCD symptoms are often triggered by external stimuli and, it has therefore been suggested, that a stronger urge to respond to such stimuli due to strong action tendencies may be associated with OCD symptoms. The current electrophysiological study examined whether stimuli associated with a strong automatic response, are associated with enhanced action response tendencies in OCD participants relative to healthy controls.

**Methods:** The event-related potential (ERP) component of lateralized readiness potential (LRP) was used as a measure of action tendencies. ERPs were recorded while 38 participants with OCD and 38 healthy controls performed a variation of the Stroop task, where colored arrows were used. Participants were required to respond according to the color of the stimuli with either a left or right hand response while ignoring the directionality of the arrows. Trials were divided into congruent (when the arrow direction was compatible with the response required by the color presented), or incongruent (when the arrow direction was incompatible with the required response).

**Results:** The OCD group presented larger LRP amplitudes than the control group. Moreover, this effect was particularly strong in the incongruent compared to the congruent trials. Results support the hypothesis that stronger readiness for action characterizes OCD, especially when there is a need to suppress a dominant response tendency. A significant correlation was found between OCD symptoms and reaction times (RTs) and LRP while no such correlation was found between RTs and LRP with depression and anxiety measures. Shorter RTs and lower error rates (ERs) were observed in the congruent condition, while no significant difference in RTs or ERs was found between the two groups (OCD and control).

**Conclusions:** The current results support the notion of stronger action tendencies in OCD in response to stimuli that are action evoking, particularly when the action needs to be suppressed.

**Key words:** OCD, LRP, embodiment, action tendencies

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### **Understanding magical thinking and its contribution to Obsessive Compulsive symptoms: A cross-cultural comparison between India and Australia**

**Background:** Magical Thinking is "*the erroneous belief that one's thoughts, words, or actions will cause or prevent a specific outcome in some way that defies commonly understood laws of cause and effect*". Although some studies have found a unique relationship between magical thinking and OCD, questions remain regarding the assessment of magical thinking, whether it explains unique variance in obsessive compulsive symptoms beyond other cognitive vulnerability factors such as responsibility and threat estimation, and whether it confers differential risk across cultures that are higher or lower in magical thinking. The aim of this study was to explore the cognitive construct of magical thinking and its relationship to OCD symptoms with a cross-cultural perspective. Comparisons were drawn between Indian (high superstition) and Australian (low superstition) cultures.

**Methods:** Non-clinical Indian (n=627) and Australian (n=535) adults were recruited through snowballing and convenience sampling who completed the Illusory Beliefs Inventory (IBI) for magical thinking, Obsessive-Compulsive Inventory-Revised (OCI-R) for OC symptoms and Obsessive Beliefs Questionnaire (OBQ-TRIP) for the other established cognitive belief domains. Participation was voluntary and written consent was provided by all the participants.

**Results:** Measurement invariance was explored for IBI across the samples, but configural invariance was not supported, suggesting that the measure of magical thinking did not share the same structure across cultures. Follow-up exploratory factor analyses were conducted to examine factor structures across the two cultures. Structural Equation Modelling (SEM) was then used to examine whether magical thinking explained unique variance in OC symptoms beyond the other established cognitive constructs.

**Conclusion:** Findings indicate that the construct of magical thinking differs across more or less superstitious cultures, which may be important when considering cognitive vulnerability, case formulation, and treatment planning for OCD symptoms.

**Key words:** Magical Thinking, OCD, OC symptoms, Cognitive vulnerability

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**Feasibility of a Global, Internet-Based, Cognitive Behavioral Therapy Intervention for Body Dysmorphic Disorder.**

**Background:** Body Dysmorphic Disorder (BDD) is a relatively common Obsessive Compulsive Spectrum Disorder causing clinically significant distress and functional impairment. While there is substantial empirical support for the efficacy of Cognitive Behavior Therapy (CBT) interventions for BDD, individuals in some countries may not have access empirically supported treatment for BDD. One way to attempt to resolve this issue is to offer CBT for BDD over the Internet. The current research aims to assess the feasibility of treating patients across international borders and to investigate predictors of treatment outcome.

**Methods:** Patients over the age of 18 ( $N = 32$ ) with a diagnosis of BDD, residing in 9 different countries were included in the study. Following an assessment conducted over secure video-conference, participants received an Internet Cognitive Behavioral Therapy intervention, for twelve weeks. Data were also analyzed for predictors of treatment outcome and treatment adherence

**Results:** Overall paired t-tests indicated that the participants did show significant reductions of BDD-YBOCS between baseline (mean= 28.72) and post (mean= 19.53). We found significant differences between baseline and post ( $t= 5.91, p < .001$ ), as well as between baseline and mid-treatment ( $t= 5.232, p < .001$ ). Baseline depression ( $B= .47, p < .001$ ) and treatment adherence ( $B= -.671, p < .001$ ) were statistically significant predictors of treatment outcome in the multivariate model ( $F=22.327, R^2= .595, p < .001$ ). Additionally, working alliance ( $B= .732, p < .001$ ), treatment credibility/expectancy at baseline ( $B= .528, p < .05$ ), and treatment credibility/expectancy ( $B= -.577, p < .05$ ) at week 2, significantly predicted treatment adherence in a multivariate model ( $F=8.662, R^2=.442 p < .001$ ).

**Conclusions:** The findings indicate that it is possible to successfully treat BDD remotely, to patients in other countries from various cultural backgrounds. Our findings also suggest that even better results may be attained if we are able to increase adherence to treatment and that cultivating a stronger therapeutic relationship could be one of the most promising ways to do this. Additionally, future I-CBT treatments for BDD may be improved by incorporating modules, which directly target depression in the context of BDD.

**Keywords:** Body Dysmorphic Disorder, Internet-CBT, International, Outcome Prediction

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### Implementation of the Bergen 4-day treatment for OCD in Iceland

**Background:** The Bergen 4-day treatment for Obsessive Compulsive Disorder (OCD) is an innovative and effective treatment with high acceptance and basically no drop-out. More than 500 patients in Norway have received the treatment and recent studies have demonstrated that more than 80% of the patients have a reliable change at 1-year follow-up, and nearly 70% are classified as recovered. Furthermore, a recent 4-year follow-up found that 69% of the patients were recovered four years after treatment. A comparison with previously published effectiveness studies of evidence-based treatments, indicated that the 4-day treatment yielded significantly higher proportions of remission at post-treatment and recovery at follow-up, and higher within-group effect size on the primary outcome measure. Recently the 4-day treatment has also been tested at a new Norwegian site, with equally good results. Also, the 4-day format has been tested in a large-scale approach where 90 patients with OCD were treated during eight days, with equally good results. If this treatment approach is transportable to a new culture and country, it might be of high relevance to a large number of OCD patients. The current paper reports on the first implementation of this treatment outside of Norway.

**Method:** Six patients (data collection is underway) with Obsessive Compulsive Disorder, with previous unsuccessfully CBT treatment courses, underwent the concentrated exposure treatment in an outpatient anxiety clinic in Reykjavík, Iceland. Mean pre-treatment scores on Yale-Brown Obsessive Compulsive Scale (Y-BOCS) was 27.67 (SD=4.80). Five of 6 patients were classified with "severe" to "extreme" OCD, 1 classified with "moderate" OCD pre-treatment.

**Results:** One week after end of treatment mean Y-BOCS score was 9.50 (SD=1.64). All patients showed a clinical change as defined by a minimum 35% reduction of Y-BOCS scores, and all patients were in remission as defined by a minimum 35% reduction of Y-BOCS scores and a Y-BOCS score of  $\leq 12$ . All the patients expressed contentment with the treatment format and content. Follow-up scores (at three and six months) will be obtained by May 2018 and by then two more groups will have undergone the treatment and their results be presented.

**Conclusions:** The results indicate that The Bergen 4-day treatment for OCD seems to be a very promising treatment format for OCD that can successfully be implemented outside Norway.

**Key words:** OCD, ERP, Bergen 4-day treatment, Group format

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**Perfectionism and intolerance for uncertainty are predictors of OCD symptoms in children and early adolescents: a prospective cohort one-year follow up study**

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**Background.** Cognitive models of Obsessive–Compulsive Disorder (OCD) identified four types of beliefs, which would develop during childhood and play a role in the aetiology and maintenance of OCD: Inflated sense of responsibility, Overestimation of threat, Importance of control of thoughts, Perfectionism and intolerance for uncertainty. Whereas research produced consistent evidence in adults that these beliefs constitute vulnerability factors for OCD, no study examined whether obsessive beliefs prospectively predict OCD symptoms over time in youth. The current study investigated the role of obsessive beliefs as predictors of OCD symptoms after one year in a large cohort sample of community children and early adolescents prospectively followed-up.

**Methods.** Seven hundred and fifty-four children and early adolescents recruited from the community (mean age= 10.87 years, 51.50% females) completed the Obsessive Belief Questionnaire-Child Version (OBQ-CV) as a measure of obsessive beliefs, the Obsessive-Compulsive Inventory-Child Version (OCI-CV) as a measure of OCD symptoms, the Children's Depression Inventory for depression (CDI) at baseline (t0) and at one-year follow-up (t1). A multiple linear regression analysis was run entering the scores on the OBQ-CV, on the CDI, and on the OCI-CV at t0 as predictors and the scores on the OCI-CV at t1 as dimensional outcome.

**Results.** More severe Perfectionism and intolerance for uncertainty at t0 predicted more severe OCD symptoms at t1 ( $\beta = 0.14$ ,  $t = 3.84$ ,  $p < .001$ ), controlling for the effects of OCD symptoms at t0 ( $\beta = 0.22$ ,  $t = 5.76$ ,  $p < .001$ ) and depression at t0 ( $\beta = 0.13$ ,  $t = 3.64$ ,  $p < .001$ ). Evidence of the predictive effects of the other cognitions at t0 on OCD symptoms at t1 was not found.

**Conclusions.** Perfectionism and intolerance for uncertainty may be predictors of early signs of OCD symptoms in youth, irrespective of the severity of OCD symptoms. Early detection and prevention of OCD in children and adolescents could focus on these cognitive vulnerability factors. The current findings appear to raise some doubt about the role of inflated responsibility, threat overestimation, and importance of control of thoughts, as cognitive vulnerability factors specific to OCD among youth. Future studies should use clinical interviews to assess the presence of an OCD diagnosis.

**Key words:** Perfectionism, Intolerance for uncertainty, Children, Adolescents, Cognitions, Early identification.

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**One-Year Outcome for Responders of Cognitive-Behavioral Therapy for Pediatric Obsessive-Compulsive Disorder.**

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**Objective:** This study, the Nordic Long-term OCD Treatment Study (NordLOTS) describes 1-year treatment outcomes from a large sample of cognitive-behavioral therapy (CBT) responders. Evaluates clinical relapse at the 1-year follow-up, and investigates age as a possible moderator of these treatment outcomes.

**Method:** This study is the planned follow-up to the NordLOTS, which included 177 children and adolescents who were rated as treatment responders following CBT for OCD. Participants were assessed with the Children's Yale Brown Obsessive-Compulsive Scale (CY-BOCS) at 6- and 12-month follow-up. Treatment response and remission were defined as CY-BOCS total scores 15 and 10, respectively. Linear mixed-effects models were used to analyze all outcomes.

**Results:** At 1 year, a total of 155 children and adolescents (87.6%) were available for follow-up assessment, with 142 of these (91.6%) rated below a total score of 15 on the CY-BOCS. At 1-year follow-up, 121 (78.1%) were in remission. On average, CY-BOCS total scores dropped by 1.72 points during the first year after terminating treatment ( $p = .001$ ). A total of 28 participants (15.8%) relapsed (CY-BOCS  $\geq 16$ ) at either the 6- or 12-month assessment; only 2 patients required additional CBT.

**Conclusion:** Results suggest that manualized CBT in a community setting for pediatric OCD has durable effects for those who respond to an initial course of treatment; children and adolescents who respond to such treatment can be expected to maintain their treatment gains for at least 1 year following acute care.

**Key words:** obsessive-compulsive disorder, cognitive behavioral therapy, pediatric, treatment, follow-up

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**Adapted Cognitive Behavior Therapy for OCD with comorbid Asperger Syndrome – a Pilot Study**

**Background:** Cognitive behavior therapy (CBT) is an effective treatment for OCD, but CBT has not been evaluated for patients with both OCD and autism spectrum disorder (ASD). There is no direct comparison of response to CBT in adults with or without ASD. One study found that children with OCD and ASD, compared to children with OCD but not ASD, had lower response rates after standard CBT for OCD.

The only randomized trial of adapted CBT for OCD may not have studied the intended population. Half of the participants reported severe hoarding symptoms, now regarded as a distinct condition with poor response to standard CBT for OCD. In addition, individuals with a current depressive episode were excluded from the study. By including individuals with severe hoarding symptoms and excluding those with a depressive episode, previous studies have not answered whether adapted CBT is an adequate treatment for individuals with ASD and OCD.

Our aim was to evaluate the efficacy of adapted CBT for OCD in patients with ASD. To address the shortcomings of previous research, we recruited a clinically representative sample without hoarding symptoms, and provided therapist-guided exposures in the home to increase real-life utility.

**Methods:** Uncontrolled pilot trial. A total of 19 participants with Asperger syndrome and OCD received an adapted CBT-treatment for OCD. The treatment spanned 20 sessions and focused on exposure with response prevention. The main outcome was clinician-rated Yale-Brown Obsessive-compulsive Scale (Y-BOCS), rated at pre-treatment, mid-treatment, post-treatment and three-month follow-up. Secondary outcome measures were self-rated obsessive-compulsive symptoms (OCI-R), self-rated depressive symptoms, self-rated quality of life, and clinician-rated assessments of overall functioning.

**Results:** There were statistically significant reductions in obsessive-compulsive symptoms at all time points, e.g. Y-BOCS pre-post ( $Z = -6.05$ ,  $se = 1.28$ ,  $p < .001$ ,  $d = 1.45$ ) and OCI-R pre-post ( $Z = -4.52$ ,  $se = 2.65$ ,  $p < .001$ ,  $d = .89$ ). Other secondary outcome measures were non-significant with small to medium effect sizes ( $d = .07 - .53$ ).

**Conclusions:** Adapted CBT for OCD in adults with Asperger syndrome is a feasible intervention that is associated with reductions in obsessive-compulsive symptoms. Definitive, large scale, evaluations of the treatment using randomization and blinded assessors are needed.

**Keywords:** obsessive-compulsive disorder, Asperger syndrome, cognitive behavior therapy, pilot study

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### **Throw away and pull towards: A new way to challenge OCD related cognitions using the GGRO mobile application training platform.**

**Background:** According to cognitive models, obsessive compulsive symptoms result from catastrophic misinterpretations of commonly occurring intrusive experiences and the use of counterproductive strategies to manage them. Obsessive Compulsive Disorder (OCD) related beliefs such as inflated responsibility, importance of thoughts and perfectionism increases the likelihood of such misinterpretations. Consistent with a growing body of literature supporting the usefulness of mobile delivered technologies in fostering cognitive behavior change, the present study assessed the effectiveness of a novel cognitive training exercise designed to challenge OCD-related beliefs. This mobile app training exercise consists of users having to pull statements challenging OCD beliefs towards themselves (downwards) and to throw away (push upwards) contra-productive self-statements

**Method:** 36 third-year BA students started the trial. Twenty completed pre and post measures of OCD-beliefs, mood and OCD symptoms including relationship-obsessions. Participants were instructed to complete two minutes of daily training (3 training levels) for a period of 15 days.

**Results:** No significant differences were found between completers and non-completers on demographic and symptom related measures at Time 1. Repeated-measures MANOVA of the 20 completers showed a significant reductions on all OCD symptoms measures and on OCD-beliefs. No significant reduction was found in depression symptoms. Regression analysis showed change in levels of OCD-beliefs were associated with reduction in OCD symptoms at T2 over and above OCD symptoms at T1.

**Conclusion:** This mobile delivered training exercise may be useful for the reduction and relapse prevention of OCD-related beliefs and symptoms.

**Limitation:** This is an open trial with relatively small student sample.

**Keywords:** Cognitive therapy; maladaptive beliefs; mHealth; relationships; ROCD

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**The effectiveness of brief intensive exposure therapy for outpatients with obsessive compulsive disorder not responding to standard CBT**

**Background:** A substantial group of OCD patients (25-35%) does not respond sufficiently to standard cognitive-behavioral therapy (CBT). This study examined the effectiveness of an intensive outpatient intervention for adults with obsessive compulsive disorder (OCD) who did not benefit from previous standard CBT.

**Methods:** In a single trial design, eleven adult individuals with OCD who had not responded to standard CBT were randomly allocated within two to eight weeks to brief exposure therapy comprising 36 hours of intensive therapist-assisted exposure and response prevention delivered within two weeks (8 workdays), with the total treatment, including booster sessions, taking seven weeks. OCD symptoms were assessed weekly (23 time points) using the Yale-Brown Obsessive Compulsive Scale (Y-BOCS). Comorbid depressive and general symptoms, functioning, and health experience were assessed at four single time points (randomization, baseline, post-treatment, and 24 weeks after randomization).

**Results:** The treatment was tolerated well with only one patient dropping out due to medical reasons unrelated to OCD or CBT. Time-series analysis for the ten completers showed a highly significant reduction in the severity of self-reported OCD symptoms following treatment,  $p = .0006$ , with graphic inspection revealing maintenance of improvement in 70% at follow-up. Single time-point analyses showed that reductions in self-reported comorbid symptoms did not reach statistical significance.

**Conclusions:** The results of this first study suggest that, as a second-step treatment for non-responders, brief intensive exposure therapy is effective in reducing OCD symptoms. Larger-scale controlled studies are needed to confirm the promise of the proposed approach.

**Keywords:** obsessive-compulsive disorder, CBT, nonresponders, intensive exposure therapy

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**Moral Rigidity or Emotional Reasoning? Elucidating a Surprising Connection between Hoarding and Scrupulosity**

**Background:** Post-hoc analyses of clinical and non-clinical data suggest that hoarding and scrupulosity are related. The purpose of this study is to examine this relationship a priori, and to see whether it is explained by variables such as being moralistic (e.g., rigidly adhering to rules even when the application of the rule has nothing to do with the spirit of the rule), moral reasoning, moral emotions (i.e., guilt and shame), and cognitive inflexibility.

**Methods:** 196 participants completed symptom measures (Dimensional Obsessive Compulsive Scale; Saving Inventory – Revised; Penn Inventory of Scrupulosity; and Depression, Anxiety, and Stress Scales – 21) and measures of moral rigidity, moral orientation, guilt, shame, and cognitive flexibility.

**Results:** First, we replicated the post-hoc findings. Hoarding and scrupulosity were correlated with each other ( $r = .48$ ) and hoarding predicted scrupulosity after controlling for anxiety, depression, and OCD symptoms ( $\beta = .26$ ,  $p = .001$ ). Second, we identified four variables that were significantly associated with both hoarding and scrupulosity: (1) relying on emotions to make moral decisions (viz. sentimental moral orientation), (2) anticipated guilt, (3) cognitive inflexibility, and (4) the tendency to withdraw in response to shame or anticipated shame. Notably, moral rigidity was not associated with either hoarding or scrupulosity. Regression analyses indicated that the first three independently predicted both hoarding and scrupulosity when controlling for the others. Furthermore, a path analysis demonstrated that when accounting for those three variables, the partial correlation between hoarding and scrupulosity was .36 (compared to .48), equivalent to reducing the percent variance accounted for from 23% to 13%.

**Conclusions:** Clinically, hoarding and scrupulous patients demonstrate apparently morally rigid behavior; however, contrary to expectation, participants' responses indicated that symptoms were unrelated to a general sense that one must adhere to rules. Rather, hoarding and scrupulosity were both related to beliefs about using emotion to make moral judgments and to anticipated guilt. We conclude that even though people who hoard and are scrupulous seem to reason rigidly about morality, this appears to be a function not of rules-based rigidity, per se, but rather emotional reasoning (e.g., "I feel bad or guilty so it is wrong") and cognitive inflexibility.

**Keywords:** hoarding, scrupulosity, obsessive-compulsive disorder, moral reasoning, guilt, cognitive flexibility

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**Regulating obsessive-like thoughts: comparison of two forms of affective labeling with exposure only in high obsessive-compulsive symptom participants**

**Background:** The inhibitory learning model for exposure therapy suggests that affect labeling (i.e., putting one's feelings into words) may augment associative inhibitory processes within extinction. Accordingly, affective labeling was found to reduce physiological anxiety responses in subjects with anxiety disorders. However, it was never investigated in obsessive-compulsive (OC) symptoms. This lack of research is unfortunate considering that OC symptoms were found to be associated with alexythymia and difficulty with experientially accessing emotions. Furthermore, the effects of using different affect labeling forms (i.e., emotion generation [EG, the production of emotional words describing the present feeling] vs. emotion categorization [EC, identification of the most suitable emotion describing the present feeling from an emotional category list]) were never examined. This distinction may be particularly relevant to OC symptoms, as difficulty experiencing emotion may impede the ability to self-translate feelings into words.

**Methods:** The influence of two forms of affect labeling (i.e., EG and EC) was compared to that of exposure alone on emotional intensity reduction during exposure to distressing thoughts. Sixty-three high OC participants (top 25% OCI-R scores) were randomly assigned to three groups (EG, n=20; EC; n=22; mere exposure, n=21). All participants chose the most relevant two thoughts from a list of potential intrusive thoughts, and underwent two experimental sessions one week apart. The first thought was used as a symptom induction in both sessions (to test learning), whereas the other thought was used at the end of the second session (to test generalization). In both sessions, participants were instructed to concentrate on the thought for 2.5 minutes and then to use affect labeling (according to the group assigned) vs. exposure only (which served as a control group, since exposure produces a reduction of negative emotion). Subsequently, they received three reminders for the thought and applied the same labeling strategy again. Both self-report (of emotional negativity) and physiological (skin conductance response, SCR) measures were taken. We hypothesized that labeling (in the form of EC) would produce larger SCR reduction than EG and exposure only.

**Results:** At the first session, the EC group exhibited reduced SCR response, compared to the other groups; without group differences in self-reported responses. At the second session, all groups exhibited no SCR or self-report differences to both distressing thoughts, suggesting no group differences in learning and generalization effects (with a general attenuation in emotion intensity in session 2).

**Conclusions:** Our findings suggest that affect labeling (in the form of EC) may help attenuate physiological anxiety responses in participants with OC tendencies. However, between-session results have been inconsistent, and further research is warranted. Moreover, the specificity of effects to high OC participants needs to be ascertained.

**Keywords:** affect labeling, obsessive-compulsive symptoms.

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**Background:** Obsessive compulsive disorder (OCD) is associated with a moderate degree of underperformance on cognitive tests, including deficient processing speed which may impact performance on Intelligence Quotient (IQ) tests. In addition, psychopathology in general has been found to be linked with reduced IQ. However, despite a dearth of research focusing on IQ in OCD, it has long been speculated that OCD is associated with superior intellectual capacity, with some accounts of this notion dating back to 1903. The present meta-analytic study was, therefore conducted to quantitatively and systematically summarize the literature on IQ in OCD.

**Methods:** We identified 98 studies reporting IQ data among individuals with OCD and comparison groups. 108 effect sizes were included for Verbal IQ (VIQ), Performance IQ (PIQ), and Full Scale IQ (FSIQ). A random effect model was employed, using Hedge's  $g$  effect size to correct for small samples, and meta-regression analysis to assess potential moderators.

**Results:** Across studies, small effect sizes were found for FSIQ (Hedges'  $g = .35$ ) and VIQ ( $g = .19$ ), and a medium effect size for PIQ ( $g = .59$ ), exemplifying reduced IQ in OCD. However, mean IQ scores across OCD samples were in the normative range (unweighted mean VIQ=110.7; PIQ=106.2; FSIQ=109.1). No clinical or demographic moderator effects were found.

**Conclusions:** We conclude that although lower than controls, OCD is associated with normative VIQ and FSIQ, and normative but relatively lowered PIQ. These results, together with results from recent studies suggest that reduced processing speed may underlie the significant PIQ-VIQ discrepancy in OCD, previously documented in depressed patients. These results will be discussed in light of findings from the extensive body of neuropsychological literature in OCD, and particularly the putative impact of reduced processing speed in this population. In view of our results we recommend utilizing verbal IQ tests to estimate FSIQ in OCD in educational, research, and clinical settings, thus circumventing the effects of slowness in OCD. This will lead to a more precise and unbiased estimation of FSIQ. Direction for future research will be offered.

**Keywords:** IQ, Intelligence, OCD, Intellectual functioning, Neuropsychology



## POSITION PAPER

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### **Why challenging the content of obsessive concerns can be anti-therapeutic: experiences from supervision and an experiment.**

**Background:** OCD patients often worry that, by a cascade of improbable events, an innocuous event (e.g. touching a doorknob) may culminate in a dramatic outcome (e.g. having to undergo an abortion). CBT therapists may be tempted to invite the patient to challenge the *content* of the arguments: how realistic is the link between original situation and feared outcome? We hypothesized that, inadvertently, such content focused cognitive intervention may stimulate a search for (more) potential causal transitions, making the feared outcome more credible. We took the opportunity to use data from an earlier study, carried out to answer a different question, to test this hypothesis.

**Methods:** Sixty-three healthy volunteers read about a neutral situation (e.g. having a baby drink milk) with an improbable catastrophic outcome (e.g. the baby dying the next day) and rated the credibility of the negative outcome and their (un)certainly. One group was invited to generate two causal steps between situation and outcome, another group generated 5 steps and the control group carried out a filler task. At post-test, assessments were repeated.

**Results:** At pre-test, all groups rated the credibility as low and participants were very certain about a positive outcome. In the control group, ratings remained stable. In the experimental groups, credibility about a negative outcome increased. The 5-step group tended to show larger changes than the 2-step group but the difference was not significant. With regards to certainty, only the 5-step group became less certain about a positive outcome.

**Conclusions:** The step-by-step reasoning style adopted by many OCD patients seems to contribute to the credibility of their anxious concerns. In many areas of their lives, reality testing of OCD patients is entirely intact and, when hearing the farfetched worries of their patients, therapists may challenge the content of the concerns, hoping the absurdity will get obvious to the patient: "but how would it be possible for you to have hired a gunman to shoot a friend and to have forgotten all this?" Inadvertently however this may stimulate the patient to generate (more) potential causal paths, rendering the catastrophe *more* credible. (In fact, the present analysis was motivated by alarmingly counterproductive sessions reported in supervision.) Preferentially, cognitive therapy for OCD should focus on *meta*-cognition: "is it *informative* to pose questions like: 'could such-and such happen?' Or: 'can you distinguish realistic worries, like the prognosis of your dad, and OCD-worries like transmitting HIV?'" "Illusions can be strong, but is it helpful to respond to illusions?" etc. Clinical illustrations will be given.

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**The effectiveness of Cognitive Remediation Therapy in Obsessive-Compulsive Disorder and Anorexia Nervosa: A Randomized Controlled Trial**

**Background:** Cognitive Behavior Therapy, medication, and combination regimens are moderately successful in treatment of OCD and Anorexia Nervosa (AN), leaving room for more effective treatment algorithms for these incapacitating mental disorders. An underlying deficit which the two disorders share is cognitive inflexibility, a trait that is likely to impede treatment engagement and reduce patients' ability to benefit from treatment. Cognitive remediation therapy (CRT) is an easy-to-use intervention aimed at reducing cognitive inflexibility and thereby enhancing treatment outcome.

**Methods:** In a randomized-controlled multicenter clinical trial, 61 adult patients with AN and 71 with OCD were randomized to 10 bi-weekly sessions with either CRT or a control condition (i.e. specialized attention treatment, SAT) after which Treatment As Usual (TAU) was started. All patients were evaluated at baseline, post-CRT/SAT, after 6 months, and 12 months. Indices of treatment effect were symptom severity. To enable overall outcome analyses of the different outcome measures across both study groups, we constructed z-scores using all available data on the primary outcome measures. As we were interested in estimating interaction between time and condition, and subsequently between time, condition, and diagnosis, mixed model fitting statistics were used with condition (CRT/SAT), time (pre-, post, and 2 follow-up assessments), and diagnosis.

**Results:** Significant time\*diagnosis ( $t(173.49)=-2.924$ ,  $p=0.004$ ), and time\*treatment ( $t(174.19)=-2.37$ ,  $p=0.019$ ) interactions were found. For the OCD subgroup, predicted mean Y-BOCS scores in the CRT group declined from 23.46 to 15.02 in 52 weeks, and in the SAT group from 24.81 to 12.48. Within group effect sizes were  $d=1.38$  for the CRT group, and  $d=1.67$  for the SAT group.

**Conclusions:** To our knowledge, this was the first randomized controlled trial using a control condition evaluating the efficacy and effectiveness of CRT as a treatment enhancer. This was the first transdiagnostic approach to teach us whether CRT challenges a diagnosis-specific problem or a shared underlying mechanism for AN and OCD. This study enabled us to establish whether the anticipated treatment-enhancing effect of CRT was achieved by improvement of cognitive flexibility. In contrast to our expectations, we found that SAT plus TAU was more powerful in reducing OCD and AN pathology than CRT plus TAU. The higher dropout rate in SAT merits further discussion.

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**Transcranial direct current stimulation over the insula enhances morality by increasing disgust**

**Background:** Previous studies empirically supported the existence of a distinctive relation between deontological (but not altruistic) guilt and both disgust and OCD symptoms. Given that the neural substrate underlying deontological guilt comprises brain regions strictly implicated in the emotion of disgust (i.e. the insula), the present study aimed to test the hypothesis that stimulation of the insula via transcranial direct current stimulation (tDCS) would enhance disgust and morality in the deontological domain.

**Methods:** A randomized, sham-controlled, within-subjects design was used. Thirty-seven healthy individuals (25 women) underwent 15-min anodal (over T3) and sham tDCS in two different days while their heart rate (HR) was recorded to derive measures of parasympathetic nervous system activity (HR variability; HRV). After the first 10-min of tDCS sham or active stimulation, participants were asked to 1) complete a series of 6-item words that could be completed with either a disgust-related word (cleaning/dirtiness) or neutral alternatives; 2) rate how much a series of vignettes, each depicting a behavior that violated a specific moral foundation, were morally wrong. Levels of trait anxiety, depression, disgust sensitivity, scrupulosity, and altruism as well as pre- and post stimulation momentary emotional states were assessed.

**Results:** Compared to the sham condition, during active stimulation of the insula a) HRV significantly increased ( $F(1,36) = 27.1, p < .0001$ ) and b) participants completed more words in terms of cleaning/dirtiness ( $t(36) = 5.21, p < .0001$ ) suggesting the elicitation of the emotion of disgust. Moreover, whereas no difference emerged between the two experimental conditions for vignettes in the altruistic domain (i.e., animal, emotional, and physical human care), in the moral domain (i.e., authority, fairness, liberty, and sacrality) vignettes were judged as more morally wrong in the active compared to the sham condition ( $\Lambda = .89, F(1,36) = 4.67, p = .04$ ). Moreover, scores on the OCI-R correlated with how much vignettes were evaluated as morally wrong in the deontological domain only ( $r = .42, p = .01$ ).

**Conclusions:** Results confirm the association between disgust and morality in the deontological domain, with important implications for OCD. Future studies should explore the possibility to decrease both disgust and morality in patients with OCD by the use of non-invasive brain stimulation techniques.

**Keywords:** transcranial current direct stimulation, obsessive-compulsive disorder, heart rate variability, disgust, insula, morality

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**Does imagery mediate OCD symptomatology and moral judgements?**

**Background:** Empirical data seem to point towards differences in moral judgements in Obsessive Compulsive Disorder (OCD). Specifically, it has been proposed that individuals with OCD use more deontological rather than utilitarian principles when making moral judgements. In the general population, deontological judgements ('ends do not justify the means') have been linked to people's tendency to visualise the harmful means (e.g. sacrificing one person for the good of many). This study tested the mediational role of imagery in guiding the type of moral judgements made by individuals with self-reported OCD symptomatology, who often experience intrusive and distressing images of harm.

**Methods:** 145 participants completed measures of OCD symptomatology (OCI-R, Y-BOCS-SR), trait and state imagery (VVQ-R, SUIS, Likert scale) and vignettes on moral dilemmas asking them to choose between deontological and utilitarian options. The sample was divided into two groups: OCD (meeting cut off scores on both OCD measures, N=30) and non-OCD (comprised of the lowest scoring participants on OCD measures, N=27). The mediational role of imagery in the relationship between OCD and deontological moral judgements was tested.

**Results:** Our findings indicated a significant association between OCD symptomatology and a tendency towards deontological judgements, even after controlling for depression ( $r(138)=-0.18$ ,  $p=0.03$ ). However, there were no significant differences when compared by group, individuals with OCD did not make significantly more deontological judgements. Neither trait nor state imagery (VVQ-R, SUIS) mediated the relationship between OCD symptomatology (OCI-R) and moral judgements; however, we found a significant relationship between imagery and mean moral acceptability.

**Conclusions:** The results indicated an association between OCD symptomatology and a preference for deontological judgements, which could not be explained by the role of imagery. Other mechanisms such as heightened sense of responsibility or avoidance of guilt arising from transgression of moral norms, might better help understand the associated distress in OCD. We believe the findings warrant further investigation of the role of morality in contributing to OCD.

**Keywords:** OCD, moral judgements, deontology, utilitarianism, imagery.

## POSITION PAPER

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**Is OCD a Phobia?****Background**

Behavioral notions of the aetiology of OCD and on underlying treatment models still refer back to fear conditioning models and the successful transfer of such models to the treatment of phobias. But recent developments in the knowledge of OCD phenomenology and OCD developmental trajectories suggest that OCD is not primarily a phobic disorder. Amongst other contradictions: obsessional intrusions concern largely imaginary /hypothetical possibilities rather than observable characteristics.; Obsessional concerns are personally themed and selective rather than representative of a uniform stimulus class; generally the isolated appearance and physical manifestation of the obsessional concern does not elicit a phobic reaction (e.g. clients with concerns over same sex attraction are not homophobic; clients concerned with possible tainted blood are not blood phobic).

**Method**

An alternative conception of OCD is as a belief disorder. In this conception the obsession arises due to a reasoning sequence which chains improbable events together to convince of the obsessional inference. Anticipated consequences and appraisals follow from this inference and although often exaggerated are not necessarily unrealistic. (E.g. driving off after hitting someone in a car could land you in prison)

**Results**

Current cognitive models targeting belief domains and appraisals capture neither the temporal sequence nor the dynamic structure of OCD narrative chains creating obsessional doubt, and the subsequent consequences. Anyway therapy based on appraisal models appears not to add to the success of behavioral techniques such as exposure and response prevention (ERP). But what of techniques such as ERP essentially adapted from phobic models of learning? Perhaps the success of ERP comes from its ability to indirectly modify idiosyncratic beliefs through prolonged contact with reality allowing a reframing of beliefs. Conversely where exposure is not effective perhaps it is exactly because beliefs remain unmodified. Taking this argument further, certain exposure techniques especially adaptations whose efficacy are less validated (looped tape, scripts for repugnant obsessions) may end up reinforcing beliefs and hence maintain or even strengthen the obsession.

**Conclusion**

ERP could be adapted to idiosyncratic beliefs and not only to stimulus content. Addressing the individual reasoning sequence behind the obsessional doubt prior to exposure has shown benefit in several trials and may help resolve obsessional thinking.

**Keywords: Phobia; Cognitive models; Reasoning; Beliefs**