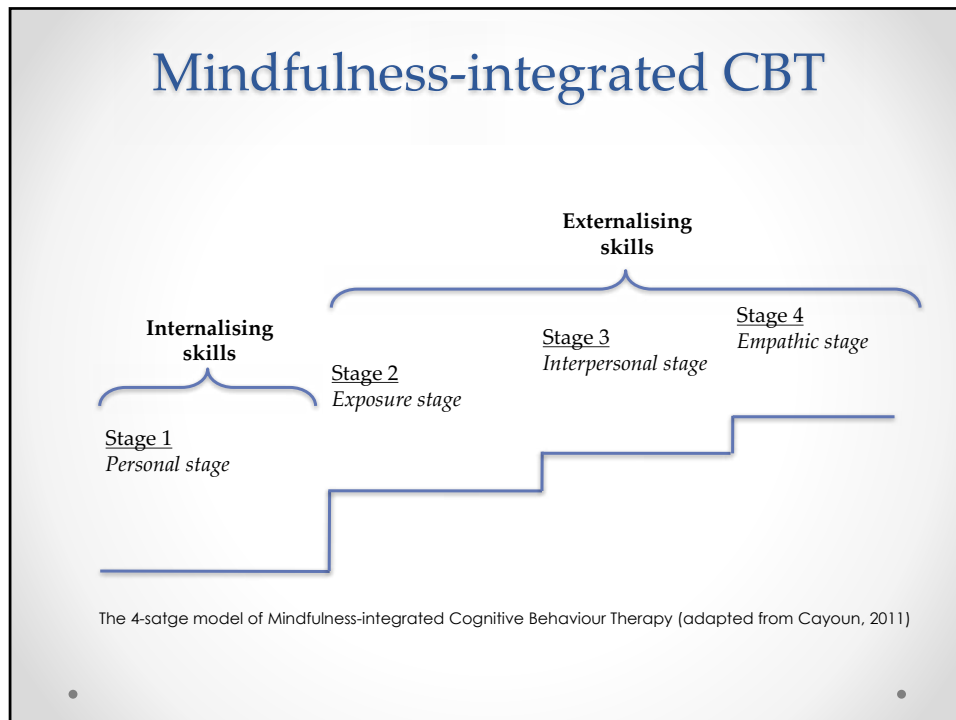




Topics Covered

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



Evidence of benefits of MiCBT

- Chronic pain & emotional distress (Pilot: Immediate and lasting relief)
 - Cayoun, B., Simmons, A., & Shires, A. (2017)
- Induced pain (RCT: Exposure component of MiCBT better than distraction/control)
 - Shires (2017)
- Depression in diabetics (RCT: MiCBT Better than TAU)
 - Sohrabi, F., Sohrabi, A., Shams-Alizadeh, N., & Cayoun, B. A. (2017)
- Depression and anxiety in pregnant women (RCT: MiCBT Better than TAU)
 - Yazdanimehr, R., Omid, A., Sadat, Z., & Akbari, H. (2016)
- 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)
 - Farzinrad, B., & Kamal, M. (2013)
- 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)
 - Roubos, L. (2011)
- Type-2 Diabetes (RCT: Decreased blood sugar levels and insulin)
 - Lindsay, M. (2007)

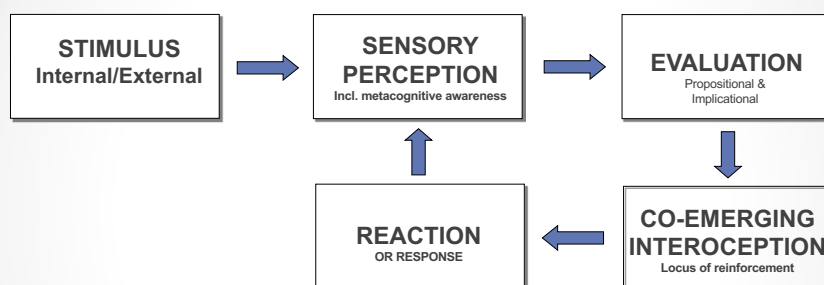
Mindfulness

- 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)

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• 5

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

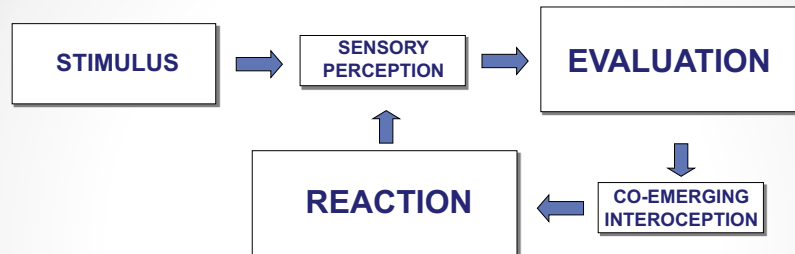


- Craving and aversion towards body sensations act as reinforcers
- The 4 components function in equilibrium when mental health is optimum, and disequilibrium when normal functioning is challenged.

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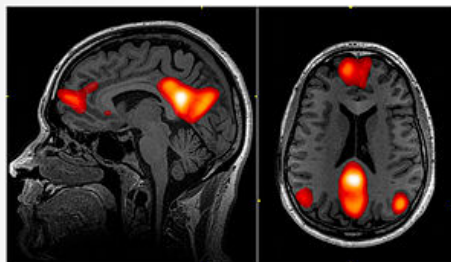
System in Disequilibrium



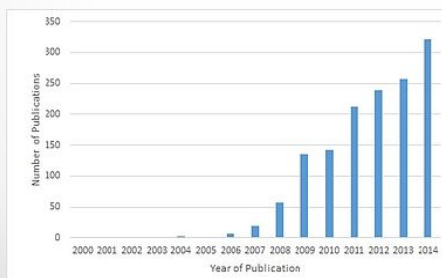
- Attention is polarised to the most useful functions to reduce effort and time for rapid decisions
 - "Experiential avoidance" is also enabled by this pattern (Hayes, 2003)
- The system can be set off balance by stressors and can be taught to maintain disequilibrium as a new stable state in the system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

• 7

Default Mode Network: Resting Brain

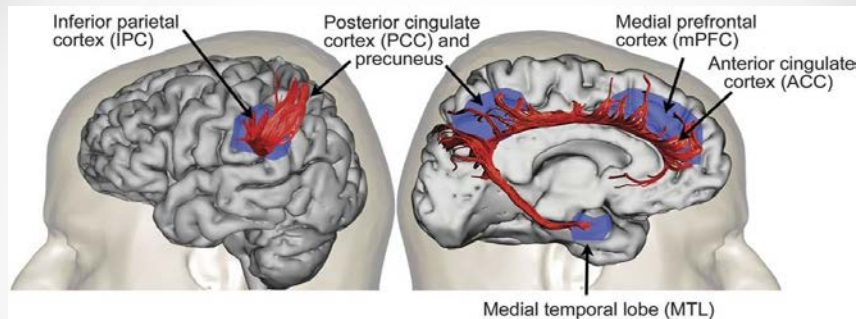


Two principal sites:
mPFC and PCC



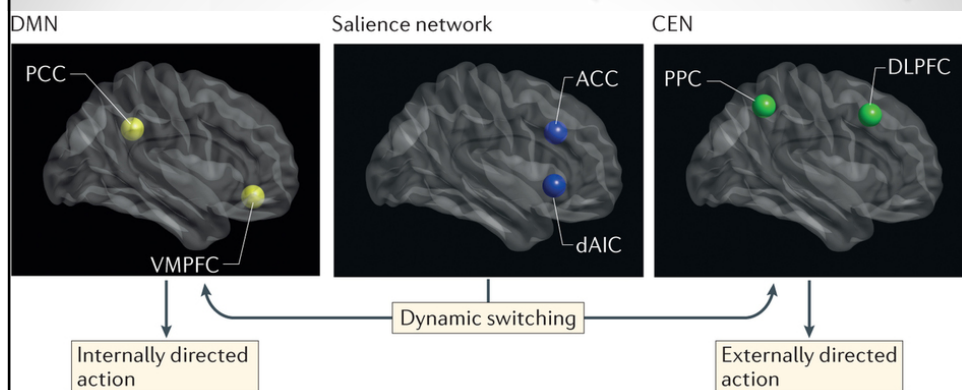
Increased interest
in research

Default Mode Network (“me network”)



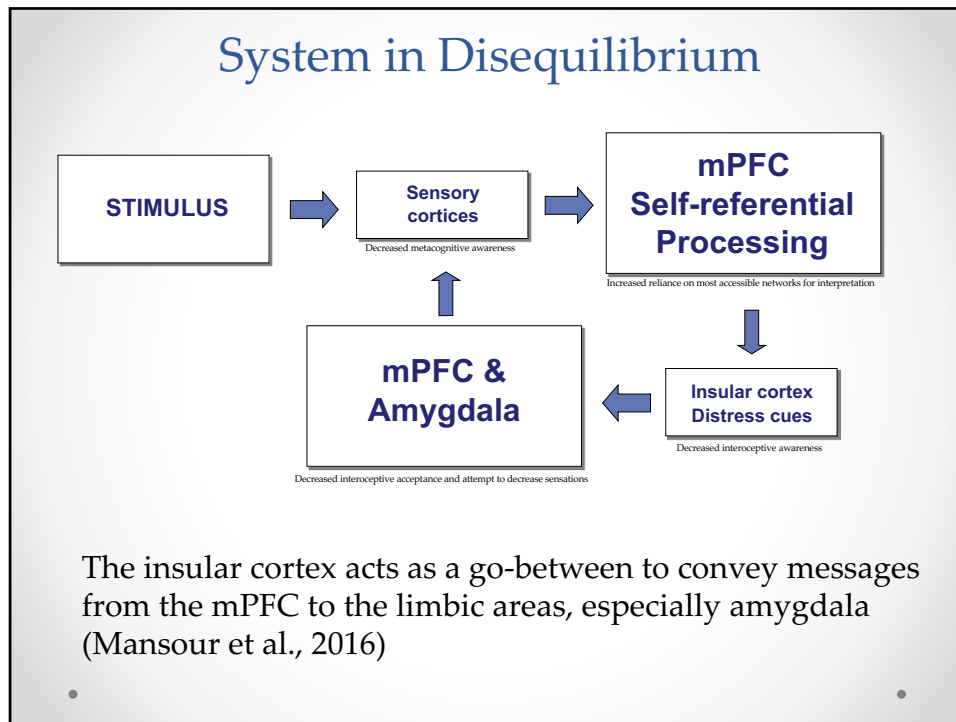
- Self-referential processing
 - Autobiographical tasks (events of our past and expected future)
 - Day dreaming, ruminating, judging ourselves and our emotions
- Social processing
 - Social working memory, including guessing people's thoughts, emotions and motivation (Theory of mind, engaging mirror neurons)
- Evidence of disruptions in Alzheimer, AutSP, BPD, pain

Default Mode Network (“me network”)



Nature Reviews | Neuroscience

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



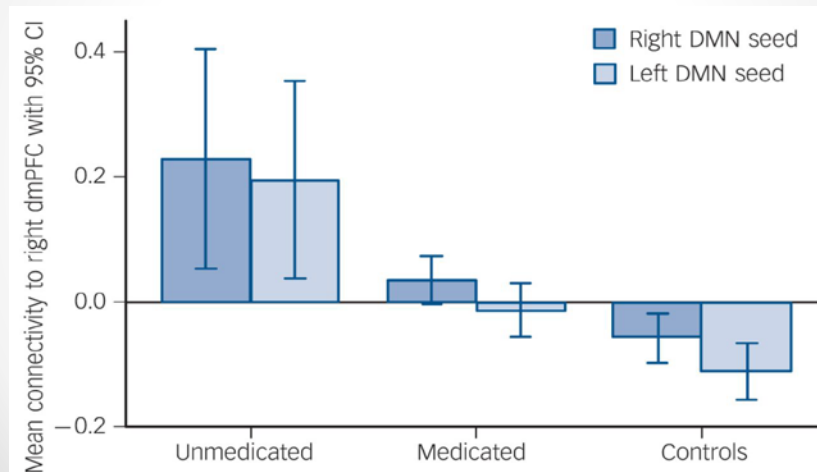
Rationale for Mindfulness-integrated CBT

- 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

Changes in Default Mode Network

Over-activity predicts chronification in depression

Poor disengagement from the self in depression (Nixon et al, 2014)

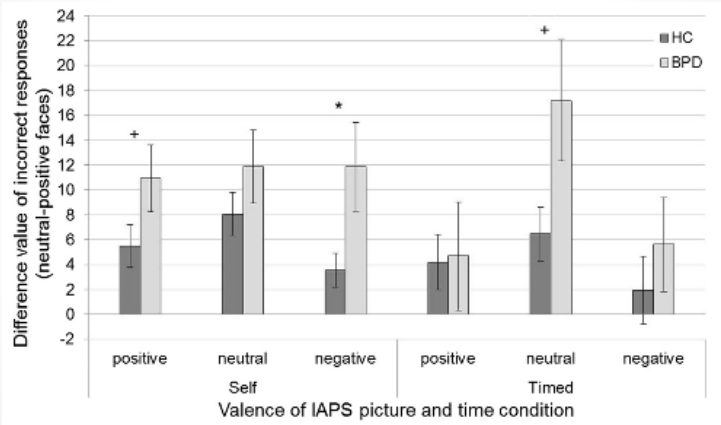


Changes in Default Mode Network

- 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



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

3:45:00

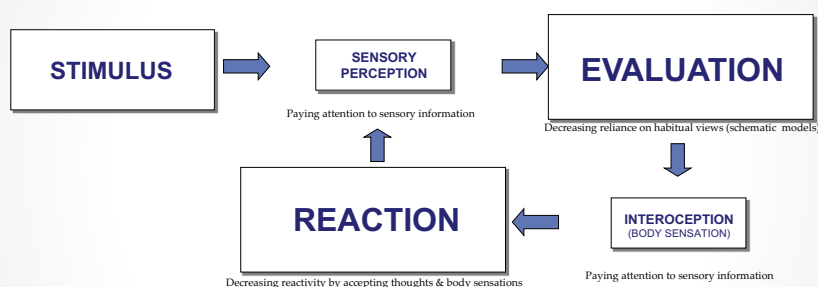
Client with Complex Trauma / Borderline PD



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Creating Equilibrium

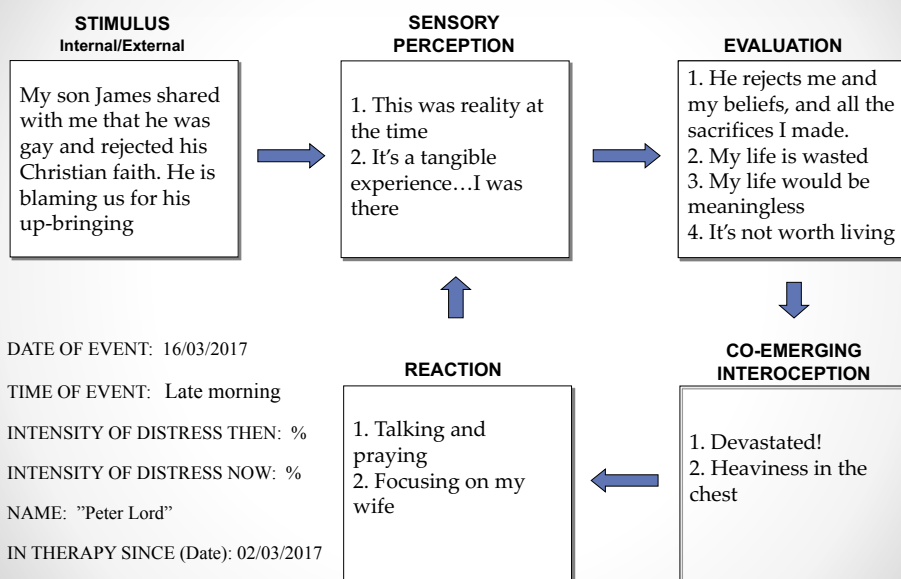
- Attention is reallocated from Evaluation and Reaction to Sensory Perception and Interoception to promote balance and stability



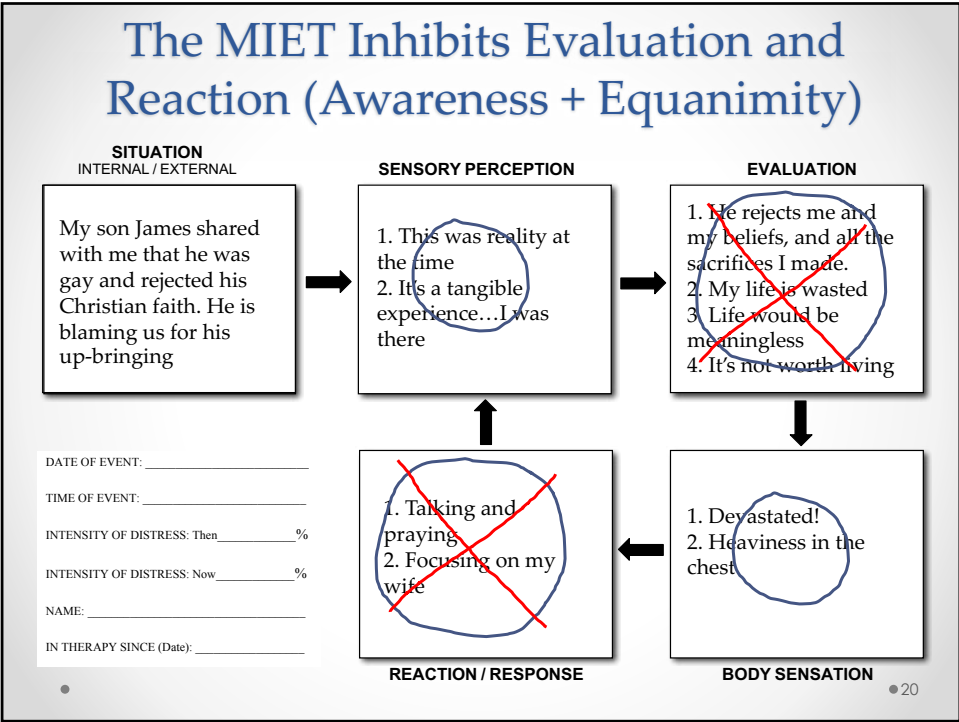
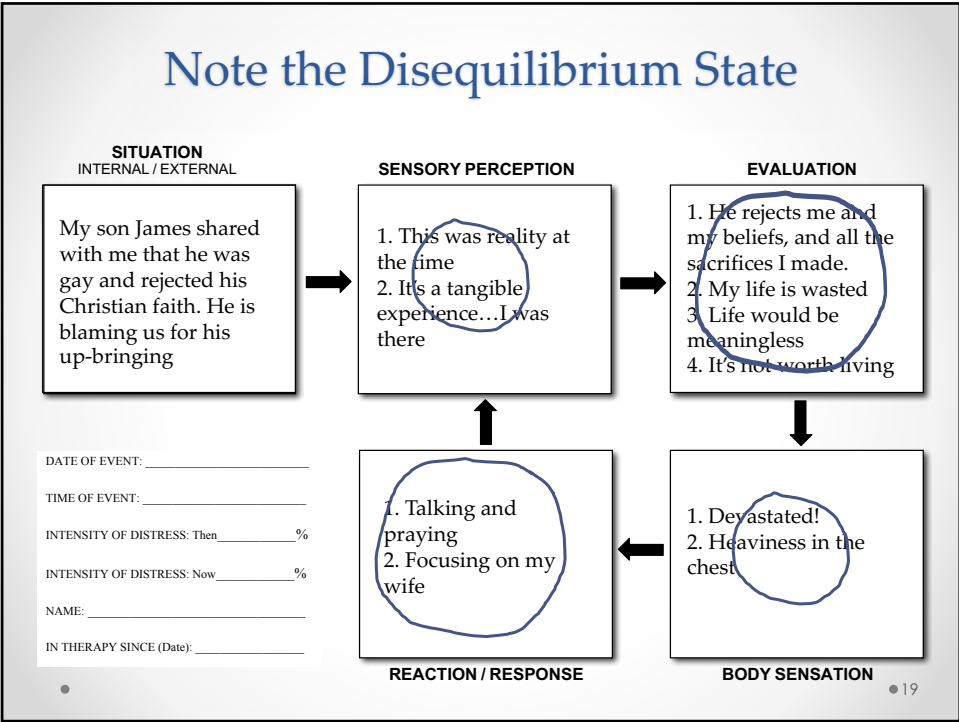
- System in equilibrium 'resists' psychopathology
- Daily training in mindfulness leads to neuroplasticity in corresponding networks, which facilitates the transfer of skills in daily life

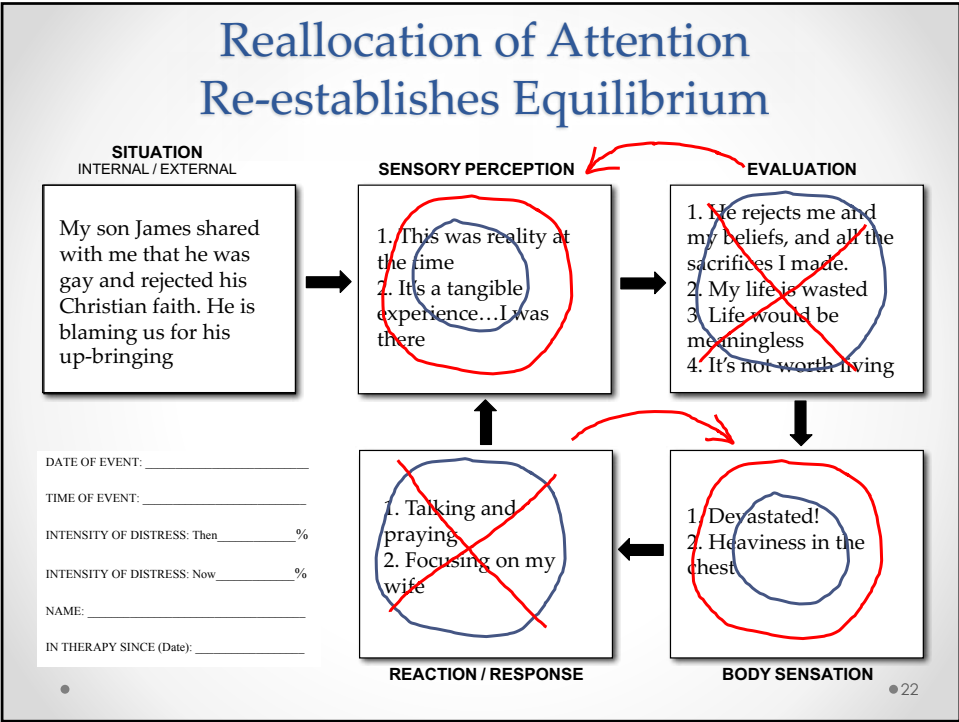
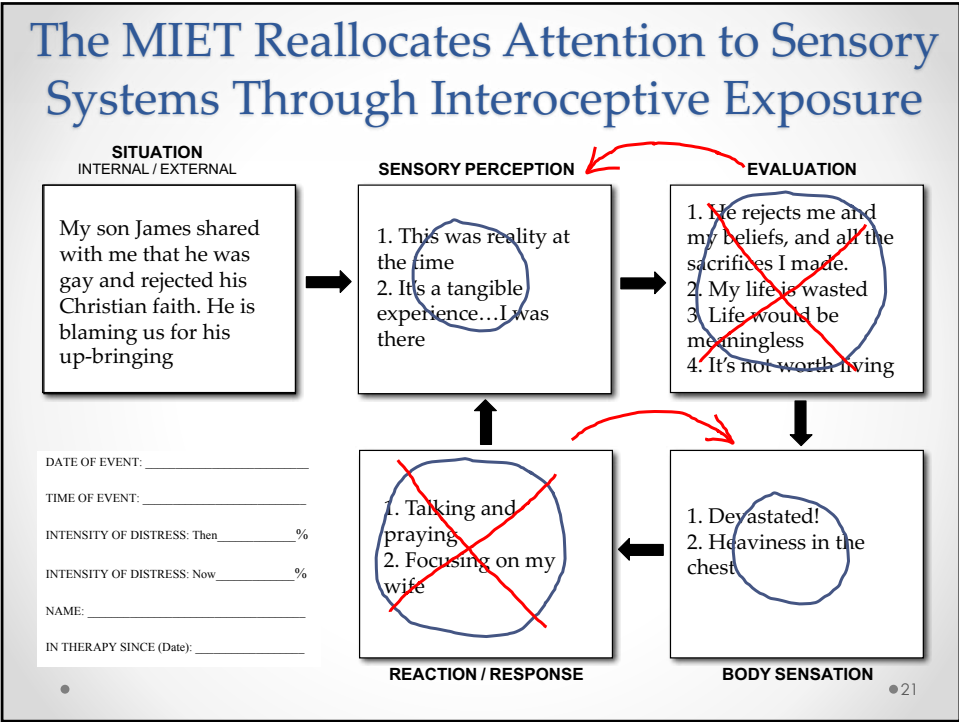
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Example with Chronic Depression



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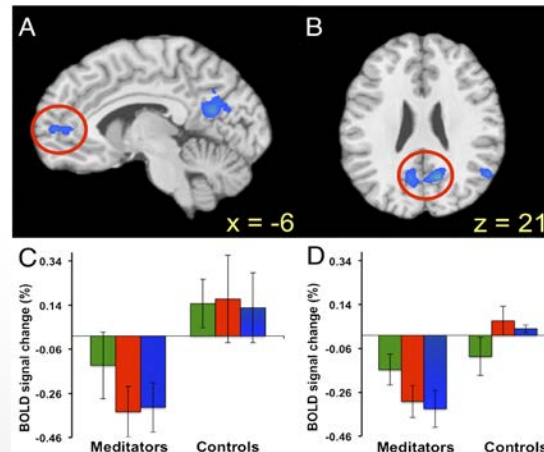




Mindfulness-induced Neuroplasticity

Decreased DMN activation during mindfulness meditation

(A and B) Activations in the left mPFC and PCC. (C and D) Average percent signal change (\pm 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*



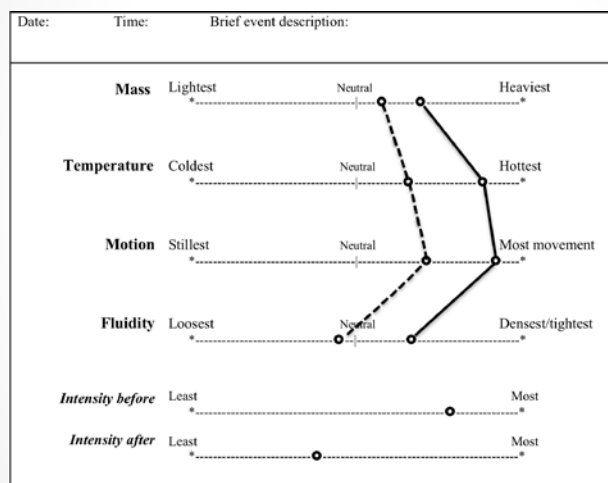
Interoceptive Correlates of Distress and the Role of Body-Scanning

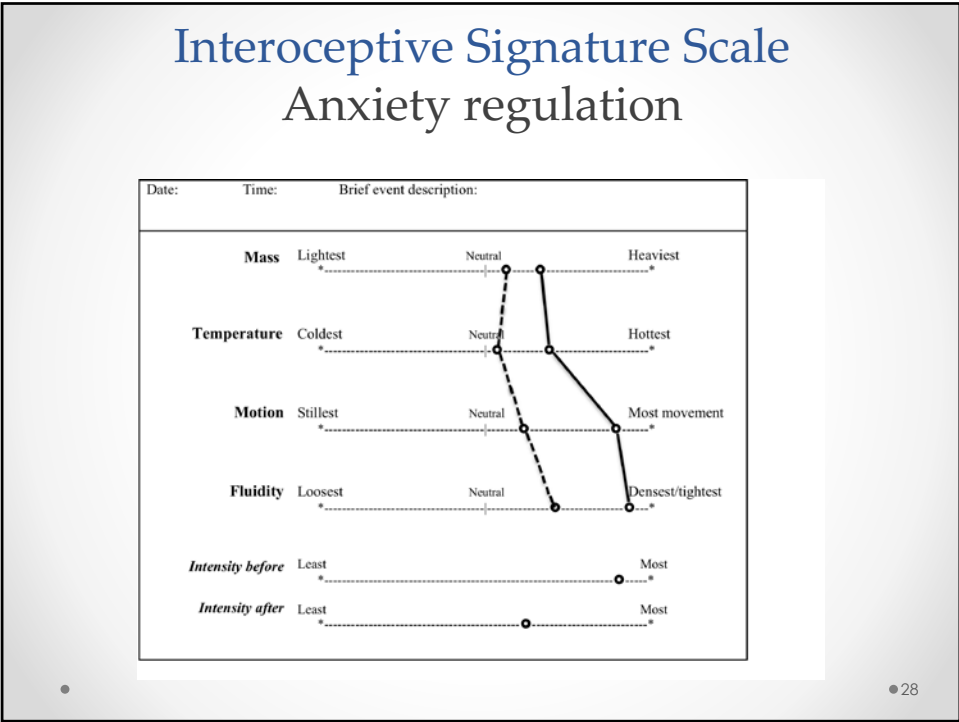
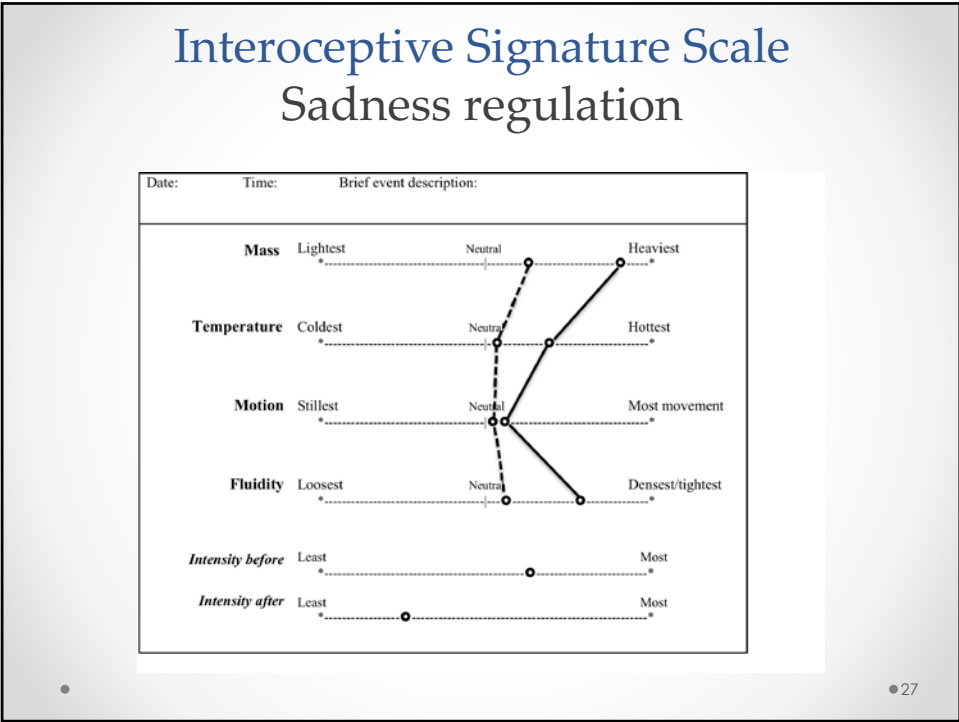
- Feeling body sensations during body-scanning techniques facilitates access to schemas
 - Established assumptions ("implicational codes" or "schematic models") emerge and are reprocessed with acceptance
- Experienced as pleasant, unpleasant, or neutral
 - Neutral sensations often turn unpleasant (boredom)
- 4 basic characteristics (measurable on 4 dimensions):
 - Motion: stillest ————— most agitated
 - Mass: lightest ————— heaviest
 - Temperature: coldest ————— hottest
 - Fluidity: loosest ————— densest

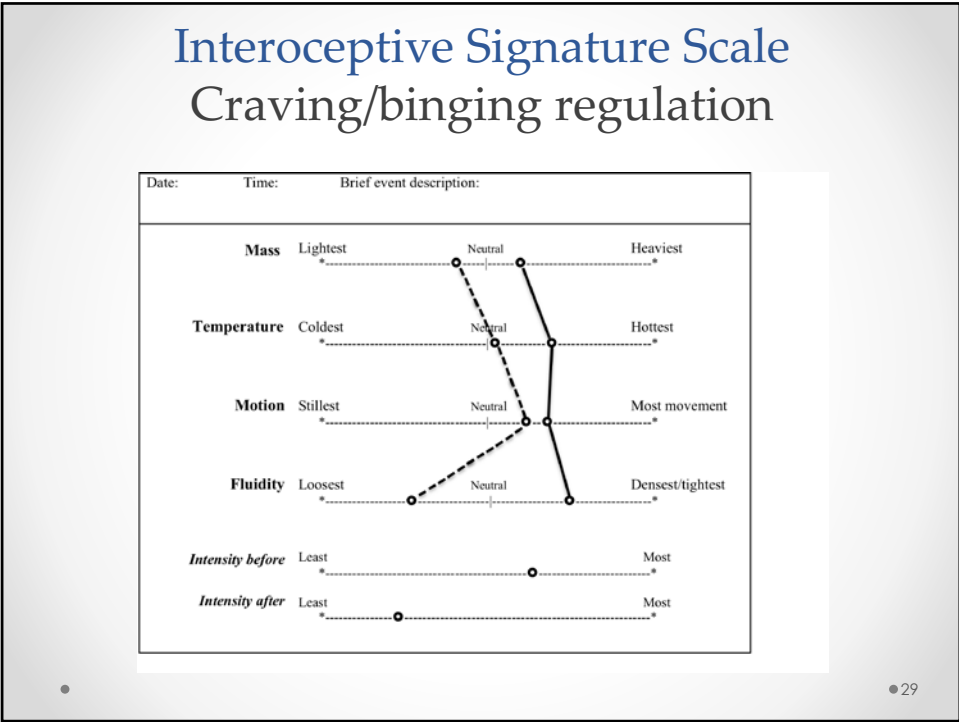
The Mindfulness-based Interoceptive Exposure Task (MIET)

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







Implementing the MIET with PTSD 28:45

Chronic PTSD, chronic pain, chronic depression and Methadone dependence

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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)

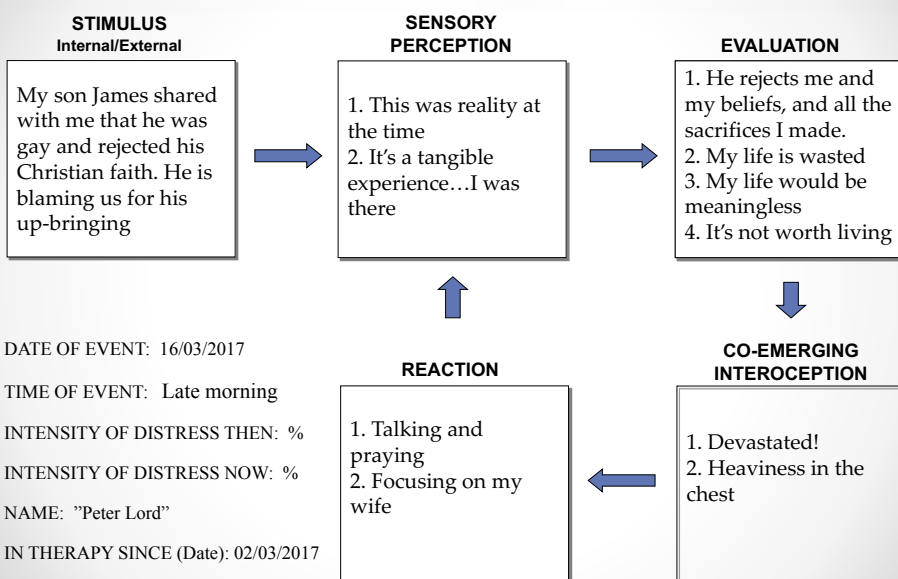


1. Locate the most intense body sensation
2. Record the pre-exposure percentage of distress
3. Sustain unbiased attention twice 30secs and prevent identifying with the experience ("Decentre") through decomposing into its 4 basic characteristics (mass, motion, temperature and fluidity/cohesiveness)
4. 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

Use this Approach for a Client with Trauma



Stage 2 of MiCBT: Learning Exposure Skills

- SUDS

Date1:.....Date2:.....Date3:.....Date4:.....

SITUATION 1 (....% distress1) (....% distress2) (....% distress3) (....% distress4)

Date1:.....Date2:.....Date3:.....Date4:.....

SITUATION 2 (....% distress1) (....% distress2) (....% distress3) (....% distress4)

Date1:.....Date2:.....Date3:.....Date4:.....

SITUATION 3 (....% distress1) (....% distress2) (....% distress3) (....% distress4)

Date1:.....Date2:.....Date3:.....Date4:.....

SITUATION 4 (....% distress1) (....% distress2) (....% distress3) (....% distress4)

Date1:.....Date2:.....Date3:.....Date4:.....

SITUATION 5 (....% distress1) (....% distress2) (....% distress3) (....% distress4)

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Stage 2 of MiCBT: Exposure Skills (Cont)

- Bi-polar Exposure
- In-vivo Exposure

5 minutes
visualisation

1 minute
rest

5 minutes
visualisation

Worst case scenario

Mindfulness
of
Breath

Best case scenario

Apply equanimity
throughout the exercise

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E.g.: Obsessive Compulsive Disorder

	Date1: 30/10/12	Date2: 19/2/13	Date3: 5/3/13	Date4:	
SITUATION 1	(20% distress1)	(5% distress2)	(5% distress3)	(...% distress4)	} BP exposure done
Shaking hands					
	Date1: 30/10/12	Date2: 19/2/13	Date3: 5/3/13	Date4:	
SITUATION 2	(20% distress1)	(10% distress2)	(5% distress3)	(...% distress4)	} BP exposure done
Touching door handles					
	Date1: 30/10/12	Date2: 19/2/13	Date3: 5/3/13	Date4:	
SITUATION 3	(20% distress1)	(20% distress2)	(10% distress3)	(...% distress4)	} NO exposure (either BP or in-vivo)
Using camera, auditorium at work					
	Date1: 30/10/12	Date2: 19/2/13	Date3: 5/3/13	Date4:	
SITUATION 4	(80% distress1)	(30% distress2)	(20% distress3)	(...% distress4)	} NO exposure (either BP or in-vivo)
Mixing in crowds					
	Date1: 30/10/12	Date2: 19/2/13	Date3: 5/3/13	Date4:	
SITUATION 5	(90% distress1)	(70% distress2)	(50% distress3)	(...% distress4)	} NO exposure (either BP or in-vivo)
Installing smoke detector					

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Bipolar + in-vivo Exposure with PTSD8:52

Chronic PTSD, chronic pain, Chronic depression and Methadone Dependence

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Training and Resources

- Recommended books:
 - Cayoun, B. A. (2011). *Mindfulness-integrated CBT: Principles and practice*. Chichester, UK: Wiley.
 - Cayoun, B. A. (2015). *Mindfulness-integrated CBT for well-being and personal growth: Four steps to enhance inner calm, self-confidence and relationships*. Chichester, UK: Wiley.

New book soon available:

- Cayoun, B. A., Francis, S. E., & Shires, A. (2018). *The Clinician's Guide to Mindfulness-integrated CBT: A Step-by-Step Workbook and Resource for Therapists*. Chichester, UK: Wiley.
- Information on MiCBT training can be found at:
www.mindfulness.net.au