



## “Experimental studies investigating the possible working mechanisms of mindfulness”

Day: Friday 13th July 2018                      Time: 10:45 – 12:00                      Track: Working Mechanisms

The first presenter is Nikolett Eisenbeck. The presentation will be about a study assessing two possibly relevant features of the most widely used exercise, the mindful breathing or focused breathing mindfulness exercise.

Zaffie Cox is the second presenter. The presented study tries to answer the question, do different forms of short-intervention meditation effect state-mindfulness differently?

Inka Papenfuss is the third presenter. The presentation is a study that investigated the potential mediating role of emotional reactivity to uncertainty using (a) a self-report measure of intolerance of uncertainty (IU) and (b) startle reflex and self-rated anxiety in response to an uncertainty manipulation in a conditioning task.

The final presenter is Katleen Van der Gucht. She studied whether a mindfulness-based intervention (MBI) may impact the differentiation of negative and positive emotions.

### Symposium overview

**Presenter 1**      **Nikolett Eisenbeck** - Efficacy of the different components of the focused breathing mindfulness exercise in cognitive performance. An experimental analysis.

**Presenter 2**      **Zaffie Cox** - Do different forms of short-intervention meditation effect state-mindfulness differently?

**Presenter 3**      **Inka Papenfuss** - Responding to uncertain threat as a potential mediator of an inverse relation between mindfulness and anxiety

**Presenter 4**      **Katleen Van der Gucht** - An Experience Sampling Study Examining the Potential Impact of a Mindfulness-Based Intervention on Emotion Differentiation

**Chair:**              *Johannes Michalak*



## **Efficacy of the different components of the focused breathing mindfulness exercise in cognitive performance. An experimental analysis.**

Nikolett Eisenbeck<sup>1</sup>, Carmen Luciano<sup>2</sup>, David F. Carreno<sup>2</sup>

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**Background and objectives:** Despite the extensive evidence of mindfulness being successful at immediately improving cognitive performance, the components of the exercises that are responsible for these effects are yet not empirically evaluated. The current study assessed two possibly relevant features of the most widely used exercise, the mindful breathing or focused breathing mindfulness exercise (FB; Kabat-Zinn, 1990). It was hypothesized that a crucial moment of the exercise is when the practitioners re-focus their attention back to the breath after getting distracted, because it can be conceptualized as an active self-regulation practice, which ideally will be extrapolated outside of the practice context. Also, we hypothesized that to facilitate the transfer of the beneficial effects of mindfulness from the exercise to another activity, it is necessary to establish an explicit link between them.

**Methods:** To test these hypotheses, 62 undergraduate students were randomly assigned to four conditions: (a) the original exercise connected to a subsequent cognitive task (FB-Con), (b) a version of the FB in which the explicit practice regarding the re-focus on the breath was eliminated (FB-NoRefocus), (c) a version of the FB in which the mindfulness and the cognitive task context were explicitly separated (FB-Disconnected) and (d) an audiobook-listening Control condition. All participants realized a cognitive task (Paced Auditory Serial Addition Task; PASAT-C) prior to and after the experimental conditions.

**Results:** The FB-Con was significantly more effective at improving post-test performance than the other three conditions. FB-NoRefocus and FB-Disconnected were no better than Control.

**Discussion and conclusion:** The present findings highlight two characteristics of mindfulness that should be accentuated in the clinical practice: firstly, consciously responding to one's own distracting behaviors through awareness, and secondly, the explicit connection of this kind of self-regulation practice with other life areas. The present analyses may open a line of studies concerned with the elements of mindfulness and understanding it as part of practices contributing to the development of an effective self-regulation pattern.



## **Do different forms of short-intervention meditation effect state-mindfulness differently?**

Zaffie Cox, Dinkar Sharma

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**Background and Objectives:** There is currently only one study in the literature that explicitly uses measures to show that mindfulness interventions can lead to immediate changes in state mindfulness (Mahmood, Hopthrow, & Randsley de Moura, 2016), with an increase in the number of studies using short mindfulness interventions it is important to know whether such interventions are being engaged with by participants and what facets of mindfulness practice are being highlighted. It is also increasingly clear that in the long-term different types of mindfulness practice induce different cognitive changes, so it is important to investigate the effect of these on state mindfulness.

**Methods:** The Mindful Attention Awareness Scale – Short Form (MAAS-S) and the Toronto Mindfulness Scale (TMS) were administered before and after an 8-minute intervention. The interventions were either mindful movement, mindful breathing, befriending meditation or a control condition in which they watched clips of nature programmes. Participants were collected from the online platform, Prolific.

**Results:** Results showed that there was no significant change in MAAS-S scores after any of the meditation interventions, but that there was a significant decrease in attentional awareness for those in the control condition. Conversely, the TMS Decentering factor showed increased decentering after all mindfulness interventions, but no change in the control condition. The Curiosity factor of the TMS showed increased curiosity after both the Breathing and Befriending interventions, but no change after the Movement or control interventions.

**Discussion and Conclusion:** These results could have implications for the application of mindfulness-based meditative interventions in selecting the appropriate exercises and approach for both clinical and everyday participants, relating practice types to desired outcomes. It also highlights the importance of awareness of mindfulness style in relation to selecting appropriate manipulation checks.



## **Responding to uncertain threat as a potential mediator of an inverse relation between mindfulness and anxiety**

Inka Papenfuss, Miriam Lommen, Brian Ostafin

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**Background and objectives:** The benefits of applying mindfulness-based interventions to the treatment of anxiety have gained extensive support. However, mechanisms for this relation remain largely unexplored. Emotional reactivity to uncertainty plays a central role in anxiety and may represent a mechanism of interest, as mindfulness meditation fosters an open and accepting attitude towards all (including aversive) experience. The present study investigated the potential mediating role of emotional reactivity to uncertainty using (a) a self-report measure of intolerance of uncertainty (IU) and (b) startle reflex and self-rated anxiety in response to an uncertainty manipulation in a conditioning task.

**Methods:** In a cross-sectional design, 53 undergraduate students completed a number of self-report questionnaires assessing generalized anxiety, obsessive-compulsive, panic, and social anxiety symptoms, as well as measures of mindfulness and IU. Furthermore, participants completed the NPU-threat test, a threat-of-shock paradigm that consists of (1) a no-shock condition, (2) a predictable condition in which shock is reliably predicted by a cue, and (3) an unpredictable condition in which shock is not paired with a reliable predictor. Aversive responding throughout the different conditions is measured with the startle reflex by delivering startle probes during both cues and intervals between cues. Further, self-report is used to assess subjective anxiety in response to the three conditions.

**Results:** The self-report measure of IU was found to mediate the relation between trait mindfulness and (I) generalized anxiety symptoms and (II) obsessive-compulsive symptoms. The startle responses and anxiety ratings from the NPU-threat test were found to be largely unrelated to mindfulness, anxiety symptoms, and self-reported IU.

**Discussion and conclusion:** The results provide initial evidence that emotional reactivity to uncertainty may play a role in the relationship between mindfulness and some types of anxiety. The findings concerning self-reported IU suggest that future research efforts should explore its mediating role in larger samples to minimize possible power problems due to collinearity between predictors. Furthermore, the results also highlight potential limitations of using a conditioning task to manipulate uncertainty-related anxiety in a student sample, including that the uncertainty manipulation may lack ecological validity. Other potential implications and future directions for research are discussed.



## **An Experience Sampling Study Examining the Potential Impact of a Mindfulness-Based Intervention on Emotion Differentiation**

Katleen Van der Gucht<sup>1</sup>, Yasemin Erbas<sup>1</sup>, Egon Dejonckheere<sup>1</sup>, Edel Maex<sup>2</sup>, Filip Raes<sup>1</sup>, Peter Kuppens<sup>1</sup>

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**Background:** Research has shown that how well people can differentiate between different emotional states is an essential requirement for adaptive emotion regulation. People with low levels of emotion differentiation tend to be more vulnerable to develop emotional disorders. Although we know quite a lot about the correlates of emotion differentiation, research on factors or interventions which could improve emotion differentiation skills is scarce. Here, we hypothesize, and study empirically, whether a mindfulness-based intervention (MBI) may impact the differentiation of negative and positive emotions.

**Methods:** A within-subjects pre-, post- and follow-up design involving experience sampling was used. At each phase participants reported their current emotions and mindfulness skills up to 40 times across four consecutive days using smartphones.

**Results:** Multilevel modeling showed a significant improvement in negative emotion differentiation post-intervention and at four months of follow-up, and a significant improvement in positive emotion differentiation at four months follow-up. The improvement in negative emotion differentiation, however, was no longer significant when controlling for levels of negative affect. A time-lagged mediation model showed that post-treatment changes in mindfulness skills mediated subsequent changes in negative emotion differentiation, also when controlling for levels of negative affect.

**Conclusion:** These results suggest that MBI is a promising approach to improve people's emotion differentiation skills.