PTSD & VOLUNTARY FORGETTING OF UNWANTED MEMORIES
From the Editor

Editorial

Welcome to our latest edition of Neuropsychotherapy in Australia

TRAUMA, MEMORY AND FORGETTING

In this edition we discuss the implications of a very interesting research study that explores the mechanisms of voluntary forgetting. Memory systems play a vital role in day to day management of life – our ability to negotiate challenges relay on effective memory systems. Voluntary forgetting of unwanted memories is a neural process with significant consequences. It can be a useful tool to reduce the stressful effects of painful experiences. It seems, however, there are two neural processes involved in forgetting. In this article we explore the research findings as well as the implications of both systems of forgetting.

DSM-5

The long awaited DSM-5 has arrived! In our next edition we will discuss the changes between the DSM-IV TR and the DSM-5, the implications from a neuropsychotherapeutic perspective, as well as the future of symptom based manuals (compared to neuroscientific indicators) and why many researchers and academics are of the opinion that the DSM-5 will be the last in the current (symptom-based) format.

Workshops

I have completed one of the Mediros workshops. This two day workshop: The Brain and Anxiety: Utilizing Neurobiological Information as Psychotherapeutic Tool, was the first neuroscience workshop that I developed 4 years ago. Over the years, it has been updated twice. Over 1500 clinicians attended this workshop. The contents of the workshop (with the contents of the other neuropsychotherapy workshops) will be included in the publication of the Neuropsychotherapy Textbook to be published early 2014 by the New York based company, W.W.Norton.

Enjoy the read!

Pieter Rossouw

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Posttraumatic stress disorder and voluntary forgetting of unwanted memories.

AN FRMI STUDY.
IMPLICATIONS AND REFLECTIONS.

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Trauma and the Brain

The effects of trauma on the brain have been well documented. Violation of basic needs (e.g., attachment, control and safety) facilitates significant changes on neurochemical and neurostructural levels. Trauma up-regulates stress chemicals—norepinephrine, corticotrophin releasing factor, adrenocorticotrophin hormone, adrenalin and cortisol, can inhibit neural proliferation, and facilitates strong neural patterns of distress reactions to relatively small triggers (Schore 2009). It inhibits cortical blood flow to executive regions of the brain and as a result hinders problem solving behaviours. Trauma enhances pathological patterns like anxiety, depression, dissociative disorders and even psychosis. All of these symptoms are the result of memory systems formed as result of negative experiences—shaping the brain through its interaction with its (in this case hostile) environment (Grawe 2007). The implication is that there is a significant need to ascertain how the brain is shaped by these experiences, but also to identify strategies to manage/treat the effect of these experiences in order to facilitate effective neurochemical, neural structural and neural network functioning (Kandel et al 2013).

Parallel to the studies on the effect of trauma on the brain and strategies to facilitate effective change, is research into memory and more specifically neural mechanisms of voluntary forgetting. Information obtained by many subjects who experienced trauma indicates that not all people suffer from the aftermath of trauma and demonstrate effective voluntary ability to forget the unwanted memories.
The brain and forgetting

The inability to remember, in other words, the ability to forget, can be a rather useful tool. Negative or painful experiences are often well remembered as they activate the formation of memory systems in the hippocampus and dorsolateral prefrontal cortex. These systems are often formed in subconscious and precognitive levels and activate when triggered by related experiences. These patterns form the basis of distress—often collectively referred to as post-traumatic stress disorder (PTSD). The function of these particular memory systems is to act as early warning signals, patterns of protection or survival to inhibit action (thoughts, feelings, behaviours) that may resemble the initial trigger/trauma. This leads to the establishment of patterns of protection—predominantly avoidance patterns. The function is to protect the system from re-traumatization—an attempt not to re-live, re-think, re-feel, re-experience the initial distress. PTSD affects general wellness as sufferers fall victim to patterns of avoidance—resulting in levels of impairment—cognitive, emotional, social and behavioural (APA 2013).

Mechanisms of forgetting

Recently, Roland Benoit and Michael Anderson from the MRC Cognition and Brain Sciences Unit, Cambridge, UK, published their findings, using fMRI, demonstrating two distinct neural mechanisms of intentional forgetting of unwanted memories (Benoit and Anderson 2012). In this paper the authors argue that when people confront an unwelcome reminder of a past event, they can exclude this unwanted memory from awareness. This process impairs retention of suppressed memories. They addressed the question—“what are the neurocognitive mechanisms of memory suppression?” (Benoit and Anderson 2012).

Suppression

One way to inhibit memory retrieval is a process of “direct suppression”. fMRI studies show that some subjects show reduction of blood oxygen levels-dependant (BOLD) signals in the hippocampus, indicating a process of limiting awareness of a memory (compared with attempts to recall a memory). The researchers also found that, at the same time, attempts to exclude a memory from awareness are associated with increased activation in the right dorsolateral prefrontal cortex and that a recruitment of this region predicts greater subsequent forgetting of the avoided memories (Benoit and Anderson 2012).

Substitution

The opposite way of excluding an unwanted memory from awareness is to activate a substitute thought, like another memory. Thought substitution requires and alternative memory hence it would engage the hippocampal processing (in contrast to disengaging it). It indicates that the activated neural system is required to select between the substitute memory and the unwanted memory. This is an active process of change rather than a process of suppression. Anderson and colleagues found in previous studies that there is weakening of memories in the presence of selective retrieval (Andersen et al 1994; Norman et al 2007).

Retrieval of information happens through activation of sections of the prefrontal cortex. Jonides (2008) found that greater activation of the caudal prefrontal cortex reduces triggering of intruding memories. An example is a student daydreaming in class while new information is discussed—the implication is that new information is suppressed as result of the shift in attention—alternative memory systems. This process can be unhelpful in some situations, but very beneficial in others.

A second structure in the prefrontal cortex (PFC) - the midventrolateral PFC is linked with the identification of a substitute memory. The effective management of unwanted memories using the process of thought substitution happens through the interplay between the dorsal and midventrolateral PFC.

In an interesting experimental design, the researchers tested this process and observed that there were distinct neural processes activated reflecting the two systems of forgetting. They found that attempts to suppress retrieval of memories were associated with increased activity in the dorsolateral prefrontal cortex (DLPFC). Further, this activation was stronger in individuals who induced “more below-baseline forgetting of unwanted memories” and was stronger than it was for the thought suppression group (Benoit & Anderson 2012). They also found that the suppression pattern was associated with reduced hippocampal activation. These findings strengthen the hypothesis that neural activation to inhibit retrieval is supported by a neural pattern that effectively activates to inhibit retrieval of unwanted memories. On the other hand, the researchers found that actions to suppress unwanted memories through thought substitution were associated with engagement of the two prefrontal neural areas but the actions were also associated with increased hippocampal activation.
Forgetting and disaster – new perspectives

The study unlocks new perspectives to help understand how we manage (intrusive) memories. This is significant in understanding trauma—its effects as well as management. Thought substitution is associated with increased hippocampal prefrontal cortical activity. A recent study by Lyoo and colleagues found that survivors of a subway disaster who showed more thickness of the DLPFC showed the largest reduction in PTSD symptoms (Lyoo et al. 2011). This finding points towards the positive effect of thought substitution – via greater hippocampus PFC connectivity. This group also demonstrated reduced DLPFC activation when triggers of the incident were presented indicating effective thought substitution (Shin et al. 1999). They also found the DLPFC volume normalized within 3 years – similar to controls - indicating the pathway of the neural recovery process.

Unlike with thought substitution, hippocampal disengagement during the process of memory suppression leads to a systematic disruption of memory retrieval. Although the “benefits” of the thought substitution process is clearly demonstrated it is unclear if suppression may have long term “benefits” and the effects of hippocampal disengagement need to be further explored.

Discussion

A shortcoming of this fascinating study is the inattention to neurochemical indicators. Up- or down-regulation of the hypothalamus-pituitary-adrenal (HPA) system with the release of stress chemicals (corticotrophin releasing factor, adrenocorticotrophin hormone, norepinephrine, adrenalin and cortisol) may provide critical information as to the neurochemical indicators of system distress or control (Rossouw 2012). One would hypothesise that, given the outcomes of the studies with survivors of the subway disaster, thought substitution as strategy of forgetting would be linked to HPA down regulation (providing greater sense of control – hence PTSD symptom reduction) and that suppression may go hand in hand with HPA up-regulation? One would hypothesise that hippocampal activation that is associated with thought substitution as processes of forgetting down regulates the amygdala and HPA activation, less intrusive thoughts are experienced and higher levels of control demonstrated. One would also hypothesise that reduced hippocampal activation may up-regulate HPA activation (increased stress responses) as suppression as this strategy of forgetting does not effectively activate hippocampal PFC connectivity.

References


Cite this article:

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EARLY BIRD REGISTRATIONS CLOSE SOON

Last year Mediros offered a variety of professional development activities. This year is no different with Early Bird rates again offered for all the workshops and skills classes. The trainings this year are well underway and we look forward to another exciting year.

We strive to keep you informed of all the deadline dates for the early bird registrations for the various workshops and skills classes. The Early Bird registrations are still open for 2013 “Focused Neuropsychotherapy - Applied Strategies for the treatment of ANXIETY” skills class and are follow for the different venues:

**Brisbane**, Workshop date: 9 Aug 2013, RBW Hospital, Herston Rd, Herston, Brisbane
Early Bird closing date for Brisbane is: Monday 17 June 2013

**Melbourne** Workshop date: 24 Aug 2013, Royal Melbourne Hospital, Grattan Street, Parkville
Early Bird closing date for Melbourne is: Saturday 24 June 2013

**Sydney**, Workshop date: Sydney, 30 Aug 2013, Portside Centre, Level 5, 207 Kent Street, Sydney
Early Bird closing date for Sydney is: Saturday 29 June 2013

**HOW TO REGISTER:**

- Email us at admin@mediros.com.au
- Register online at www.mediros.com.au
- Download the registration form from the APS website's Events Calendar:

**MORE ABOUT THIS SKILLS CLASS**

The last decade of brain research made possible by advances in brain imaging and neurobiological data has moved the understanding of anxiety disorders into a new dimension. Although we can successfully treat patients/clients without knowing the full implications of research, we can be more effective with more people in less time if we have a grasp of the neurobiological underpinnings and why and how our treatment methods change brain function.

This workshop focuses on evidence based advances in neurobiological research (up to 2012), specifically in relation to three of the anxiety disorders (Generalised Anxiety Disorder, Panic Disorder and Social Anxiety Disorder with some applications to PTSD) and applied group work to enhance skills to treat these disorders effectively utilising neurobiological information.

The workshop is specifically designed for clinicians with an interest in neuropsychotherapy but who are not so well trained in Neuroscience. The focus is on skills based training to enhance applications of the concepts of Neuropsychotherapy.

**Outline**

- Recent advances in Neurobiological research into anxiety disorders and implications for therapeutic interventions
- Recent advances in understanding the role of key brain structures in presentation and treatment of anxiety disorders:
  - Advances in neural function and anxiety
  - Neuropsychotherapeutic strategies to treat anxiety disorders
- Explanation of brain functioning to a client suffering with anxiety disorders
- Demonstration, group discussions and role play
- Motivation, neuromodulators and change - explanation of key concepts and neural aspects related to motivation to change and facilitation of shifts in neural firing to enhance long term shift in neural activation
- Practical demonstrations, group discussions and role play
- Treatment strategies to down regulate limbic firing - safety and effective therapeutic pace
- Treatment strategies to up regulate cortical blood flow enhance left pre frontal cortical activity - the role of motivation, visualisation, targeted homework, symptom management and emotional regulation from a neuropsychotherapeutic perspective.

AUGUST 2013 SKILLS CLASS:
Focused Neuropsychotherapy - Applied Strategies for the treatment of ANXIETY
RESEARCH PROJECT

We recently launched a research project to investigate the effect size of the neuropsychotherapy workshops. It is interesting to note that professional organisations like the APS have strict guidelines for continuous professional development however there is very little research into the efficacy of professional development. Mediros has decided to investigate and will publish a series of articles in this regard. We recently emailed a survey to everyone who attended one or more of our workshops over the past four years. Your assistance to fill out the survey will be greatly appreciated. The survey takes around 10 minutes to complete.

To access the survey, copy and paste the URL below into your internet browser:
http://uqpsych.qualtrics.com/SE/?SID=SV_cTslxSXD6qjjBK5

BOOK REVIEW

RELEASE OF THE DSM-5

In May 2013, the long awaited DSM-5 was released. This is the latest edition of this Manual that defines and diagnoses mental-health disorders. The new release has been described as controversial.

On April 29 2013, America’s National Institute of Mental Health (NIMH) Director Thomas Insel announced that the NIMH will no longer be using DSM diagnoses in its research projects. Insel wrote:

“Unlike our definitions of ischemic heart disease, lymphoma, or AIDS, the DSM diagnoses are based on a consensus about clusters of clinical symptoms, not any objective laboratory measure. In the rest of medicine, this would be equivalent to creating diagnostic systems based on the nature of chest pain or the quality of fever. Indeed, symptom-based diagnosis, once common in other areas of medicine, has been largely replaced in the past half century as we have understood that symptoms alone rarely indicate the best choice of treatment.”

Thomas Roland Insel (born October 19, 1951) is a neuroscientist and psychiatrist who has led the NIMH since 2002. He is best known for research on oxytocin and vasopressin, two peptide hormones implicated in complex social behaviours, such as parental care and attachment.

Kos Media LLC in the article NIMH rejects DSM-V, published on May 11, also stated that:

NIMH has now launched its own initiative to create a replacement diagnostic system based exclusively on objectively measurable parameters -- the Research Domain Criteria (RDoC). RDoC is a framework for collecting the data needed for a new nosology. But it is critical to realize that we cannot succeed if we use DSM categories as the “gold standard.” The diagnostic system has to be based on the emerging research data, not on the current symptom-based categories. Imagine deciding that EKGs were not useful because many patients with chest pain did not have EKG changes. That is what we have been doing for decades when we reject a biomarker because it does not detect a DSM category. We need to begin collecting the genetic, imaging, physiologic, and cognitive data to see how all the data – not just the symptoms – cluster and how these clusters relate to treatment response. That is why NIMH will be re-orienting its research away from DSM categories.

In our next edition, Pieter will share with us his thoughts on the DSM-5. Pieter was fortunate to have one of the first printed copies in Australia and will review this Manual in the July-August edition of this journal.
Neuropsychotherapy is an exciting science, not least because of the recognition that significant changes occur for clients in neural firing and structure as a result of talking therapies. Neuropsychotherapy is the “language” used in the interaction between the clinician and the client to guide the client in the process of restructuring the brain towards higher levels of functioning and well-being. It uses information from neurosciences to assist clients suffering from a wide range of biological, psychological and social challenges to apply strategies to down regulate unhelpful neural stress responses and up regulate neural activation towards neural change. Understanding the neurophysiology of these disorders and activation patterns of neural pathways as well as discussing practical applications, assist clinicians greatly to apply more effective strategies to treat depression, anxiety and trauma.

**ABOUT THE PRESENTER**

Pieter J. Rossouw  MClinPsych;PhD;MAPS;CCLIN.

Pieter is the Director of the Master of Counselling Program at the School of Psychology and the School of Social Work and Human Services at The University of Queensland. His research and teaching focuses on Neuropsychotherapy. Pieter is also the Director of Mediros – a company that provides training in Neurobiology and Neuropsychotherapy.

Pieter has been in private practice for the past 25 years. Pieter holds Honours Degrees in Philosophy and Psychology, a Master Degree in Clinical Psychology and a PhD. Pieter is a member of the Australian Psychological Society and the APS College of Clinical Psychologists. He provides Mental Health training for GP’s and is accredited at the Royal Australian College of General Practitioners. Pieter was a Professor in Clinical Psychology at Universities in Canada, Holland and South Africa where he also spearheaded a Psycho-Therapeutic Assistance Program to support people being exposed to trauma.

Pieter specialises in neuropsychotherapy and is an expert in anxiety and mood disorders. He has published 5 Scientific Books and 20 scientific articles. He has been involved in research in extensive clinical trials and presented research papers at 30 International Conferences worldwide. He is a member of the Global Association for Interpersonal Neurobiology Studies, the International Society for Traumatic Stress Studies, the International Association for Family Therapy and the Professional Association for Drug and Alcohol Workers and the Australasian Cognitive Neuroscience Society.

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**WORKSHOP VENUES**

Sydney  •  Melbourne  •  Brisbane  •  Perth  •  Adelaide  •  Canberra  •  Hobart

**1 DAY SKILLS CLASSES**

**FOCUSED NEUROPSYCHOThERAPY**

- Applied Strategies for treatment of ANXIETY
  Continuing Professional Development Hours - CPD – 6 Hours Specialised Training

- Applied Strategies for treatment of DEPRESSION
  Continuing Professional Development Hours - CPD – 6 Hours Specialised Training

**NEW WORKSHOP**

**THE BRAIN & ANXIETY:**
Neurobiological information as Psychotherapeutic Tool
Continuing Professional Development Hours - 12 hours specialised training
- **Sydney 16 & 17 May ’13**
  Portside Centre, Level 5, 207 Kent Street, Sydney
- **Brisbane 12 & 13 April ’13**
  RBW Hospital, Herston Rd, Herston, Brisbane
- **Melbourne 31 May - 1 Jun ’13**
  Royal Melbourne Hospital, Grattan Street, Parkville

**THE DEVELOPING BRAIN AND THE NEUROSCIENCE OF MEMORY AND TRAUMA**
Continuing Professional Development Hours - CPD – 12 Hours Specialised Training
- **Brisbane 12 & 13 Sept ’13**
  RBW Hospital, Herston Rd, Herston, Brisbane

**THE SOCIAL BRAIN AND THE NEUROSCIENCE OF RELATIONSHIPS**
CPD – 12 Hours Specialised Training
- **Canary 18 & 19 Oct ’13**
  Calvary Priv., Hospital. Mary Potter Cct, Bruce, ACT
- **Adelaide 25 & 26 Oct ’13**
  Hackney Hotel, 96 Hackney Road, North Adelaide
- **Perth 1 & 2 Nov ’13**
  St Catherine’s Coll, UWA, 2 Park Rd, Nedlands, Perth

**THE NEUROSCIENCE OF DEPRESSION:**
New opportunities for Effective Treatment. Continuing Professional Development Hours CPD – 12 Hours Specialised Training
- **Sydney 13 & 14 June ’13**
  Portside Centre, Level 5, 207 Kent Street, Sydney
- **Melbourne 21 & 22 June ’13**
  Royal Melbourne Hospital, Grattan Street, Parkville
- **Brisbane 27 & 28 June ’13**
  RBW Hospital, Herston Rd, Herston, Brisbane

**Melbourne 20 & 21 Sept ’13**
Royal Melbourne Hospital, Grattan Street, Parkville
- **Sydney 03 & 04 Oct ’13**
  Portside Centre, Level 5, 207 Kent Street, Sydney

**Melbourne 15 & 16 Nov ’13**
Royal Melbourne Hospital, Grattan Street, Parkville
- **Brisbane 21 & 22 Nov ’13**
  RBW Hospital, Herston Rd, Herston, Brisbane
- **Sydney 28 & 29 Nov ’13**
  Portside Centre, Level 5, 207 Kent Street, Sydney
  **Hobart 25th & 26th Nov’13**
  Grand Mercure Hadleys Hotel, 34 Murray St, Hobart

**Melbourne 9 Aug ’13**
RBW Hospital, Herston Rd, Herston,
- **Brisbane 24 Aug ’13**
  Royal Melbourne Hospital, Grattan Street, Parkville
- **Sydney 30 Aug ’13**
  Portside Centre, Portside Centre, Level 5, 207 Kent Street, Sydney

**Melbourne 07 Dec ’13**
Royal Melbourne Hospital, Grattan Street, Parkville
- **Sydney 13 Dec ’13**
  Portside Centre, Portside Centre, Level 5, 207 Kent Street, Sydney
### WORKSHOPS – TWO DAYS

**The Brain & Anxiety: Neurobiological information as Psychotherapeutic Tool**

- **Continuing Professional Development Hours:** 12 hours specialised training
- **Sydney:** 16 & 17 May 2013
- **Brisbane:** 12 & 13 April 2013
- **Melbourne:** 31 May & 1 Jun ‘13

**The Neuroscience of Depression: New opportunities for Effective Treatment**

- **Continuing Professional Development Hours:** 12 hours specialised training
- **Sydney:** 13 & 14 June 2013
- **Brisbane:** 27 & 28 June 2013
- **Melbourne:** 21 & 22 June 2013

**The Developing Brain and the Neuroscience of Memory and Trauma**

- **Continuing Professional Development Hours:** 12 hours specialised training
- **Brisbane:** 12 & 13 Sept 2013
- **Melbourne:** 20 & 21 Sept 2013
- **Sydney:** 3 & 4 October 2013

**The Social Brain and the Neuroscience of Relationships**

- **Continuing Professional Development Hours:** 12 hours specialised training
- **Canberra:** 18 & 19 Oct 2013
- **Adelaide:** 25 & 26 Oct 2013
- **Perth:** 1 & 2 Nov 2013
- **Melbourne:** 15 & 16 Nov 2013
- **Brisbane:** 21 & 22 Nov 2013
- **Sydney:** 28 & 29 Nov 2013
- **Hobart:** 25th & 26th Nov 2013

### SKILLS CLASSES – ONE DAY

**Focused Neuropsychotherapy - Applied Strategies for the treatment of ANXIETY**

- **Continuing Professional Development Hours:** 6 hours specialised training
- **Brisbane:** 09 August 2013
- **Melbourne:** 24 August 2013
- **Sydney:** 30 August 2013

**Focused Neuropsychotherapy - Applied Strategies for treatment of DEPRESSION**

- **Continuing Professional Development Hours:** 6 hours specialised training
- **Brisbane:** 04 December 2013
- **Melbourne:** 07 December 2013
- **Sydney:** 13 December 2013

### COSTS

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**Discount rate on Skills Classes if booked at the same time as a two day Workshop**

- **Early Bird rate (60 days prior)** $265.00
- **Standard Rate** $310.00
- **Student rate (copy of st card)** $240.00
- **Group (4+, one payment)** $245.00

**TOTAL COSTS:**

- 

### PAYMENT OPTIONS

- **CREDIT CARD** (Visa of Master only)
  - Card Number: ____________________
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