"Online mindfulness approaches to promote well-being in the community"

Day: Wednesday 11th July 2018  Time: 3.30 – 4.45 pm  Track: Clinical applications

Interest in mindfulness-based practices has increased exponentially due to its demonstrated evidence in improving well-being. However, conventional mindfulness training programs (e.g., MBSR, MBCT) require an extensive amount of time, costs, and availability of qualified trainers that may not be accessible to all individuals. In recent years, guided self-help and low-intensity approaches for psychological interventions have shown to be effective in training individuals on cognitive-behavioral therapy for the improvement of well-being and alleviation of psychological distress. This symposium introduces novel forms of mindfulness-based training that applies guided self-help principles and online approaches to training delivery and demonstrates their effectiveness in improving well-being: 1) a randomized controlled trial on the effectiveness of 21-day mindfulness-based intervention on healthy diet, sleep, and pain through WhatsApp, 2) TourHeart is an Internet-based six-week structured mindfulness-based anxiety and prevention program for people with repetitive thinking tendencies, 3) a newly developed mindfulness training application called Wildflowers, a smartphone application developed to improve well-being and attention, 4) effects of a mindfulness-based relaxation exercise as an add-on to guided internet cognitive behavioral therapy for adolescents with insomnia, and 5) an RCT comparing the effects of different delivery methods (e.g. leader- vs audio-guided, or different forms of expectations). Taken together, these data show beneficial effects on mental well-being. These findings open the possibility for relatively short-term, inexpensive, and low-intensity delivery of mindfulness-based training in the general population and subgroups of individuals with specific conditions.
Symposium overview

**Presenter 1**  
Amanda Li - Effectiveness of 21-day mindfulness-based intervention on healthy diet through WhatsApp: A randomized controlled trial

**Presenter 2**  
Winnie Mak - TourHeart—Online mindfulness-based training as prevention of anxiety and depression: A randomized controlled trial

**Presenter 3**  
Kathleen Walsh - Effects of a Mindfulness-Meditation App on Subjective Well-Being: An Active Control, Experience Sampling Study

**Presenter 4**  
Eduard de Bruin - The contribution of mindfulness-based relaxation exercises to Internet-delivered CBT for insomnia in adolescents: Results from a randomized controlled trial

**Presenter 5**  
Karin Dobkins - Short-Term Effects of Meditation: Changes in Mood and Well-Being After A 30-Minute Intervention

**Chairs:**  
Karin Dobkins and Winnie Mak
Effectiveness of 21-day mindfulness-based intervention on healthy diet, sleep, and pain through WhatsApp: a randomized controlled trial

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Background: Over the past decade, mindfulness has been substantially investigated as a therapeutic approach for various physical and mental health conditions and has been found to be efficacious in modifying issues such as eating behaviors, sleeping difficulties, and physical pain. Given the growing trend of psychological interventions through smartphone, delivering low-intensity mindfulness via instant messaging on a smartphone to improve daily functioning is worth exploring.

Methods: A total of 264, 333, and 186 WhatsApp users were randomly assigned to either the 21-day mindfulness-based intervention with audios and reading materials provided through WhatsApp daily or the waitlist control group in healthy diet, insomnia and pain conditions, respectively. Participants completed a battery of general questionnaires including Mindful Attention Awareness Scale (MAAS), WHO-5 Well-Being Index (WHO-5), Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder 7-item scale (GAD-7). Specific measurements were also adopted according to different conditions, including the Three-Factor Eating Questionnaire (TFEQ) for health diet, Dysfunctional Beliefs and Attitude about Sleep Questionnaire (DBAS) for sleep, and Chronic Pain Acceptance Questionnaire for pain at pre-, post- and 3-month follow-up.

Results: Based on analysis of variance, participants in mindfulness group showed a significant improvement compared with those in waitlist control group at the post-intervention in all three conditions. For healthy diet, time by group interaction effect was found in the TFEQ [F(6,109)=2.383, p=.033] and MAAS [F(2,113)]=4.070, p=.020]. For insomnia, time by group interaction effect was found in DBAS [F(2,203)=13.131, p<.001], MAAS [F(2,201)=11.897, p<.001], PHQ-9 [F(2,198)=5.101, p=.007], GAD-7 [F(2,177)=4.769, p=.010] and WHO-5 [F(2,193)=6.621, p=.002]. For pain, time by group interaction effect was found in CPAQ [F(2,81)=3.759, p=.027], PHQ-9 [F(2,72)=4.685, p=.012] and GAD-7 [F(2,66)=3.559, p=.034]. These changes were maintained at 3-month follow-up.

Discussion: Results supported the effectiveness of delivering WhatsApp-based low intensity mindfulness to enhance daily functioning for the general population.
TourHeart—Online mindfulness-based training as prevention of anxiety and depression: A randomized controlled trial

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Background: Globally, depression and anxiety disorders are among the most common mental disorders; they are also highly preventable and treatable. A common mechanism underlying depression and anxiety is repetitive thinking, which may be reduced through mindfulness-based training. To increase access of evidence-based mindfulness-based training to the public, the present study investigated the effects of online mindfulness-based training as selective prevention for individuals with heightened rumination and worry tendencies, compared with online psychoeducation in a randomized controlled study. We also examine whether tolerance for ambiguity is a moderator for mindfulness-based training.

Methods: Individuals with at least a 66% percentile score on rumination and worry and without any diagnosable disorder were eligible for the study. The study was advertised on Facebook and other social media. Eligible individuals were randomly assigned to either the 6-session mindfulness-based training or psychoeducation program. Assessments were administered at baseline, end of the program, and 3-month follow-up. Level of depression, anxiety, worry, rumination, peace of mind, mindfulness, and tolerance for ambiguity were measured at all assessments.

Results: Using linear mixed model, both online mindfulness-based training and psychoeducation programs showed significantly higher level of peace of mind and lower levels of worry, rumination, anxiety, and depression from pre-intervention to post-intervention, and the improvement was sustained at follow-up. Enhanced level of mindfulness was sustained at 3-month follow-up only in mindfulness-based training. It was found that when participants’ tolerance for ambiguity was high, their peace of mind would significantly improve over time in the mindfulness condition but no improvement was found if they were in the psychoeducation condition.

Discussion: Results indicated that both mindfulness-based training and psychoeducation programs are efficacious in reducing depression and anxiety symptoms, and online mindfulness can also increase on mindfulness. Individuals who are able to tolerate ambiguity are particularly responsive to mindfulness-based training. The study demonstrated Internet-based training as viable option to alleviate anxiety and depression, and tolerance of ambiguity may be a possible moderator. Future study should further examine on psychological characteristics that predispose individuals to respond to mindfulness-based training.
Effects of a Mindfulness-Meditation App on Subjective Well-Being: An Active Control, Experience Sampling Study

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Background and Objectives: Mindfulness training (MT) includes a variety of contemplative practices aimed at promoting intentional awareness of experience, coupled with attitudes of non-judgment and curiosity. Following the success of 8-week, manualized, group interventions, MT has been implemented in a variety of modalities, including smartphone applications that seek to replicate the success of group interventions. However, while smartphone apps are scalable and accessible to a wider swath of population, their benefits remain largely untested. The present study investigated a newly developed MT application called Wildflowers, which was co-developed with the lab for use in mindfulness research. It was hypothesized that MT through this application would improve subjective well-being and behavioural attention, albeit with weaker effects than those published in the group intervention literature.

Methods: Undergraduate students completed 3-weeks of MT (n=45), or 3-weeks of mathematical problem-solving training with a game called 2048 (n=41). State training effects were assessed through ratings of current mood, stress level, and heart rate that were recorded within the app before and after each training session. Trait training effects were assessed through self-report questionnaires of well-being, and a behavioural measure of attention before and after the 3-weeks of training. State and trait training data were analyzed in a multilevel model, using latent factors (acceptance, awareness, openness) to summarize the trait questionnaire battery.

Results: Analyses revealed both state and trait effects specific to MT; participants engaging in MT demonstrated improved mood (r=0.16) and a reduction of stress (r=-0.16) immediately after each training session compared to before the training session. Additionally, MT relative to math training resulted in greater increases in acceptance (r=0.21) and greater improvements in attentional control (r=-0.24). Interestingly, both groups demonstrated increased subjective ratings of awareness (r=0.28) from pre- to post-intervention. Lastly, training effects were not observed for heart rate or subjective ratings of openness.

Discussion and Conclusion: The results suggest that MT using a smartphone application may provide immediate effects on mood and stress while also providing long-term benefits for attentional control and changes in how one relates to their inner and outer experiences.
The contribution of mindfulness-based relaxation exercises to Internet-delivered CBT for insomnia in adolescents: Results from a randomized controlled trial

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Background and objectives: Guided Internet cognitive behavioral therapy for insomnia (CBTI) offers an effective treatment for adolescent insomnia, but little is known about the contribution of mindfulness-based relaxation to treatment outcomes. The aim of this study was to explore the feasibility and effects of a mindfulness-based relaxation exercise (MBRE) in CBTI for adolescents.

Methods: Internet CBTI including a mindfulness-based relaxation component was applied for 38 adolescents (age M = 15.25yr, SD = 1.32, 81.6% girls) and sleep outcomes were compared to 39 adolescents who were placed on a waitlist (age M = 15.89yr, SD = 1.62, 71.8% girls). Each week during the 6-weeks treatment period participants from the Internet CBTI condition registered on a 3-point Likert scale how often they had used the MBRE the previous week. Sleep efficiency, sleep onset latency and total sleep time from 7-days sleep logs and actigraphy, and symptoms of insomnia and chronic sleep reduction, were measured at baseline and post treatment. Furthermore, a subsample of 13 participants rated the usefulness of the MBRE on a 5-point Likert-scale.

Results: All sleep parameters had improved significantly with medium to large effect sizes after treatment compared to the waitlist, except total sleep time from actigraphy. Preliminary analysis of the relation between outcomes and MBRE showed that the use of the MBRE was significantly correlated to decreased sleep onset latency (r = -.37, p < .05), increased sleep efficiency (r = .34, p < .05) and increased total sleep time (r = .33, p < .05) from sleep logs. None of the other outcomes showed significant correlations with MBRE, although all were in the expected direction. The majority of the participants rated the MBRE as ‘useful’.

Discussion and conclusion: This first longitudinal study into effects of a mindfulness component in adolescent Internet CBTI indicated that MBRE is positively related to subjective sleep outcomes, but not to objective measurements. These results underscore the importance of adequate relaxation techniques for CBTI in adolescents, and the feasibility and preliminary effectiveness of mindfulness-based relaxation for adolescents with insomnia. Further research to identify mechanisms of change in adolescent CBTI is warranted.
Short-Term Effects of Meditation: Changes in Mood and Well-Being After A 30-Minute Intervention

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Background and objectives: Many previous studies have focused on the effects of long-term meditation (using a correlational or experimental approach), working with “self-selecting” people who have an interest in mindfulness. In the current study, we were interested in immediate effects of meditation in people who may or may not be interested in mindfulness. The use of a short-term intervention has the advantage of allowing more conditions to be tested, to help determine the most effective manipulations for promoting well-being. To this end, we asked 1) whether there are immediate benefits to meditating, 2) whether the effects differ between a leader- vs. audio-guided meditation, and 3) whether expectations alters the benefit of meditation.

Methods: Participants were 154 college students who were randomly assigned to one of six conditions (in groups of ~10), in a 3 x 2 fully crossed design: (1) Intervention Type: (a) Meditation: 30-minutes or (b) Control: 30-minute nature movie, (2) Guide Type: (a) Leader or (b) Audio, and (3) Expectation: (a) participants were told that the activity they were participating was expected to improve their well-being, or (b) told nothing. Before and after the intervention, participants filled out 9 questionnaires on mood and well-being.

Results: The results showed that meditation improved positive mood (p = 0.037). However, across questionnaires, there was no significant difference between the effects of leader- vs. audio-guided meditation (p = .15). By contrast, we found some surprising effects of expectation, with results differing depending on the questionnaire. For example, expectation amplified improvements in psychological well-being (p = 0.005), yet dampened improvements in mindfulness (p = 0.01) and compassion (p = 0.025).

Discussion and conclusion: Short-term meditation can have immediate benefits on well-being and mood, and listening to an audio-taped meditation may be as beneficial as being in the presence of a leader. Expectation seems to have a detrimental effect, which we discuss in the context of a “contrast” effect, i.e., participants did not feel as good as they thought they should and therefore reported relatively lower mental well-being. These findings have implications for the most effective way to deliver meditation in the community.