

Australian Centre for Posttraumatic Mental Health

Summary of the Traumatic Stress Literature: 2005

Introduction

Purpose and Rationale

This is the third annual summary of the traumatic stress literature produced by the Australian Centre for Posttraumatic Mental Health (ACPMH). The 2003 and 2004 summaries are available on our website at www.acpmh.org.au

The aim is to provide a brief summary – around 5000 words (the length of a normal journal article, plus references) – of key literature in the field of PTSD and related conditions published during the calendar year of 2005. The aim was not to provide a critical review; indeed, we have avoided critique or editorial comment. Rather, the aim was simply to draw the reader's attention to a selection of articles that were published during the year that we felt were important contributions. Since we do not provide a critique of the research, we strongly recommend that readers interested in a particular paper obtain a copy of the original and read it for themselves.

The advantages and disadvantages of these literature summaries have been the source of considerable discussion within the ACPMH. We would be interested in your feedback about the structure, content, and utility of this document. If you would like to comment, please email us at acpmh-info@unimelb.edu.au and put "2005 Literature Summary" in the subject line.

Search Strategy and Content Overview

The literature was sourced using standard scientific databases, notably Medline and PsychInfo, with three search descriptors: "posttraumatic stress disorder", "PTSD", and "acute stress disorder". This strategy yielded a total of 1574 papers published during 2005. Most of those selected for inclusion in this annual summary appeared in relatively prestigious journals, although a few are included from less established publications when appropriate. We recognize that the choice is somewhat idiosyncratic and that we may have missed some useful papers; nevertheless, we hope it is useful.

A total of 84 articles are included in this year's summary. We have divided the literature into the following eight areas although, of course, allocation to these categories was not always straightforward since papers often spanned more than one area:

1. Epidemiology
2. Treatment
3. Phenomenology
4. Assessment and diagnosis
5. Theory
6. Biology
7. Children
8. Partners and families

Epidemiology

Cross cultural studies

- Punamaki et al. (Punamaki, Komproe, Qouta, Elmasri, & de Jong, 2005), studying a Palestinian community sample, reported that men experienced more traumatic events but exposure to trauma was associated with PTSD among both genders. Exposure to lifetime trauma was associated with anxiety, mood, and somatoform disorders only among women but not among men. No gender differences were found in the level of peritraumatic dissociation.
- Marshall et al. (Marshall, Schell, Elliott, Berthold, & Chun, 2005) examined long term mental health outcomes in Cambodian refugees approximately 10 years after their immigration to the US. High rates of PTSD (62%), major depression (51%), and low rates of alcohol use disorder (4%) were found in adults exposed to severe trauma. PTSD and major depression were highly comorbid and showed a strong dose-response relationship with measures of traumatic exposure.
- **Reviews of research on resettled refugees:** A meta-analysis (Porter & Haslam, 2005) compared mental health outcomes in refugees and internally displaced persons (n= 22,221) with non-refugees (n= 45,073). They report poorer mental health outcomes for refugees, particularly those living in institutional accommodation, experiencing restricted economic opportunity, displaced internally within their own country, repatriated to a country they had previously fled, or whose initiating conflict was unresolved. Older age, higher education, and female gender also predicted worse outcomes. Another systematic review of refugee mental health research (n = 6743) concluded that resettled refugees in Western countries may be ten times more likely to suffer from PTSD than age-matched general populations (Fazel, Wheeler, & Danesh, 2005).
- In a comparison of mental health in populations exposed to terrorist bombings in North America (Oklahoma City) and Africa (Nairobi), North et al. (North, Pfefferbaum, Narayanan, Thielman, McCoy, Dumont, Kawasaki, Ryosho, & Spitznagel, 2005) found that PTSD and major depression rates were similar, with both sites showing a strong association of C criteria (avoidance and numbing) with PTSD. Coping responses differed with the Nairobi group relying more on religious support and the Oklahoma City group relying more on medical treatment, drugs and alcohol.

Risk and protective factors

- **Personality and PTSD symptoms:** Two studies collected measures of personality traits before and after exposure to trauma (terrorist attack, (Gil, 2005) and air attacks in Yugoslavia, (Knezevic, Opacic, Savic, & Priebe, 2005)). Gil reported that the harm-avoidance personality dimension was positively associated with risk for PTSD. Knezevic et al. found that pre-trauma personality predicted 13% of the variance of intrusion scores on the Impact of Event Scale (IES) one year after the attacks but, unlike Gil, did not find a correlation between personality and subsequent avoidance. Both studies found post-trauma assessments to be stronger predictors.

- Bonanno et al. (Bonanno, Rennieke, & Dekel, 2005), in a sample of individuals in or near the World Trade Centre during the September 11 terrorist attacks, found an association between self-enhancement and resilient outcomes, better adjustment prior to September 11, greater positive affect, and reduced perceptions of social constraints. However, self-enhancers' friends and relatives rated them as decreasing in social adjustment and as being less honest, suggesting a social cost to self-enhancement.
- A prospective study of risk factors, including psychological, biological, and personality data, for PTSD in firefighters (Heinrichs, Wagner, Schoch, Soravia, Hellhammer, & Ehlert, 2005) collected measures after finishing training and at several stages after commencing firefighting service. Specific personality traits (hostility and low self efficacy) were identified as the highest predictors of later mental health problems. Biological markers were not significant.
- In a longitudinal, prospective study of young adults in Germany, Perkonig et al., (Perkonig, Pfister, Stein, Hofler, Lieb, Maercker, & Wittchen, 2005) found that 52% of PTSD cases remitted during the subsequent 3-4 years. Respondents with a chronic course were more likely to experience new traumatic event(s) during follow-up, to have higher rates of avoidant symptoms at baseline, to have higher levels of somatoform and other anxiety disorders, and to report more help seeking, compared to respondents with remission.
- ***Predicting return to work:*** Factors predicting ability to work after injury were investigated by Mathews and Chinnery (2005). PTSD and sub-clinical PTSD significantly affected work functioning compared to people who did not have PTSD symptoms, and was found to be the strongest predictor when other factors were controlled.
- A study assessing the unique contribution of physical injury to subsequent PTSD in 60 injured and 40 non-injured soldiers indicated that bodily injury is a major risk factor for PTSD irrespective of injury or trauma severity (Koren, Norman, Cohen, Berman, & Klein, 2005). They suggest that bodily injury contributes to the appraisal of traumatic events as more dangerous independent of injury or trauma severity.

Miscellaneous

- ***Review of PTSD in the elderly:*** Owens et al. (Owens, Baker, Kasckow, Ciesla, & Mohamed, 2005) reviewed the literature on PTSD in elderly veterans. Complications in the assessment and treatment process specific to this group are highlighted and further research suggested particularly in relation to exposure therapy, cut-off scores for instruments, and pharmacological interventions.
- Blanchard et al. (Blanchard, Rowell, Kuhn, Rogers, & Wittrock, 2005) studied posttraumatic stress symptoms (PTSS), probable PTSD, and depressive symptoms resulting from the 9/11 terrorist attacks among college students at three US universities. One year post September 11, college students still suffered psychological symptoms. Proximity effects were found for PTSS and depressive symptoms but not for probable PTSD.

- In a study investigating common mental health problems and help-seeking behaviours in a sample of UK veterans at high risk of mental health problems Iversen et al. (Iversen, Dyson, Smith, Greenberg, Walwyn, Unwin, Hull, Hotopf, Dandeker, Ross, & Wessely, 2005) reported that depression is more common than PTSD in UK ex-service personal. 44% of respondents had a psychiatric diagnosis, and only half of those with a diagnosis were currently seeking help.

Treatment

Psychological treatment

- **Meta-analysis of psychotherapy:** A meta-analysis of psychotherapy studies in PTSD concluded that more than half of patients who completed treatment with various forms of cognitive behavior therapy or eye movement desensitization and reprocessing show improvement (Bradley, Greene, Russ, Dutra, & Westen, 2005).
- A consecutive case series and a subsequent randomised control trial (RCT) of cognitive therapy (CT) found that patients treated with CT showed significant improvements in PTSD symptoms, depression and anxiety (control waitlist patients in the RCT did not improve). Treatment gains were well-maintained at 6-month follow-up for both studies (Ehlers, Clark, Hackmann, McManus, & Fennell, 2005).
- In an effectiveness trial of exposure compared with exposure plus cognitive restructuring, Foa et al., (Foa, Hembree, Cahill, Rauch, Riggs, Feeny, & Yadin, 2005) found that PTSD and depression symptoms were reduced for both groups and results were maintained at 3, 6, and 12 month follow-up, but the addition of cognitive restructuring did not enhance treatment outcome.
- A study examining the effectiveness of a single session of modified behavioural treatment with 59 earthquake survivors in Turkey found significant treatment effects on all measures at weeks 6, 12, 24, and 1-2 years posttreatment (Basoglu, Salcioglu, Livanou, Kalender, & Acar, 2005).
- Turpin et al. (Turpin, Downs, & Mason, 2005) assessed the efficacy of self-help psychoeducation in patients who have experienced trauma and concluded that providing self-help information is not effective as a preventative strategy to ameliorate PTSD.
- In a 20-year follow up of soldiers from the 1982 Lebanon war, Solomon et al. (Solomon, Shklar, & Mikulincer, 2005) found that soldiers who had been provided with an immediate psychological intervention showed improved long term outcomes. Compared with non-treated and a third non-traumatized group of soldiers, frontline treatment recipients showed lower rates of posttraumatic and psychiatric symptoms, and were less lonely and more socially functional than the non-treated group. Stronger effects were found according to treatment characteristics (proximity, immediacy, expectancy) as reported by the soldiers.
- PTSD and substance abuse frequently co-occur. Back et al. (Back, Jackson, Sonne, & Brady, 2005) examined the influence of onset order for these conditions, with participants grouped either as primary PTSD or primary alcohol dependence (AD). The primary PTSD group responded best to CBT substance use therapy, while women with

primary AD were particularly likely to have ongoing psychiatric needs at the end of treatment.

- The impact of PTSD on medical treatment costs by Marciniak et al. (Marciniak, Lage, Dunayevich, Russell, Bowman, Landbloom, & Levine, 2005) revealed that after demographics and other disease states, anxiety disorders were associated with a greater increase in medical costs and that PTSD was most costly. They report increases in total medical costs per individual of \$1,945, \$1,900, and \$1,515, respectively ($P < .0001$) for generalized anxiety disorder (GAD), panic disorders, and PTSD.
- In one of the few studies addressing occupational rehabilitation in PTSD, Mathews (2005) found that MVA survivors with PTSD had significantly less work potential post-accident than those without PTSD. High levels of depression, reduced time-management ability and an over concern/anxiety with physical injuries were identified as specific barriers to employability for survivors with PTSD. Importantly, survivors with PTSD reported significantly greater extrinsic motivation to work than survivors without PTSD.
- ***Meta-analysis of psychotherapy for childhood sexual abuse (CSA)***: A meta-analysis of psychotherapy outcome studies with women exposed to CSA found that most studies showed minimal change from posttreatment to follow-up, but concluded that better designed, multicenter studies are needed (Peleikis & Dahl, 2005).
- In a comparison of 12 sessions of trauma-focused cognitive-behavioural therapy (TF-CBT) with non-directive supportive therapy (NST) for sexually abused children, Cohen, Mannarino & Knudsen (2005) found significantly greater improvement in anxiety, depression, sexual problems and dissociation at 6-months, and in PTSD and dissociation at 12-months, in TF-CBT completers in comparison to those treated with NST.
- Stalker et al. (Stalker, Palmer, Wright, & Gebotys, 2005) examined the efficacy of a 6-week PTSD inpatient program for adults abused as children. In comparison to a wait list group, the treatment group showed significant improvement at discharge on measures of global symptom severity, PTSD and disrupted beliefs. The treatment group deteriorated, however, with scores back to intake levels by 12-months post-discharge.
- In a randomized trial comparing the efficacy of CBT with problem-solving therapy (PCT) and a wait-list (WL) for women with childhood sexual abuse related PTSD, McDonagh et al. (McDonagh, Friedman, McHugo, Ford, Sengupta, Mueser, Demment, Fournier, Schnurr, & Descamps, 2005) found that CBT participants were significantly less likely to meet criteria for PTSD at follow up than PCT participants, both CBT and PCT were associated with sustained symptom reduction, and a significantly greater drop out rate was found with CBT in comparison to PCT and WL.
- Chard (2005) reports an evaluation of cognitive processing therapy (CPT) for the treatment of PTSD related to childhood sexual abuse. 71 women were assigned to either therapy or wait-list groups. Trauma related symptoms were significantly reduced in the CPT group compared with controls, and results were maintained for at least 1 year.

Pharmacotherapy

- **Pharmacotherapy review:** Cooper, Carty, & Creamer (2005) reviewed pharmacotherapy for PTSD, based primarily on evidence from published randomized control trials. The data supported antidepressant medication as the first-line pharmacotherapy for PTSD, with selective serotonin re-uptake inhibitors having the strongest empirical support.
- In a study evaluating the efficacy of risperidone with veteran patients suffering chronic combat related PTSD (CR-PTSD), Bartzokis et al. (Bartzokis, Lu, Turner, Mintz, & Saunders, 2005) reported results suggesting that risperidone as an adjunctive to a psychotropic medication regimen improves a range of psychiatric symptoms in patients with CR-PTSD.
- The effect of fluoxetine (FLU) compared to placebo (PBO) in PTSD was examined over a one year trial with 123 subjects. A comparison of relapse rates revealed a rate of 22% for FLU patients and 50% for PBO patients with a longer time to relapse with FLU compared to PBO (Davidson, Connor, Hertzberg, Weisler, Wilson, & Payne, 2005).

Phenomenology

- **Antisocial behaviour:** Reanalysing the National Vietnam Veterans Readjustment Study data to explore models of subsequent antisocial behaviour, Fontana and Rosenheck (2005) found that: a) the largest effect on post-military antisocial behaviour is exerted by pre-military experience, and b) the effects of war-zone traumatic exposure on post-military antisocial behaviour are mediated by PTSD.
- **Suicide risk:** In a study investigating risk of suicide, Oquendo et al. (Oquendo, Brent, Birmaher, Greenhill, Kolko, Stanley, Zelazny, Burke, Firinciogullari, Ellis, & Mann, 2005) concluded that the risk for suicidal behaviour in patients with major depression is enhanced by comorbid PTSD. The authors also noted that, in comparison to those with major depressive episode alone, patients with comorbid PTSD had a higher rate of cluster B personality disorder which appears to be a salient factor in suicide risk. In a reanalysis of the National Comorbidity Study (NCS) data, Sareen et al. (Sareen, Houlihan, Cox, & Asmundson, 2005) explored the relationship between anxiety disorders and suicide attempts. In a nationally representative US sample (n = 5877; age, 15-54; response rate, 82%), PTSD was significantly associated with suicidal ideation and suicide attempts. No other anxiety disorder showed this relationship.
- **Traumatic Brain Injury (TBI):** A prospective study of the relationship between memory of the traumatic event and subsequent development of PTSD with 120 mild TBI patients found that 14% of all patients met full criteria for PTSD 6-months posttrauma. Patients with memory of the traumatic event were significantly more likely to develop PTSD than those without memory of the trauma (explained primarily by symptoms in the re-experiencing cluster). Memory of the traumatic event within the first 24 hours is a strong predictor of PTSD 6-months posttrauma (Gil, Caspi, Ben-Ari, Koren, & Klein, 2005).

- **Review of dissociation:** A review of the term ‘dissociation’ in theory, research and clinical practice focuses on the dichotomy of dissociation as ‘detachment’ and ‘compartmentalization’. The authors argue that evidence supports this dichotomy, suggesting that it can lead to clearer case formulation and an improved choice of treatment strategy (Holmes, Brown, Mansell, Fearon, Hunter, Frاسquilho, & Oakley, 2005).
- Nixon et al. (Nixon, Bryant, Moulds, Felmingham, & Mastrodomenico, 2005) assessed physiological arousal in 18 high-dissociating (HD) participants and 17 low-dissociating (LD) participants while they described their traumatic experience. The two groups showed a similar pattern of physiological responding during the trauma narratives, challenging the notion that dissociative reactions are associated with reduced psychophysiological arousal after trauma.
- The presumed importance of peritraumatic dissociation in the etiology of PTSD was explored by Briere et al. (Briere, Scott, & Weathers, 2005) in two trauma exposed community samples. They found persistent and generalized dissociation was a substantial predictor of PTSD, whereas peritraumatic dissociation ceased to predict PTSD once other variables were included in multivariate analyses. They conclude that what happens at the time of a trauma (e.g., disrupted encoding) is a more important predictor of PTSD than what occurs thereafter (i.e., persistent avoidance).
- **Life events:** Mol et al (Mol, Arntz, Metsemakers, Dinant, Vilters-van Montfort, & Knottnerus, 2005) examined the extent to which PTSD symptoms were generated by life events, in comparison with traumatic events. They found that PTSD scores were higher after life events than after traumatic events for events from the past 30 years, and that scores were the same following both types for earlier events. Thus, life events can generate at least as many PTSD symptoms as traumatic events.
- **PTSD and physical disorders:** In a reanalysis of the National Comorbidity Study data, Sareen et al. (Sareen, Cox, Clara, & Asmundson, 2005) examined the relationship between physical and mental disorders. Anxiety disorders were positively associated with physical disorders, as well as increased disability, even after adjusting for mood disorders, substance-use disorders, and demographics. PTSD, panic, and agoraphobia were more likely to be associated with physical disorders than GAD, social phobia, or simple phobia. Lauterbach, et al. (Lauterbach, Vora, & Rakow, 2005) confirmed these findings in a separate analysis of the same dataset. Controlling for a wide range of other variables, they found that PTSD sufferers had a higher frequency of most physical health disorders.
- **Symptom structure:** A factor analytic study of PTSD in the National Comorbidity Study found a four-factor solution, with factors representing dysphoria, cued reexperiencing and avoidance, uncued reexperiencing and hyperarousal, and trauma-related rumination to be the best model (McWilliams, Cox, & Asmundson, 2005).
- Breslau et al. (Breslau, Reboussin, Anthony, & Storr, 2005) used latent class analysis to categorise a sample of 3276 trauma exposed respondents according to their PTSD symptoms. Three groups emerged: no disturbance, intermediate disturbance and pervasive disturbance. The latter category approximated to the DSM-IV criterion for PTSD, with emotional numbing differentiating that class from those who were less

affected.

- In a taxometric analysis of PTSD symptoms in a random community sample of Australian combat veterans, Forbes et al. (Forbes, Haslam, Williams, & Creamer, 2005) provided further evidence that PTSD is best conceptualised dimensionally – on a continuum of human response to extreme stress – rather than a categorical condition.
- Watson (2005) argues that, rather than grouping disorders into diagnostic classes in the DSM on the basis of the subjective criterion of "shared phenomenological features", there are now sufficient data to replace this system with an empirically based structure that reflects the actual similarities among disorders. Mood and anxiety disorders should be collapsed together into an overarching class of emotional disorders with 3 subclasses: the bipolar disorders (bipolar and cyclothymia), the distress disorders (major depression, dysthymic disorder, generalized anxiety disorder, posttraumatic stress disorder), and the fear disorders (panic disorder, agoraphobia, social phobia, specific phobia).

Assessment

- **Reviews of screening:** In a review of psychological screening in the military, Rona et al. (Rona, Hyams, & Wessely, 2005) propose six criteria for implementing a military psychological screening program but question the benefits of the process.. A review of PTSD screening instruments for civilians, however, found screening to be useful and noted that instruments with fewer items perform at least as well as longer more complex measures (Brewin, 2005).
- In an important note of caution, Shapinsky et al. (Shapinsky, Rapport, Henderson, & Axelrod, 2005) found that a high proportion of participants exceeded clinical cutoffs on the Impact of Event Scale-Revised (IES-R), Revised Civilian Mississippi Scale, and PTSD Checklist (PCL) after college examinations. The authors suggest that some PTSD scales may be overly sensitive to non-traumatic events such as everyday stressors.
- **Reviews of child measures:** Two useful reviews of child trauma measures were published during the year. Stover & Berkowitz (2005) reviewed trauma assessment measures available for use with young children, while Strand et al., (Strand, Sarmiento, & Pasquale, 2005) provide a comprehensive review of 35 measures currently available for childhood trauma assessment.

Theory

- **Traumatic memory:** McNally et al. (McNally, Clancy, Barrett, & Parker, 2005) found that adults reporting either repressed or recovered memories of childhood sexual assault (CSA) were less able to discriminate between words they had seen from words they had imagined seeing in comparison to adults who had reported either never having forgotten their CSA or having no history of CSA. The authors suggest that those reporting either repressed or recovered memories of CSA may have problems with reality monitoring.

- In an investigation of Criterion A2 (fear, helplessness or horror) in individuals without PTSD, Creamer et al. (Creamer, McFarlane, & Burgess, 2005) found that A2 was more common following particular types of trauma such as physical assault, psychiatric disorders were more prevalent in those who met A2 than those who only met A1, and those with A2 and traumatic memories showed a higher prevalence of psychiatric disorders than those with A2 and no traumatic memories. Findings suggest that powerful emotions experienced during traumatic exposure are associated with increased prevalence of a range of psychiatric disorders (in addition to PTSD).
- In an experimental paradigm, Shipherd & Beck (2005) found that both PTSD and non-PTSD subjects successfully suppressed trauma-related thoughts, followed by a rebound effect for the PTSD group, and no rebound effect for the no-PTSD group. However, the PTSD group was able to suppress neutral thoughts without a rebound effect. This suggests that increases in suppressed thoughts are specific to trauma-relevant cognitions in individuals with PTSD, raising the potential role of thought suppression as a maintaining factor for reexperiencing symptoms of PTSD.
- **Pathways to PTSD:** People have long speculated dual pathways to PTSD through high arousal and dissociation. In 2005, two studies modelled risk factors for development of PTSD in children. Saxe et al. (Saxe, Stoddard, Hall, Chawla, Lopez, Sheridan, King, King, & Yehuda, 2005) studied pathways to PTSD in children with burns. They distinguished two pathways to PTSD: 1) from burn size and pain level to acute separation anxiety to PTSD; 2) from burn size to dissociation to PTSD. The findings support a model of complex etiology for childhood PTSD in which two independent pathways may be mediated by different biobehavioral systems. In a related paper, Kaplow et al (Kaplow, Dodge, Amaya-Jackson, & Saxe, 2005) found that avoidant coping, anxiety, and dissociation – all measured during or immediately after disclosure – were direct independent pathways to PTSD symptoms in sexually abused children.
- The relationship between nicotine dependence (ND) and PTSD was investigated in a sample of male-male Vietnam era twin pairs (Koenen, Hitsman, Lyons, Niaura, McCaffery, Goldberg, Eisen, True, & Tsuang, 2005). The data suggested that male veterans with a history of ND may be at increased risk for PTSD.
- Highlighting the benefits of different coping styles at different stages, Hepp et al. (Hepp, Moergeli, Buchi, Wittmann, & Schnyder, 2005) found that active problem-focussed coping was adaptive for injured survivors in the later rehabilitation stages, but not in the acute ICU phase where it might actually be maladaptive.

Biology

Neuroimaging

- **Review of imaging:** A review paper on brain imaging research in PTSD (Damsa, Maris, & Pull, 2005) found that recent studies typically reported reduced hippocampal volume, amygdala hyperactivity, and lowered activation in the anterior cingulate cortex.
- A neuroimaging study with sexual/physically abused PTSD and control subjects found increased initial amygdala response to trauma-related negative, but not nontrauma-related negative, versus neutral stimuli. PTSD patients also failed to show the normal

patterns of sensitization and habituation to different categories of negative stimuli. (Protopopescu, Pan, Tuescher, Cloitre, Goldstein, Engelen, Epstein, Yang, Gorman, LeDoux, Silbersweig, & Stern, 2005).

- Using an fMRI paradigm, Shin et al. (Shin, Wright, Cannistraro, Wedig, McMullin, Martis, Macklin, Lasko, Cavanagh, Krangel, Orr, Pitman, Whalen, & Rauch, 2005) demonstrated exaggerated amygdala responsivity, diminished medial prefrontal cortex responsivity, and a reciprocal relationship between these 2 regions during passive viewing of overtly presented affective stimuli unrelated to trauma in PTSD.
- Bryant et al. (Bryant, Felmingham, Kemp, Barton, Peduto, Rennie, Gordon, & Williams, 2005) found enhanced anterior cingulate responses in PTSD (in contrast to other reports of reduced activity for threat stimuli), suggesting that the latter may be specific to processing of threat-related content. Activation in rostral and dorsal anterior cingulate, left amygdala and posterior parietal networks in response to salient, nonthreatening stimuli may reflect generalized hypervigilance.
- In an fMRI study with acute PTSD patients, Armony et al., (Armony, Corbo, Clement, & Brunet, 2005) found a significant positive correlation between the severity of PTSD and the difference in amygdala responses between masked fearful and happy faces, and a corresponding negative correlation for the difference between unmasked fearful and happy faces, suggesting that functional abnormalities in brain responses to emotional stimuli observed in chronic PTSD are already apparent in its acute phase.
- Bremner et al. (Bremner, Vermetten, Schmahl, Vaccarino, Vythilingam, Afzal, Grillon, & Charney, 2005) used skin conductance and positron emission tomography (PET) to measure responses to fear conditioning and extinction. PTSD patients had increased left amygdala activation with fear acquisition, and decreased anterior cingulate function during extinction, relative to controls. These findings implicate the amygdala and anterior cingulate in the acquisition and extinction of fear responses, respectively, in PTSD.
- **Review of hippocampal studies:** A meta analysis by Kitayama et al, (Kitayama, Vaccarino, Kutner, Weiss, & Bremner, 2005) combined results from 9 studies, giving a total of 133 adults with chronic PTSD, 148 healthy controls, and 53 traumatized controls. Across the meta-analysis sample, adults with PTSD had reduced hippocampal volume.
- Lindauer et al. (Lindauer, Vlieger, Jalink, Olff, Carlier, Majoie, Den Heeten, & Gersons, 2005) also found evidence of reduced hippocampal volume in PTSD sufferers and went on to demonstrate that smaller hippocampal volumes did not change after effective psychotherapy, even while symptoms resolved.

Psychophysiology

- A prospective psychophysiological study investigated auditory startle responses in firefighters pre and post trauma exposure (Guthrie & Bryant, 2005). Pretrauma physiological activity was predictive of posttrauma acoustic startle responses, and pretrauma skin conductance response to startle was predictive of posttraumatic stress severity in trauma-exposed firefighters. The findings suggest that elevated startle

response may be a pre-exposure vulnerability factor for posttraumatic stress

- Kassam-Adams et al. (Kassam-Adams, Garcia-Espana, Fein, & Winston, 2005), studying 190 traumatically injured children, evaluated the relationship between their heart rate assessed in the emergency department (ED) and later PTSD outcome. Children with an elevated heart rate at ED triage were more likely to develop partial or full PTSD by the 6 month follow-up, suggesting an association between acute physiological arousal and PTSD symptom development in injured children.
- Zatzick et al. (Zatzick, Russo, Pitman, Rivara, Jurkovich, & Roy-Byrne, 2005) investigated the association between emergency department heart rate (HR) and subsequent development of PTSD and found an independent association between elevated emergency department HR (95 BPM) and PTSD symptom development in a sample of 161 acutely injured surgical inpatients.

Miscellaneous

- Bonne et al. (Bonne, Bain, Neumeister, Nugent, Vythilingam, Carson, Luckenbaugh, Eckelman, Herscovitch, Drevets, & Charney, 2005) compared Serotonin type 1A receptor (5HT1AR) binding between patients with PTSD and healthy subjects. Contrary to previous research on depression and anxiety, they found no difference in 5HT1AR distribution volume, binding potential or trace delivery, concluding that 5HT1AR expression may not be altered in patients with PTSD.
- Butterfield et al. (Butterfield, Stechuchak, Connor, Davidson, Wang, MacKuen, Pearlstein, & Marx, 2005) investigated associations between neuroactive steroids and suicidality in veterans with PTSD. Patients who had attempted suicide in the last 6 months demonstrated significantly higher median levels of dehydroepiandrosterone (DHEA) than those who had not attempted suicide, suggesting that higher levels of DHEA may be associated with risk of self-harm.
- **Cortisol:** A study measuring CFS cortisol found that, despite normal peripheral cortisol indexes in the veterans with PTSD, their CNS exposure to cortisol was greater than that of normal comparison subjects (Baker, Ekhtor, Kasckow, Dashevsky, Horn, Bednarik, & Geraciotti, 2005). Yehuda et. al. (Yehuda, Golier, & Kaufman, 2005) reported that, in comparison to nonexposed subjects and Holocaust survivors without PTSD, Holocaust survivors with PTSD had lower cortisol at awakening at 8:00 a.m. and higher cortisol levels at 8:00 p.m. Results indicate that, in contrast to younger subjects, Holocaust survivors with PTSD show a flatter circadian rhythm.

Children

- **Reviews of child/adolescent PTSD:** At least three reviews of child and adolescent trauma were published during 2005 Caffo et.al. (Caffo, Forresi, & Liewers, 2005); Dagleish et al.(Dagleish, Meiser-Stedman, & Smith, 2005); and De Bellis & Van Dillen (2005). They conclude that traumatized children and adolescents are at a high risk of developing a range of psychological, behavioural and neurobiological sequelae, but comment on problems with the diagnosis and research methodologies.

- **Review of child treatment:** Cohen (2005) reports on the growing empirical support for trauma focused CBT for sexual abuse and other types of trauma. Other potential treatments like psychosocial methods and pharmacological intervention require more rigorous study. (Note that Judith Cohen and her team have developed an excellent free website to train clinicians in the practice of TF-CBT with children – see www.musc.edu/tfcbt)
- **Reviews of child assessment:** See “Assessment” section.

Child/adolescent epidemiological studies

- A study screening for the prevalence of probable mental disorders and examining their relationship to levels of exposure to the World Trade Center (WTC) attack in a representative sample (n = 8236) of New York City public school children 6 months post-disaster identified 1 or more of 6 probable anxiety/depressive disorders in 28.6% of the sample. Agoraphobia, separation anxiety and PTSD were the most prevalent probable mental disorders. The severity of exposure to September 11, family exposure to the WTC attack and prior trauma exposure were related to increased likelihood of post-September 11 probable mental disorder (Hoven, Duarte, Lucas, Wu, Mandell, Goodwin, Cohen, Balaban, Woodruff, Bin, Musa, Mei, Cantor, Aber, Cohen, & Susser, 2005).
- Meiser-Stedman et al. (Meiser-Stedman, Yule, Smith, Glucksman, & Dalgleish, 2005) investigated acute stress disorder (ASD) at 4-weeks and 6-month PTSD in children and adolescents who had been in assaults or motor vehicle accidents (MVA). 19% had ASD and 25% met all ADF criteria except dissociation. At 6 months, 13% had PTSD. ASD and PTSD prevalence did not differ between assault and MVA patients. ASD was a good predictor of later PTSD but dissociation did not play a significant role.
- Roussos et al. (Roussos, Goenjian, Steinberg, Sotiropoulou, Kakaki, Kabakos, Karagianni, & Manouras, 2005) examined the severity of PTS and depressive reactions in children and adolescents 3-months post the 1999 earthquake in Ano Liosia, Greece. PTSD scores were significantly higher among those close to the epicenter. Combined rates of PTSD and clinical depression for both cities were 4.5% and 13.9% respectively.
- Goenjian (2005) assessed 125 with the Child Posttraumatic Stress Disorder Reaction Index and a depression self-rating scale at 1.5 and 5 years post earthquake in Armenia. Participants who received trauma/grief-focused psychotherapy showed greater improvement in CPSDRI and depression scores than the untreated group. The authors recommend school based programs.

Partners and Families

- A study examining secondary trauma in partners and parents of Dutch peacekeepers found that partners of peacekeepers with PTSD reported more sleeping problems, more somatic problems, more negative social support and rated marital relationships less favourably than partners of peacekeepers without PTSD (Dirkzwager, Bramsen, Ader, & van der Ploeg, 2005).

- ***Predictors of partner violence:*** Several important factors, including PTSD, correlate with intimate partner violence (IPV) perpetration. In a review of IPV in military samples, Marshall et al. (Marshall, Panuzio, & Taft, 2005) found that PTSD largely accounted for the relationship between combat exposure and IPV perpetration. The authors report that standard treatments for IPV are ineffective in active duty servicemen. In a related paper, Taft et al. (Taft, Pless, Stalans, Koenen, King, & King, 2005) compared partner violent (PV) veterans with PTSD, PV veterans without PTSD, and non-violent veterans with PTSD on family-of-origin variables, psychiatric problems, relationship problems, and war-zone factors and found that PV men with PTSD were the highest on every risk factor except childhood abuse.

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