"Mindfulness and cognitive processes in major depressive disorder"

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

The first presenter, Frances Shawyer, will talk about a study was to determine whether neuroticism mediates the relationship between mindfulness and depressive relapse in individuals with a history of three or more major depressive episodes.

The second presenter is Christine Kuehner. Her presentation will present results from two Ambulatory Assessment studies on rumination and mindful attention in depressed patients vulnerable for relapse.

Pawel Holas, the third presenter, will talk about a study to evaluate if MBCT can modify attentional and interpretative biases that underlie depression.

The fourth presenter is Eva Henje Blom. She will discuss her study to assess the effects of the TARA training (Training for Awareness, Resilience & Action) in healthy adolescents using MRI connectomics approach.

Symposium overview

Presenter 1	**Frances Shawyer** - In a large pragmatic trial of mindfulness-based cognitive therapy (MBCT), neuroticism mediated the relationship between mindfulness and depression
Presenter 2	**Christine Kuehner** - Rumination and mindful attention in depressed patients
Presenter 3	**Pawel Holas** - Modification of negative attentional and interpretative biases in major depression, an eye-tracking study.
Presenter 4	**Eva Henje Blom** - Mindfulness-based treatment of adolescent depression, preliminary results from a MRI connectomics proof of concept study.
Chair:	***Willem Kuyken***

In a large pragmatic trial of mindfulness-based cognitive therapy (MBCT), neuroticism mediated the relationship between mindfulness and depression

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Background and Objectives: The effectiveness of Mindfulness-Based Cognitive Therapy (MBCT) in reducing relapse and recurrence in Major Depressive Disorder (MDD) is well established. More detailed examination of the mechanisms by which MBCT may prevent depressive relapse is needed in order to better understand the range of applicability of MBCT and which components should be emphasized to maximize benefits. Although the original rationale for MBCT rested largely on a model of relapse causally linked to rumination, our previously published negative findings suggests that the mechanism by which mindfulness impacts relapse is more complex. High neuroticism has been identified as a risk factor for depressive relapse in patients with MDD. It has been postulated that depressed mood combined with high neuroticism heightens the risk that the cognitive cycles that perpetuate low mood will become habitual. Reductions in neuroticism may therefore contribute to the beneficial effect of mindfulness on depressive relapse. The aim of this study was to determine whether neuroticism mediates the relationship between mindfulness and depressive relapse in individuals with a history of three or more major depressive episodes.

Methods: This study was part of a pragmatic randomized controlled trial comparing MBCT with an active control condition over a 2-year follow-up period (n=203). Measures included the Five Facet Mindfulness Questionnaire and the International Personality Item Pool Neuroticism subscale. Depressive relapse was assessed in the second year using the Composite International Diagnostic Interview (CIDI) 2.1.

Results: For the total sample post MBCT, mindfulness at 9 months predicted depressive relapse between 13-24 months and this relationship was mediated by neuroticism measured at 12 months.

Discussion and conclusion: To our knowledge, this is the first study to demonstrate the mediating role of neuroticism in the relationship between mindfulness and depressive relapse, highlighting the importance of considering personality factors in the application of mindfulness-based interventions (MBIs). Described as a form of “dispositional ruminative self-focus”, neuroticism may be a more fundamental mechanism than rumination and this may explain its significant mediation role. Given the role of neuroticism in a range of disorders, the results also provide support for the transdiagnostic application of MBIs such as MBCT.

Rumination and mindful attention in depressed patients

Christine Kuehner

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Background and Objectives: Rumination, a tendency to repetitively think about negative mood states and their causes and consequences, has been proposed as an important cognitive risk factor for the onset and course of depression, whereas mindful attention is considered as a protective form of self-focusing. Experimental lab studies have demonstrated differential effects of these emotion regulation strategies. However, their impact on daily life processes is so far poorly understood, particularly in depressed patients vulnerable for relapse. This presentation will present results from two Ambulatory Assessment studies on this topic.

Methods and Results: Study 1 induced ruminative and mindful attention during daily life and examined their effects in a sample of remitted depressed patients (n=34) and matched heathy controls (n=32). Hierarchical linear models revealed that the two induction modes exhibited differential effects on spontaneous mood, focus on feelings/problems, uncontrollable rumination, and self-acceptance. Respective beneficial effects of mindful attention over rumination were particularly stronger in the patient group. Study 2 involved a 5-week intervention study in a second sample of remitted depressed patients (n=78) who were randomly assigned to a mindfulness-based attention versus progressive muscle relaxation training. Differential effects on daily life mood, rumination, and self acceptance were identified, which were most pronounced in those patients with high numbers of previous episodes.

Discussion and Conclusion: Our studies confirm overall protective effects of mindful self-focusing in experimental and clinical settings regarding (dys-)functional affective and cognitive processes during daily life. Understanding such mindfulness-related mechanism of action at the micro-level of experience in real-life settings can help to establish mechanism-based psychological treatment options for relapse prevention in depressed patients. These studies were funded by grants from the Deutsche Forschungsgemeinschaft (DFG; KU1464/4-1,2).

Modification of negative attentional and interpretative biases in major depression, an eye-tracking study.

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Background and objectives: Mindfulness-based cognitive therapy (MBCT) has been demonstrated to be successful in the reduction of relapse rates in patients with recurrent depression. It is less clear if MBCT is effective for treating individuals who are currently depressed and to date, little is known about the underlying cognitive mechanisms of symptoms reduction. Therefore, the aim of the current study was to evaluate if MBCT can modify attentional and interpretative biases that underlie depression.

Methods: 56 individuals with diagnosis of major depression disorder were randomly assigned to MBCT (n=26) and Waiting List (n=30) conditions. Prior and post 8 weeks intervention they filled questionnaires and unscrambled a list of scrambled sentences as a measure of their depressive interpretation bias (Scramble Sentences Test (SST) with eye movements being recorded during task.

Results: We found decrease in depressive symptoms following MBCT in comparison with WL. After MBCT participants made more positive interpretations in the SST than before training. At post-test, the MBCT group fixated less on negative keywords than at the pre-test, and at the post-test they made more fixations on positive vs. negative keywords. No such differences were found for the waiting group.

Discussion: The results of current study extend research showing that MBCT can be effective in treating current depression and suggests possible mechanisms underlying therapeutic change - modification of negative cognitive biases.

Conclusions: MBCT led to changes in attentional and interpretative biases in depression that might be related to decreases in depressive symptoms.

Mindfulness-based treatment of adolescent depression, preliminary results from a MRI connectomics proof of concept study.

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Background: The global lifetime prevalence of adolescent depression is >14% and continues to increase and current treatment strategies have limited efficacy for this age-group. Training for Awareness, Resilience & Action (TARA) is a 12 weeks group treatment based on the neuroscience of adolescent depression and includes aspects of mindfulness, yoga-based practices and compassion-training. Teens first learn to use breathing techniques and slow synchronized movements to calm the limbic system. This is followed by additional training of interoceptive awareness, self-compassion and cognitive strategies to increase their resilience and well-being. Preliminary data show feasibility and preliminary efficacy in improving symptoms of depression.

Objectives: The aim of this study was to assess the effects of the TARA training in healthy adolescents using MRI connectomics approach. The first hypothesis was an improvement of executive attention, corresponding to an increase of the anterior cingulate cortex (ACC) node strength. The second hypothesis was a decrease of depressive symptoms, corresponding to an increase of the caudate node strength.

Methods: Participants: 24 healthy youth aged 10-18 years. Pre-/post-training assessments: assessment of executive attention in 23 participants using Attention Network Task (ANT) and self-report measure of depressive symptoms (RADS-2) in 17 participants. Pre-/post-training MRI acquisition: 3T, T1-weighted anatomical imaging, scan time 4 min. Post-processing: quality assurance and registration step using FSL.

Results: Executive attention of the participants showed a significant improvement after the training (one-tailed paired t-test assuming unequal variances, p=0.0236). Network analysis revealed an increase of the node strength of the left ACC (one-tailed paired t-test assuming unequal variances, p=0.0326). While depressive symptoms did not show a significant change, there was an increase of the node strength of the left caudate in participants with improved RADS-2 scores (N=7, p=0.0336).

Discussion: The results need to be validated in well powered samples and the effect of TARA studied in clinically depressed teenagers and compared to the effect of the current best practice.

Conclusion
An improvement of the executive attention and an increase of the ACC node strength was confirmed. Those participants, whose depressive symptoms improved, did demonstrate an increase of the node strength of the left caudate.