“Letting in the light: The role of mindfulness in eliciting positive emotion”

Day: Thursday 12th July 2018  Time: 9:00 – 10:15 am  Track: Working Mechanisms

General background: A great deal of research has shown that mindfulness and self-compassion interventions help to alleviate aversive affect such as anxiety and depression. Less is known about the effects of these interventions on positive affect. This symposium examines a variety of ways in which mindfulness and self-compassion are related to positive affect variables.

Symposium summary: The first talk (Ostafin) addresses the gap in knowledge regarding how mindfulness influences specific positive emotions. The talk presents the findings of four studies that examine the relation of mindfulness and the emotion of awe, using a variety of methods to operationalize mindfulness (self-report and experimental inductions) and awe (self-report, time estimation). The second talk (Geschwind) examines the dynamics through which mindfulness and positive affect may be mutually enhancing. The talk presents two studies that use mindfulness interventions and experience sampling methods to examine the dynamic relation between mindfulness, positive cognitions, and positive affect. The third talk (Trompetter) examines the relation between self-compassion, daily stressors, and positive affect. This study uses experience sampling to investigate whether trait self-compassion is related to less stress and whether self-compassion weakens the effect of stressors on reducing positive affect. The fourth talk (Dunn) presents research with cross-sectional and experimental designs that investigates positive affect in Mindfulness Based Cognitive Therapy (MBCT) for depression. These studies examine questions such as whether positive affect plays mediating and moderating roles in the relation between MBCT and depression relapse and which facets of mindfulness mediate the relation between MBCT and increased positive affect. The fifth talk (Geurts) examines the role of mindfulness training on response to cues with positive valence. In a sample of patients with ADHD, this research examined the effects of MBCT on sophisticated cognitive tasks that assess the relation between cue valence and behavioral control.
Symposium overview

Presenter 1  **Brian Ostafin** - The doors of perception: Mindfulness and the experience of awe

Presenter 2  **Nicole Geschwind** - Upward spiral dynamics: From mindfulness to positive emotions ... and back

Presenter 3  **Hester Trompetter** - Self-compassion: A psychological resource to buffer stress and aid emotional resilience in daily life?

Presenter 4  **Barney Dunn** - How Does Mindfulness Based Cognitive Therapy Bolster Positive Affect and How is This Related To the Prevention of Depressive Relapse?

Presenter 5  **Dirk Geurts** - The effects of mindfulness based cognitive therapy on behavioural control in patients with ADHD

Chair:  **Brian Ostafin**
The doors of perception: Mindfulness and the experience of awe

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Background and objectives: Mindfulness and other contemplative practices have been used to elicit religious experience, which often involves an element of positive affect. The emotion of awe, which involves response to perceptually vast stimuli and a need for accommodation (vs. assimilation), has traditionally been thought to be a central element of such experiences. Mindfulness training may be well suited to eliciting awe, as mindfulness has been described as involving nonconceptual awareness. Such awareness may facilitate accommodative information processing and thus open the individual to the experience of vast stimuli. Four studies examined the relation between mindfulness and awe.

Methods and Results: Study 1 (N=120) showed that trait mindfulness was related to dispositional awe (r=.43), even when controlling for other positive emotions such as joy and contentment. Further, trait mindfulness was related to an indirect measure of awe (time estimation of awe pictures) (r=-.20). Study 2 (N=140) again showed that trait mindfulness was related to dispositional awe (r=.33). This relation remained when controlling for general positive affect. Further, the mindfulness-awe relation was mediated by individual differences in the tendency to use an accommodative information processing style (Sobel z=2.63). Study 3 (N=64) showed that a brief (10 min) mindfulness intervention led to greater awe response to awe images (F=5.4) but not to non-awe images (F=1.6). Study 4 (N=92) showed that compared to control, a 4-week mindfulness intervention led to more awe (F=9.8), but not joy (F=1.0), assessed by daily diaries. The results further showed that the mindfulness training effect on awe was mediated by daily levels of mindfulness (Sobel z=3.03).

Discussion and conclusions: These studies show a consistent relation between mindfulness and the emotion of awe using a variety of methods to operationalize mindfulness and to measure awe. The results further suggest a specific relation between mindfulness and awe, controlling for other positive emotions.
Upward spiral dynamics: From mindfulness to positive emotions ... and back

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Background and objectives: Previous studies have repeatedly found associations between mindfulness and positive affect. Recent theory suggests that positive psychological processes may be energized through self-reinforcing upward spiral dynamics. We examined upward spiral dynamics between mindfulness and positive emotions in two studies. Study 1 (Garland et al., 2015) examined positive emotion–cognition interactions among individuals in partial remission from depression who had been randomly assigned to treatment with mindfulness-based cognitive therapy (MBCT; n = 64) or a waitlist control condition (n = 66). Study 2 (Gotink et al., 2016) was a within-subject study in 29 individuals who had previously completed a mindfulness training. This study examined time-lagged moment-to-moment interactions between mindfulness and positive emotions during periods of mindful walking or matched control periods ranging from 1 to 10 days in duration. We hypothesized that both mindfulness training as well as state mindfulness stimulate upward spiral dynamics by increasing positive affect and positive cognition.

Methods: Both studies used the experience sampling method (ESM). Results were analyzed with a series of multilevel and/or autoregressive latent trajectory models. Study 1 assessed changes in affect and cognition during 6 days before and after MBCT or control period. Study 2 measured state mindfulness and affect during control and mindful walking periods.

Results: In study 1, MBCT was associated with significant increases in trait positive affect and
momentary positive cognition. These increases were preserved through autoregressive and cross-lagged effects driven by global emotional tone. In study 2, periods of mindful walking were accompanied by significant improvements in both mindfulness and positive affect. State mindfulness and positive affect prospectively enhanced each other from one moment to the next.

Discussion and conclusion: Findings suggests that daily positive affect and cognition are maintained by an upward spiral that might be promoted by mindfulness training, and that mindful walking may fertilize upward spiral dynamics between a more mindful state and enhanced positive affect. Mindful walking in nature may be an effective way to maintain mindfulness practice and improve subjective well-being.
Self-compassion: A psychological resource to buffer stress and aid emotional resilience in daily life?

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Background and objectives: The accumulation of small stressors (daily hassles) impedes our mental health. Self-compassionate individuals may be able to approach stressful experiences in a way that buffers their negative consequences. We investigated if self-compassion (1) relates to lower levels of stress in daily life, and (2) attenuates the potentially negative effects of daily stress on positive and negative affect. Especially the ability to maintain elevated levels of positive affect despite stress may be beneficial to us given its broaden-and-build qualities.

Methods: 43 University students participated in this experience sampling study (ESS). Participants filled in a baseline questionnaire containing the Self-Compassion Scale (SCS) and recurrently answered questions via a smartphone application. Questions on present-moment affect and stressful events and experiences since the last beep were answered 7 times per day for 7 days, between 10AM and 10PM with 2-hour time intervals. Data were analyzed with dynamic SEM models in Mplus using two level random Bayesian estimation methods.

Results: Levels of self-compassion were significantly and negatively related to the experience of stress in daily life, specifically in the domains of self (est = -.034, p = .018), social circumstances (est = -.032, p = .021), and physical appearance (est = -.030, p = .012). Self-compassion did not, however, significantly moderate (i.e. attenuate) the effects of stressful experiences on both negative and positive affect. The absence of significant moderation can be explained by the finding that self-compassion was not significantly related to positive and negative affect (est = -.008, p = .441 and est = -.044, p = .248 respectively).

Discussion and conclusion: Self-compassion protects against the experience of stress throughout daily life, and might also indirectly aid the maintenance of adaptive levels of affect. The reported nonsignificant relation between self-compassion and affect contradicts findings from other – mostly cross-sectional – studies. More research using interesting designs that are better able to capture spontaneous, daily (affective) experiences – such as the ESS - are necessary to shed light on this finding and fully understand the moment-to-moment mechanisms of self-compassion.
How Does Mindfulness Based Cognitive Therapy Bolster Positive Affect and How is This Related To the Prevention of Depressive Relapse?

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Background and objectives: It is increasingly recognised that Mindfulness Based Cognitive therapy (MBCT) builds positive emotions. However, how this comes about at a mechanistic level is poorly understood and it is largely unproven whether this relates to the relapse prevention effects of MBCT. The talk will present a range of published and unpublished studies examining this issue.

Methods: First, data from large scale survey studies will examine cross-sectional and longitudinal associations between anhedonia and the observing, describing, acting with awareness, non-judging and non-reacting components of trait mindfulness (Jell et al., submitted; Yilmaz et al., in prep). Second, a secondary analysis of an existing RCT will examine whether changes in any of these components of trait mindfulness mediates the repair of positive affect in depression following MBCT relative to a waitlist control condition (Dunn et al., submitted). Third, findings from a series of experimental studies examining the impact on positive affect experience of manipulating the acting with awareness and observing components of mindfulness will be reported (Gadeikis et al., 2017; Jell et al, in prep). Finally, a secondary analysis of the PREVENT trial will examine whether positive emotion (as measured by the dispositional positive emotions scale) moderates and mediates the relapse prevention effects of MBCT relative to a treatment as usual control (Dunn et al., in prep).

Results and Discussion: Findings suggest that developing the capacity to observe sensory experience may be a key component of mindfulness practice that builds positive emotion. Implications for the refinement of MBCT to more explicitly target positive emotions (and the integration of mindfulness techniques into other treatments) will be discussed.
The effects of mindfulness based cognitive therapy on behavioural control in patients with ADHD

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Background: Although beneficial clinical effects of mindfulness-based cognitive therapy (MBCT) have been shown across a wide variety of psychiatric disorders, the neurocognitive mechanisms of MBCT are largely unknown. Here we investigated whether MBCT enhanced the control of behaviour in ADHD, as quantified using a series of sophisticated cognitive paradigms, known to be sensitive to subtle changes in behavioural control. We focussed on three different subcomponents of behavioural control: (1) the motivational biases of (in)action (2) reversal learning, and (3) interactions between Pavlovian and instrumental control of behaviour.

Aim: Our aim was to test whether MBCT in patients with ADHD would enhance the control of behaviour (1) by reducing motivational biases on (in)action, (2) by improving reversal learning and (3) by rendering instrumental behaviour more robust to Pavlovian biases.

Methods: Within the framework of a randomised clinical trial, targeted at the clinical effects of MBCT on ADHD, we assessed 50 ADHD patients before and after 8 weeks of treatment as usual (TAU) in combination with or without MBCT. We employed 3 tasks: (i) A motivational go/nogo task that measures the interaction between anticipated cue valence (reward/punishment) and action (go/no-go). (ii) A reversal learning task that measures the ability to flexibly adjust learned behaviour in response to changed stimulus-action-outcome contingencies. (iii) A Pavlovian-to-instrumental transfer (PIT) task that measures how much instrumental decision-making is invigorated by positive (i.e. appetitive PIT) or inhibited by negative (i.e. conditioned suppression) Pavlovian conditioned stimuli (CS).

Results: MBCT did not change behavioural biases in the motivational go/no-go task or reversal learning. With regard to the PIT-task we replicated previous findings by showing that appetitive CSs invigorated, whereas aversive CSs inhibited instrumental decision-making. Critically, we found that the influence of aversive, but not appetitive, Pavlovian CS on instrumental decision-making was enhanced after MBCT.

Conclusions: These data suggest that MBCT enhances aversive Pavlovian inhibition of instrumental behaviour. Implications for our understanding of the putative neurocognitive mechanisms through which MBCT works are discussed.