Mindfulness-integrated CBT for trauma:
Using the Mindfulness-based Interoceptive Exposure Task

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Topics Covered

1. The neurophenomenology of reinforcement

2. The case conceptualisation of avoidant behaviour based on the co-emergence model of reinforcement

3. The principles of mindfulness-based exposure in Mindfulness-integrated CBT (MiCBT)

4. How the mindfulness-based interoceptive exposure task (MIET) is a transdiagnostic distress reduction approach

5. How the MIET decreases avoidance
The 4-stage model of Mindfulness-integrated Cognitive Behaviour Therapy (adapted from Cayoun, 2011)

**Mindfulness-integrated CBT**

- **Stage 1:** Personal stage
- **Stage 2:** Exposure stage
- **Stage 3:** Interpersonal stage
- **Stage 4:** Empathic stage

**Internalising skills**

**Externalising skills**

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**Evidence of benefits of MiCBT**

- Chronic pain & emotional distress (Pilot: Immediate and lasting relief)
- Induced pain (RCT: Exposure component of MiCBT better than distraction/control)
  - Shires (2017)
- Depression in diabetics (RCT: MiCBT Better than TAU)
- Depression and anxiety in pregnant women (RCT: MiCBT Better than TAU)
- Professional satisfaction (Qualitative study: Work and professional satisfaction)
  - Darby, M. & Beavan, V. (2016)
- Child anxiety (Multiple case study: Reduction in child and maternal anxiety)
  - Winney, L. (2016)
- Avoidance and procrastination in university students (RCT: MiCBT Better than REBT)
- Drug and alcohol addiction rehabilitation (RCT: MiCBT better than TAU)
  - Wickham, K. (2013)
- Caring ability (Pilot study: Improved caring for disabled person)
  - Glass, T. (2014)
- Group vs Individual implementation (RCT: group and individual clients improved equally)
  - Rouhos, L. (2011)
- Type-2 Diabetes (RCT: Decreased blood sugar levels and insulin)
  - Lindsay, M. (2007)
Mindfulness

• More than just paying attention
  - Unbiased by aversion, cravings or by our sense of self

• A means to an end: A tool of investigation of a more objective reality
  1. Sustained attention
  2. Non-identification
  3. Equanimity (non-reactivity)

Accounting for Change with Mindfulness: The Co-Emergence Model of reinforcement

- Craving and aversion towards body sensations act as reinforcers
- The 4 components function in equilibrium when mental health is optimum, and disequilibrium when normal functioning is challenged.
System in Disequilibrium

- Attention is polarised to the most useful functions to reduce effort and time for rapid decisions
  - “Experiential avoidance” is also enabled by this pattern (Hayes, 2003)
- The system can be set off balance by stressors and can be taught to maintain disequilibrium as a new stable state in the system
  - Learned response patterns do not require conscious evaluation (“automatic”)

Default Mode Network: Resting Brain

Two principal sites: mPFC and PCC

Increased interest in research
• Self-referential processing
  o Autobiographical tasks (events of our past and expected future)
  o Day dreaming, ruminating, judging ourselves and our emotions

• Social processing
  o Social working memory, including guessing people’s thoughts, emotions and motivation (Theory of mind, engaging mirror neurons)

• Evidence of disruptions in Alzheimer, AutSP, BPD, pain

• Schemas
• Ruminative thinking
• Anterior Insula activation during self-reflection (Modinos et al., 2009)
• Predisposition for emotional reactivity
System in Disequilibrium

The insular cortex acts as a go-between to convey messages from the mPFC to the limbic areas, especially amygdala (Mansour et al., 2016)

Rationale for Mindfulness-integrated CBT

- Learned disequilibrium promotes memory reconsolidation that can lead to psychopathology
  - The more stable and established is the disequilibrium, the more chronic the condition (inability to extinguish reactive memory)
  - The generalisation of avoidance (e.g., Chronic PTSD, Avoidant PD, Agoraphobia, etc.) is made possible by the chronification of interoceptive avoidance through its corresponding brain reorganisation
  - Implications for the development and maintenance of personality
Over-activity predicts chronification in depression
Poor disengagement from the self in depression (Nixon et al., 2014)

Changes in Default Mode Network

- Over-identification predicts chronification in trauma

Longitudinal study of Adjustment Disorder after trauma (O’Donnell et al., 2016, A.J.Psychiatry)
1. The prevalence of adjustment disorder was 19% at 3 months and 16% at 12 months.
2. Participants with adjustment disorder at 3 months post-injury were significantly more likely to meet criteria for a psychiatric disorder at 12 months.
Changes in Default Mode Network

- Over-identification impairs interpersonal emotional recognition in BPD

![Graph showing changes in Default Mode Network](image)

Mean % of incorrectly recognised neutral minus incorrectly recognized positive facial expressions in healthy controls and BPD (Fenske et al., Borderline Personality Disorder and Emotion Dysregulation, 2015).

Role the Self in Maintaining Trauma

Client with Complex Trauma / Borderline PD
Creating Equilibrium

- Attention is reallocated from Evaluation and Reaction to Sensory Perception and Interoception to promote balance and stability

- System in equilibrium 'resists' psychopathology
- Daily training in mindfulness leads to neuroplasticity in corresponding networks, which facilitates the transfer of skills in daily life

Example with Chronic Depression

DATE OF EVENT: 16/03/2017
TIME OF EVENT: Late morning
INTENSITY OF DISTRESS THEN: %
INTENSITY OF DISTRESS NOW: %
NAME: “Peter Lord”
IN THERAPY SINCE (Date): 02/03/2017
Note the Disequilibrium State

**SITUATION**
INTERNAL / EXTERNAL

My son James shared with me that he was gay and rejected his Christian faith. He is blaming us for his up-bringing

**SENSORY PERCEPTION**

1. This was reality at the time
2. It's a tangible experience...I was there

**EVALUATION**

1. He rejects me and my beliefs, and all the sacrifices I made.
2. My life is wasted
3. Life would be meaningless
4. It's not worth living

**DATE OF EVENT:** ___________________________
**TIME OF EVENT:** ___________________________
**INTENSITY OF DISTRESS:**
Then ___________%
Now ___________%
**NAME:** ____________________________________
**IN THERAPY SINCE (Date):** _____________________

**REACTION / RESPONSE**

1. Talking and praying
2. Focusing on my wife

**BODY SENSATION**

1. Devastated!
2. Heaviness in the chest

The MIET Inhibits Evaluation and Reaction (Awareness + Equanimity)

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The MIET Reallocates Attention to Sensory Systems Through Interoceptive Exposure

Reallocation of Attention Re-establishes Equilibrium

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Mindfulness-induced Neuroplasticity
Decreased DMN activation during mindfulness meditation

(A and B) Activations in the left mPFC and PCC. (C and D) Average percent signal change (± SD) during individual meditation conditions in the mPFC and PCC, respectively: Choiceless Awareness (green bars), Loving-Kindness (red), and Concentration (blue) meditations. Brewer et al. (2011) Nature Neuroscience

Interoceptive Correlates of Distress and the Role of Body-Scanning

• Feeling body sensations during body-scanning techniques facilitates access to schemas
  - Established assumptions (“implicational codes” or “schematic models”) emerge and are reprocessed with acceptance

• Experienced as pleasant, unpleasant, or neutral
  - Neutral sensations often turn unpleasant (boredom)

• 4 basic characteristics (measurable on 4 dimensions):
  - Motion
    - Stillest — most agitated
  - Mass
    - Lightest — heaviest
  - Temperature
    - Coldest — hottest
  - Fluidity
    - Loosest — densest
The Mindfulness-based Interoceptive Exposure Task (MIET)

1. Locate the most intense body sensation
2. Prevent identifying with the experience ("Decentre") through decomposing into its 4 basic characteristics (mass, motion, temperature and fluidity/cohesiveness)
3. Accept these fundamental characteristics unconditionally
4. Observe their impermanence and impersonality ("egolessness")
   - Repetition prevents reconsolidation of distressing memories and extinguishes their reinforcement

Interoceptive Signature Scale
Anger regulation
Interoceptive Signature Scale
Sadness regulation

Interoceptive Signature Scale
Anxiety regulation
Interoceptive Signature Scale
Craving/binging regulation

Date: Time: Brief event description:

Mass: Lightest
Neutral
Heaviest

Temperature: Coldest
Neutral
Hottest

Motion: Stillest
Neutral
Most movement

Fluidity: Lowest
Neutral
Densest/highest

Intensity before:
Least
Most

Intensity after:
Least
Most

Implementing the MIET with PTSD
Chronic PTSD, chronic pain, chronic depression and Methadone dependence
Important Mechanisms

- Difference between attention, awareness and mindfulness
- Relaxation vs equanimity
- Trauma, phobias and other anxiety disorders rely on memory reconsolidation
- Chronification of disorders is enabled and maintained by co-emergence dynamics
  - Subconsciously, current cues are continually trigger memory of sensations, leading to “living in the past and to automatic (learned) reactions. Mindfulness practice in daily life helps correct this habit.

Group work

Form pairs and implement the Mindfulness-based Interoceptive Exposure Task (MIET)
Evoke a Simple Fear or Pain (not traumatic)

DIARY OF REACTIVE HABITS

SITUATION
INTERNAL / EXTERNAL
What actually happened?

SENSORY PERCEPTION
How did (do) you know this was happening?

EVALUATION
What did it mean to you?
What did it mean to you?
What did it mean to you?
What did it mean to you?

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REACTION / RESPONSE
What did you do to make yourself feel better?

BODY SENSATION
How did it make you feel to think this way?

MIET Implementation Guide

1. Locate the most intense body sensation
2. Record the pre-exposure percentage of distress
3. Sustain unbiased attention twice 30secs and prevent identifying with the experience ("Decentre") through decomposing into its 4 basic characteristics (mass, motion, temperature and fluidity/cohesiveness)
4. Accept these fundamental characteristics and their current intensity unconditionally
5. Observe their impermanence and impersonality/egolessness
6. Record post-exposure percentage of distress
**Group work: Case Conceptualisation of Avoidant Behaviour**

In groups of 4 or 5, case-conceptualise the behaviour of one of your clients based on the co-emergence model of Reinforcement.

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### Use this Approach for a Client with Trauma

**STIMULUS**

Internal/External

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**CO-EMERGING INTEROCEPTION**

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Stage 2 of MiCBT: Learning Exposure Skills

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5 minutes visualisation
1 minute rest
5 minutes visualisation

Worst case scenario
Mindfulness of Breath
Best case scenario

Apply equanimity throughout the exercise

Stage 2 of MiCBT: Exposure Skills (Cont)

- Bi-polar Exposure
- In-vivo Exposure
E.g.: Obsessive Compulsive Disorder

Bipolar + in-vivo Exposure with PTSD
Chronic PTSD, chronic pain, Chronic depression and Methadone Dependence
Training and Resources

• Recommended books:
  

  New book soon available:

• Information on MiCBT training can be found at: www.mindfulness.net.au