**Literature review – symptoms of depression and attentional control**

**Questions:**

1. **What is Depression and what is its main symptoms?**
2. **What findings exist regarding attentional control and depression?**
3. **What are the main tools and questionnaires being used to study depression?**
4. **What symptoms may be most related to attentional dis-control?**
5. **Which clinical group may mostly benefit from AFACT?**

**Answers:**

**Emotion-regulation strategies across psychopathology: A meta-analytic review**

Aldao, Nolen-Hoeksema and Schweizer (2009) reviewed literature that concerned four psychopathologies including depression and anxiety and studied the association between six strategies of emotional regulation (acceptance, reappraisal, avoidance, suppression, rumination and problem solving) and psychopathology. They maintain that problems in emotional regulation (ER) may lead to various kinds of psychopathologies.

Several ER strategies have been suggested as risk or protective factors. Reappraisal and problem solving where theorized to be **adaptive** strategies of ER. Acceptance as well, mainly in the context of mindfulness based therapies.

On the other hand, avoidance and suppression have been thought of as **maladaptive** ER strategies. Regarding suppression of unwanted thoughts*; " Wenzlaff and Wegner (2000) have produced a large body of research showing that attempts to voluntarily suppress thoughts result in an ncreased accessibility of the suppressed thought (Wegner & Erber, 1992; Wegner, chneider, arter, & White, 1987) and increased emotional arousal, especially in the physiological domain, as evidenced by increased electrodermal responses to emotional stimuli (e.g., egner, Broome, & Blumberg, 1997) They have also suggested that chronic suppression might prevent habituation to emotional stimuli, and as such result in hypersensitivity to depression and anxiety-related thoughts and symptoms (Wegner & Zanakos, 1994;Wenzlaff &Wegner, 2000)".*

Experiential avoidance, the attempt to suppress or avoid any psychological phenomenon (e.g. thoughts, emotions, sensation, memories and urges), was theorized to lead to increased negative thoughts (Hayes, Strosahl, & Wilson, 1999). Avoidance was suggested to inhibit the opportunity to extinct learned fears (Mowrer's, 1947).

The last type of maladaptive ER strategy is rumination. Often explained by people who experience it as an attempt to engage in problem solving, rumination is a maladaptive form of thinking on negative emotions, their causes and consequences. Rumination is in fact negatively correlated with problem solving (Aldao, Nolen-Hoeksema & Schweizer, 2009).

***Self-reports measurements of ER strategies + of depression etc. in –table 1 – starts on pdf p.4.***

**TOMER – read the end of this paper a little more (mainly the implication section)**

*"Thus, in general, the maladaptive strategies were more strongly related to psychopathology than the adaptive strategies. This may indicate that presence of a maladaptive emotion-regulation strategy is more deleterious than the relative absence of particularly adaptive emotion-regulation strategies. The exception may be problem solving; not having a strong problem-solving orientation may have wide-ranging negative effects on well-being, and open the door for the development of maladaptive emotion-regulation strategies such as rumination, suppression, and avoidance (Nolen-Hoeksema et al., 2008; Zelazo & Cunningham, 2007).*”­­­

**A comprehensive meta-analysis of interpretation biases in depression**

Interpretation biases are regarded as proximal cognitive causes of depression and not as mood dependent correlates (Everaert, Podina & Koster, 2017).

***TO BE CONTINUED***

**How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help?**

Teasdale, Segal, Williams (1994) suggests the effective preventive interventions of depression, operate through changing the patterns of cognitive processing that is activated in mildly negative affect states.

ICS (interacting cognitive subsystems) is a theory that explain how experience is created from a deepening subsystem of meaning – sensory – specific meanings – implicational meanings. The deeper the level of the cognitive subsystem the harder it is to conceive its function. Teasdale (1993) maintains that the deeper implicit subsystems are those who are in fact most related to emotion. Schematic implicational models are extracted from experience – each individual will have his own models extracted frim experience.

Different patterns of one information code is transformed into another through the process of information processing. Nine separate cognitive subsystems control these conversions – each has its own memory storage. In these transformation the information is repeatedly modified. EMOTION AND ICS – depressed emotional states may result from the synthesis of schematic models encoding themes such as negative self perception.

According to ICS, emotional reactions are a product of lower level patterns of schematic models such as specific meannings – 'other's laughter' and sensory information - 'enhanced hart bit'.

***CONTINUE FROM PAGE.5***

* **Tomer – Read:**
  + ***(Koster et al 2010 – impaired disengagement hypothesis***
  + **Donaldson2*007***
* **Donaldson et al. (2007) – rumination is correlated to attentional bias towards negative words in a dot probe task.**

**Transdiagnostic mechanisms in depression and anxiety: The role of rumination and attentional control**

In the past mostly associated with depression, rumination is currently regarded as a transdiagnostic construct manifested in mood, anxiety and psychotic disorders. Rumination is defined as repetitive thinking about negative information and one's symptoms. **Deficits in attentional control may underlie rumination** ( see De Raedt and Koster, 2010, Koster et al., 2011). The ability to disengage from negative thoughts (good attentional control) allows the activation of adaptive emotional regulation strategies – ending the negative mood cycle and ruminations.

Only few studies investigated the relationship between clinical symptoms and rumination-poor-attentional-control (most studies focused on undergraduate students and not clinical population). ***Here they studied – self reported attentional control***.

Results here clearly show that rumination served as a mediator between attentional control and clinical symptoms of both depression and anxiety. In addition, Rumination was associated with depression and anxiety and in contrast, attentional control was associated only with depression symptoms.

**Attentional biases in patients suffering from unipolar depression: results of a dot probe task investigation**

Cognitive deficits are recognized diagnostic criteria in MDD. Beck's schema theory (***Tomer –see Beck et al., 1987 and 2008)*** maintains hat malfunctioning cognitive processes affects perception, attention, memory and reasoning in affective disorders. Depressed individuals have shown to be biased towards negative valence stimulus. Cognitive biases might even be regarded as risk factors.

This study sought to investigate the idea that at early stage of attentional engagement (bottom-up) depressed individuals will manifest bias towards any emotional stimuli (positive or negative), and that that bias will be associated with disorder severity. In contrast at later engagement (top-down) attention bias in depressed individuals will be towards congruent valence stimuli (negative).

Can be continued but not so relevant…

**Understanding depressive rumination from a cognitive science perspective:**

**The impaired disengagement hypothesis**

According to Back, negative schemas of depression is characterized by negative representation of the past and dysfunctional attitudes towards the self. Such schemas can be activated in stressful life events or in negative mood states, resulting in negative repetitive thinking about the self, the world and the future.

However, research suggest that these life events not necessarily activate these schemas, if so this activation is more likely to occur in individuals with impaired ability to regulate negative affect.

This paper suggest that it is this difficulty to disengage attention from negative experiences that heightens the risk for rumination. Hence, attentional control, the ability to selectively attend to task relevant information, may be closely related to rumination.

**PRIORITY LIST:**

1. Self reported attentional control with the Attentional Control Scale: Factor structure and relationship with symptoms of anxiety and depression
2. Positive affectivity and attentional control moderate the link between negative affectivity and depressed mood
3. Stress Reactivity as a Pathway from Attentional Control Deficits in Everyday Life to Depressive Symptoms in Adolescent Girls
4. A comprehensive meta-analysis of interpretation biases in depression
5. The influence of cognitive control training on stress reactivity and rumination in response to a lab stressor and naturalistic stress
6. The interrelationship between attentional and executive deficits in major depressive disorder
7. Turning Towards or Turning Away: A Comparison of Mindfulness Meditation and Guided Imagery Relaxation in Patients with Acute Depression
8. Attentional Biases in Currently Depressed Children: An Eye-Tracking Study of Biases in Sustained Attention to Emotional Stimuli
9. A Comparison of Cognitive Bias Modification for Interpretation and Computerized Cognitive Behavior Therapy: Effects on Anxiety, Depression, Attentional Control, and Interpretive Bias
10. Attention deficit in depressed suicide attempters
11. Disentangling introspective and exteroceptive attentional control from emotional appraisal in depression using fMRI: A preliminary study

Relevant questionnaires:

* **BDI** – Depression
* **RRS (**Aldao, Nolen-Hoeksema and Schweizer ,2009)
* **Response Style Questionnaire** – Rumination (Nolen-Hoeksema & Morrow, 1991) (saw first at - Donaldson et al., 2007)
* **Ruminative Response Scale** – Rumination (Treynor et al., 2003) (saw first at Hsu, Beard, Rifkin, Dillon, Pizzagalli, Bjorgvinsson, 2015)
* **BAI** – Anxiety (Beck, Epstein et al., 1988; Beck, Steer et al., 1988) (saw first at - Donaldson et al., 2007)
* **The 7-item Generalized Anxiety Disorder Scale -** GAD (GAD-7; Spitzer et al., 2006) (saw first at Hsu et al., 2015)
* **CESD** – Depression – Center for the Epidemiological Studies of Depression-10 (CESD-10; Andresen et al., 1994) (saw first at Hsu et al., 2015)
* **Mini International Neuropsychiatric Interview** - (MINI; Sheehan et al., 1998) (saw first at Hsu et al., 2015)

**Rumination questionnaire: From Donaldson et al. (2007) -** *"The Response Style Questionnaire (****RSQ****; Nolen-Hoeksema & Morrow, 1991): This was used to measure trait rumination and distraction. The questionnaire has two scales: the Ruminative Responses Scale (RRS: 22 items) and Distracting Responses Scale (DRS: 13 items). Both subscales demonstrate acceptable test–retest reliability (Just & Alloy, 1997), construct validity (Kuehner & Weber, 1999) and convergent validity (NolenHoeksema, Morrow, & Fredrickson, 1993). The RSQ was used with the depressed group only as these response styles are thought to be a reaction to depressive symptoms and therefore would be either minimal or absent in euthymic, never-depressed control subjects (Nolen-Hoeksema, 2000)."*

Training working memory to improve attentional control in anxiety: A proof-of-principle study using behavioral and electrophysiological measure

**Related finding found in this paper**

\*\* Siegel 2014 – cognitive control training - reduces ruminations in clinically depressed individuals

\*\* Bomyea and Amir (2011) demonstrated that cognitive control training led to decreased intrusive thoughts,

\*\* Cohen, Mor and Henik (2015) showed training related gains on state rumination using a cognitive control training task that emphasized distractor inhibition

\*\* Owens et al. (2013) showed that dual n back leads to improvement of WM capacity, efficient filtering of irrelevant info

**My questions are**

* What is WM training?
  + Three weeks of daily training
  + Based on the **Adaptive Dual n-Back Task**
    - Two streams of info need to be processed simultaneously – visual + auditory
    - Participants need to respond if there was a match between current and (n) back trials
* On what did it affect?
  + **ATTENTIONAL CONTROL** – all of the below are its measures:
    - Pre\post Flanker task – measuring distractor interference + stress induction (half of the blocks loud white noise bursts)
      * Two arrows – distracter and target – task is to ignore to distracter and indicate the direction of the target arrow (originally by Eriksen & Eriksen, 1974 and here is a version by Berggren and Derakshan, 2013 a,b)
    - Emotional Antisaccade task + stress induction (angry + neutral faces as target) – attentional control and inhibition in relation to emotional material
      * (Originally by Hallet, 1978 and here based on Derakshan, Ansari, Hansard, Shoker, and Eysenck 2009, Exp 2) – suited for anxiety and depression.
      * Participants needs to saccade at abruptly peripheral fleshed target on the screen as quick as possible -saccade toward a prosaccade or away from anti-saccade
      * Here they expected trained anxious individuals to show gains in anti-saccade latencies – meaning faster anti-saccade latencies especially **in to-be-inhibited angry targets.**
    - Resting state EEG (theta\beta) – as neural marker of trait attentional control
  + Reduction in Trait anxiety
    - Pre\post self-reports of :
      * STAI-TA, ACS, PSWQ (see below for the first two)
  + WM capacity
* What was his control?
  + Non-adaptive dual n-back task
* What theory supports it or it supports?
  + ACT – attentional control theory
    - Attentional system is divided to top down (goal d) and bottom up (stimulus d) subsystems
    - Anxiety impairs the balance – less top down more bottom up
    - Impairs WM functions – inhibition, shifting, updating of info, guide goal d behavior ====== reduced attentional control.
* What population did he take?
  + Pre-selected individuals with high trait anxiety
    - State-Trait Anxiety Scale Inventory (Spielberger, Gorsuch, Lushene, Vaagg, & Jacobs, 1983 STA\_TA >= 50)
  + + low on different measures of attentional control
    - Derryberry and Reed's (2002) Attentional Control Scale (low scores, ACS <= 60)