

# **At the Edge of Catastrophe: How We Are Traumatizing Ourselves Through the Media**

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# Why Assess for Trauma?

- Ubiquitous nature of traumatic life events.
- PTSD rates as high as 45% in persons with serious mental illness.
- Most individuals receive psychiatric care through their PCP.
  - Is trauma assessed?
- Incidence of PTSD is approx. 35% after serious motor vehicle accidents.
  - General hospital EDs do not routinely assess for psychiatric dysfunction after trauma.

- Over 1/2 of US citizens exposed to 1 trauma event before age 30.
- See 8-10% lifetime pathologic trauma prevalence.
- Of those that develop PTSD, 25% develop chronic PTSD.
- Increased use of medical facilities.
- Increased psychotropic use.
- Quality of life suffers.
- Significant substance abuse comorbidity.

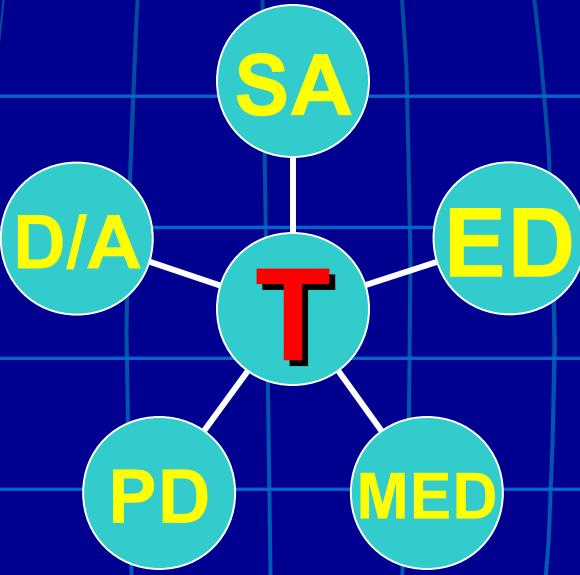
# The Conditional Risk of PTSD by Gender (%)

<u>Stressor</u>	<u>Men</u>	<u>Women</u>
Assaultive violence	6.0	35.7
Other Injury	6.6	5.4
Learning about trauma to others	1.4	3.2
Witnessing sudden unexpected death	12.6	16.2
<b>Any trauma</b>	<b>6.2</b>	<b>13.0</b>

*n = 2181, ages 18-45*

[Breslau, *Psychol Med*, 1999 Detroit area survey of trauma]

# The Trauma Psychopathology Wheel



# Trauma Comorbidity

<u>PSYCHIATRIC</u>	<u>PTSD %</u>	<u>non-PTSD %</u>
GAD	53.3	8.6
Major depression	29.9	3.7
Somatization	11.7	0.1
Substance Abuse	9.0	1.0
Suicide Attempt	19.8	1.3
<u>MEDICAL</u>		
Asthma	13.5	4.8
PUD	12.8	4.1
HBP	31.4	18.5

# Iatrogenic PTSD?

- 0-32% of cancer patients with PTSD
- 8-16% of post MI patients with PTSD
- 30-41% of HIV patients with PTSD
- Compared to 35-47% of rape/battery victims with PTSD
- DSM IV revision of traumatic event criterion
  - Traumatic experience in response to the stressor event includes *intense fear, helplessness, or horror*

# **DIAGNOSTIC ISSUES**

# A Disorder Characterized by Pathological Memories

- “An inability to forget the trauma that leads to the pathology and suffering in PTSD.”
- PTSD patients demonstrate impaired ability to *extinguish* conditioned fear responses.
  - Role of *ventromedial prefrontal cortex* in the successful extinction of conditioned fear
- Being able to forget is a core goal of treatment.
  - To promote healthy *extinction*

[Ursano, R et al, Psychiatric Times, 25(3), 2008]

**“The person with PTSD lacks the ability to experience with a context, to contextualize memory and make sense of things in the here and now.”**

**“Instead, when exposed to a reminder of trauma, he reacts as he did when he experienced the trauma.”**

[Harig, PT Currents, 27(3), 2008, 5-9]

## Bessel Van Der Kolk On Trauma

- It is as if “*...the shock absorbers of the brain are shot.*”
- “*...if everything is running smoothly you’re fine...but the moment you get hurt, jealous, upset, fall in love, fall out of love, your reaction becomes much stronger.*”

[NY Times Magazine, July 27, 1997]

# DSM IV TR PTSD

## A. EXPOSURE:

The person has been **exposed to a traumatic event** in which both of the following were present:

1. The person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others.
2. The person's response involved **intense fear, helplessness, or horror.**

## B. REEXPERIENCING:

The traumatic event is persistently re-experienced in one or more of the following ways:

1. Recurrent and intrusive distressing recollections of the event, including images, thoughts or perceptions.
2. Recurrent distressing dreams of the event.
3. Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations and dissociative flashback episodes, including those that occur on awakening or when intoxicated).
4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
5. Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

## C. AVOIDANCE

Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three or more of the following:

1. Efforts to avoid thoughts, feelings or conversations associated with the trauma.
2. Efforts to avoid activities, places or people that arouse recollections of the trauma.
3. Inability to recall an important aspect of the trauma.
4. Markedly diminished interest or participation in significant activities.
5. Feeling of detachment or estrangement from others.
6. Restricted range of affect (e.g., unable to have loving feelings).
7. Sense of a foreshortened future (e.g., does not expect to have a career, marriage, children or a

## D. AROUSAL

Persistent **symptoms of increased arousal** (not present before the trauma), as indicated by two of the following:

1. Difficulty falling or staying asleep.
2. Irritability or outbursts of anger.
3. Difficulty concentrating.
4. Hypervigilance.
5. Exaggerated startle response.

## DSM IV PTSD

- E. Duration of the disturbance (symptoms in Criteria B, C and D) is more than 1 month
- F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning

## DSM-5

- New DSM chapter: “Trauma and Stressor-Related Disorders”
  - Acute Stress Disorder
  - PTSD clusters- re-experiencing, avoidance, persistent negative alterations in mood and cognition, arousal
  - Adjustment Disorder- specific stress response syndrome s/p traumatic or nontraumatic event

# Acute v. Chronic Stress Disorder

- Acute Stress Disorder if duration < 3 mos
- Chronic Stress Disorder if duration  $\geq$  6 mos
- Delayed onset when symptoms noted  
 $>$  6 mos after the stressor

## Denial & the DSM 5

- A. **Exposure** to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:
1. Directly experiencing the traumatic event(s).
  2. Witnessing, in person, the event(s) as it occurred to others.
  3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
  4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders exposed to details of child abuse).

[NB: Criterion A4 does not apply to exposure through electronic media television, movies, or pictures, unless this exposure is work related. Why?]

# PTSD Screening Questions

- *Do you avoid being reminded of the experience by staying away from certain places, people, or activities?*
- *Have you lost interest in activities that were once important or enjoyable?*
- *Have you begun to feel more isolated or distant from other people?*
- *Do you find it hard to feel love or affection for other people?*

## Screening Questions

- Have you begun to feel that there is no point in planning for the future?
- Have you had more trouble than usual falling asleep or staying asleep?
- Do you become jumpy or get easily startled by ordinary noises or movements?

*Total yes score of 4 or higher indicated possible PTSD*

# ASD Predicts PTSD?

- N=500, mostly accidentally injured civilians
- 6% had ASD at 1 mo.
- 10% had PTSD at 3 mos.
  - 31% of these patients had ASD pre-PTSD
  - 69% recovered without chronic PTSD
  - Brain injury + ASD better PTSD predictor  
*[the Iraq/Afghanistan dilemma]*

# **MASS TRAUMA**

## Four Phases of Adaptation Post Attack

- Adapted from Cohen, et al - *Human Problems in Major Disasters: A Curriculum for Emergency Medical Personnel.* Washington DC: U.S. Govt. Printing Office, 1987.

# Phase One

## Impact

*Attack Week 1-2*

- Shock
- Disbelief
- Numbing
- Denial of significance
- Population response:
  - 1/3 anxious, consume resources
  - 1/3 numb, become followers
  - 1/3 lead, become involved

# Phase Two

## Adaptation

*Weeks 1-12*

- Mobilization
- Anger
- Patriotism
- Realization of impact, denial breaks down
- Increased mental health needs
- PTSD symptoms - intrusive thoughts, autonomic hyper-arousal, startle responses, hypervigilance, insomnia, nightmares/flashbacks, dissociation

# Phase Three

## Resentment & Disappointment

- Embittered by losses.  
W.E.D. 1952
- Loss of sense of community.
- Loss of idealism.
- Confronting real loss.
- Question government and its leaders.
- Capitulation - “*Give them what they want.*”

# Phase Three

Weeks 12-52

- “Who wants to sacrifice for other people.”
- “I have to take care of myself.”
- Unmet expectations.
- Anger and resentment towards authority figures.
- Police report increased criminal behavior, social unrest and disruption, violent assaults.

# Phase Four

## Reconstruction

*Weeks 52 - 160*

- Rebuilding shattered lives (home, family, job, etc.).
- Resolve(?) psychological trauma
- Attend to somatic symptoms and depression.
- Assign meaning to the unimaginable.
- Integrate new self concept, reappraise the event, one's role and function.

# **PSYCHOBIOLOGY**

# Overview

- Exposure to traumatic life events leads to enduring chemical, electrical and morphologic brain changes.
- Advances in the neurobiology of learning have demonstrated chemical and structural changes at the neuronal synapse.
- Trauma-based learning leads to lasting trauma engrams that provide a cauldron of psychopathology.

# Hippocampus (HPPC) & Declarative Memory

- HPPC creates a declarative rational cognitive (*symbolic, explicit, operational*) memory map out of affectively-laden sensory input
- Can be disrupted by early childhood trauma (e.g., stress-related hyper-cortisolemia decreases HPPC function).
  - HPPC atrophy?
- In the trauma brain, affective experience may still be deposited in memory stores, but it is *sans* HPPC-mediated symbolic processing.

# The Emotional Amygdala (AM)

- Evaluates emotional meaning of sensory input (internal as well as external) & links it with memory images.
- Adds “raw” emotional coloring to sensory input & then guides emotional (visceral, hormonally based, basic drive state) behavior via *hypothalamic, hippocampal & basal forebrain* circuitry.

# Emotional Memory

- Engrams stored outside of HPPC memory system.
- Role of AM.
- When healthy, prefrontal cortex provides inhibition of subcortex-based affectively laden memories.

# Trauma Memory

- Traumatic life experiences appear to interfere with HPPC explicit memory (semantic, conscious recall of people-places-things).
- Trauma appears not to influence AM implicit memory (behavior, affect, sensorimotor response, non-language experiential response).
- **Resists extinction.**
  - A core component of pathological trauma syndromes.

# Bessel van der Kolk's Trauma Model

“The body keeps the score”

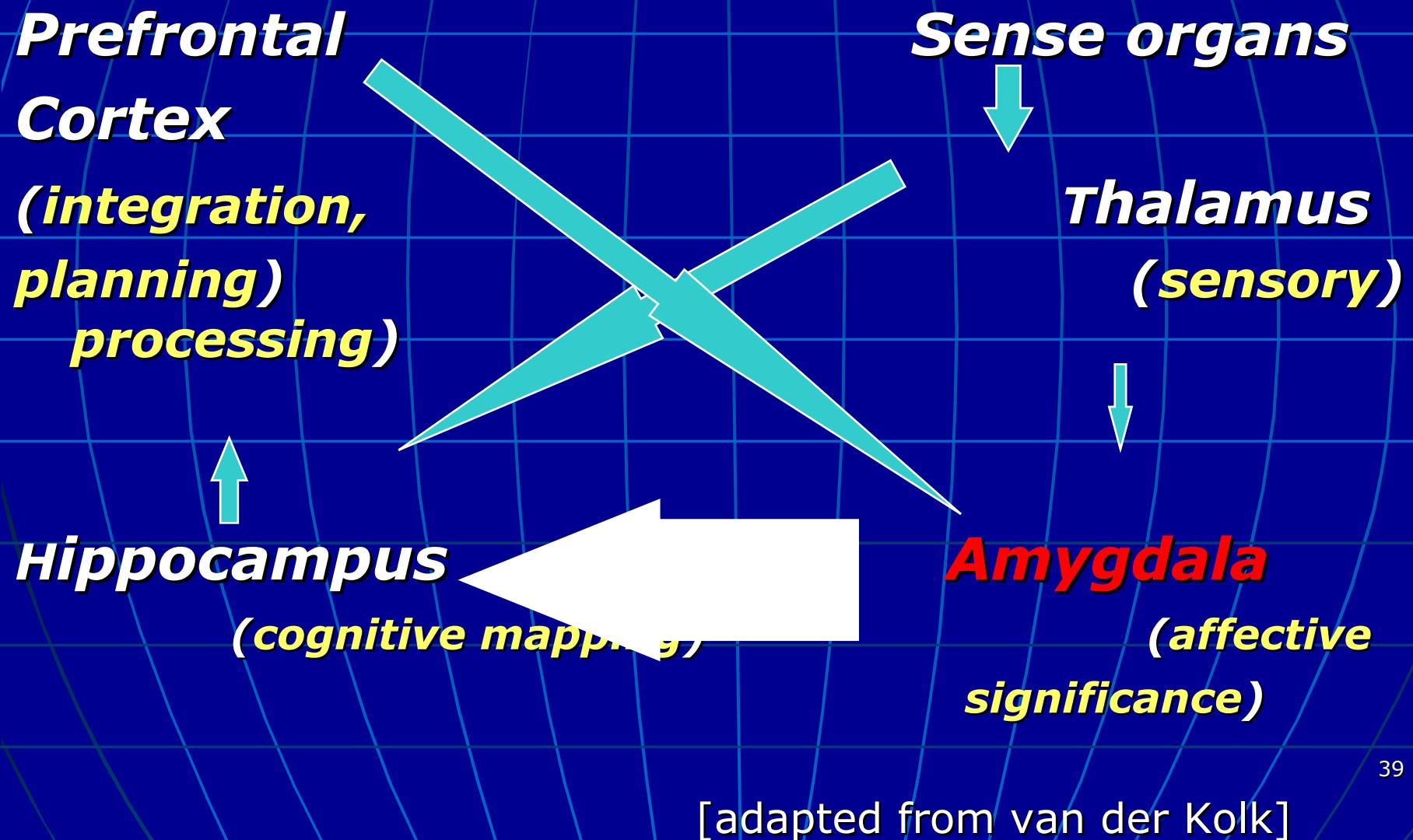
- Traumatic stressors release endogenous neurochemicals (e.g., cortisol, 5HT, E, NE, vasopressin, oxytocin, opioids) that enable us to mobilize the physiologic resources to deal with the stress.
- Chronic stress permanently alters the individual’s HPA axis and the ability to cope with acute and chronic stressful life experiences.
  - Impact on the cortical limbic axis?
- Trauma memories (psychic and somatic) are indelible and forever.

## van der Kolk's Limbic Schema

- The Thalamus, AM, Hippocampus integrate & interpret sensory input.
- AM activation can enhance (*kindling, neuronal sensitization*) long term potentiation of HPPC mediated declarative memory leading to hypermnesia for the trauma.

- Pathological AM stimulation interferes with HPPC function and prevents cognitive evaluation of experience and linguistic processing.
- Memories are then stored in somatic and visual sensorimotor modalities, become relatively fixed *but can be modified* by prefrontal cortical feedback.
  - Psychotherapeutic opportunities.

# Van der Kolk Schema



# Gene Polymorphism and PTSD,

## *Not Every Trauma Survivor Suffers PTSD*

- Inherited variations of multiple genes may account for 30-40% of the risk of PTSD development.
- N=900, 18-81 yo primarily African Americans
  - 30% had a history or prior child abuse
    - Resulted in twice the number of PTSD symptoms in adults who later suffered trauma than in traumatized adults who were not abused in childhood.
    - *If certain variations of a stress-related gene (FKBP5) were present.*
      - *FKBP5* regulates the binding between stress-related hormones and their cellular receptors.

# **TRAUMATIC MEDIA**

# Our World Is More Violent?

- Our world's trials and tribulations have not really changed over time.
- However, we have lost our *trauma insulation*.
  - It has been peeled away by communication satellites, the world wide web and family system dysattention.

- Imagine if CNN covered the American Civil War 24/7?
- Or the nightly news gave us living color real time coverage of the Crusades?
- Or multi-media coverage of the bubonic plague?

# The Trauma Media Paradox

- The human dilemma
  - *Homo sapiens* have historically been thrill seekers driven by our limbic systems poorly modulated by our frontal lobes.
- Yellow journalism in print form has given way to numerous reality TV shows, “jackass the movie”, CNN addiction.
- This is further accentuated by the cold reality of the financial reality that sensationalism sells.

# **Our Media Hungry Public, A Double Edged Sword**

- N=534 Israeli civilians asked to fill out a questionnaire assessing attitudes and reactions to media coverage of terrorist acts.
- When coverage contained horrific acts the interest in receiving detailed information declined.
- Such exposure was associated with development of PTSD-like symptomatology

[Keinan, G. et al, J. Community Psychol., 31:149-165, 2003]

# The Interface Between Media & Terrorism

- “Each exploits the other and terrorism has no meaning without media coverage in this age of mass communication.”  
[Martin, LJ; *Terrorism*, 8(2)127-146, 2008]
- “The media have provided publicity for terrorist grievances, given legitimacy to violence, aided in the recruitment of new members into terrorist organizations, and prompted overreaction by government officials.”

[Leibstone, M; in *Clandestine Tactics and Technology Series-Update Report*, 4(5)]

# The Media Terrorism Paradox

- *"Terrorism is a product of freedom, particularly freedom of the press."*-Brian Jenkins
- *"Democracies must find ways to starve the terrorists and hijackers of the oxygen of publicity on which they depend"*  
-Margaret Thatcher
- *"The media may not be successful much of the time in telling people what to think but it is stunningly successful in telling them what to think about."*

[Biernatzke, SJ, *Communication Research Trends*, 2(1-23),2002.

- "...terrorism as psychological warfare against the community."

[Danieli,Y et al, *J of Aggression, Maltreatment & Trauma*, 9(1/2,3/4), 10(1/2,2/4), 2005]

- "Television has a love affair with drama and a love affair with violence. We must find some way to keep this love affair under control"

-Daniel Schorr

[Martin, LJ, 2008]

# Symbiosis

- *"Possibly the most accurate description of the relationship between the mass media and terrorists is that the media have come to constitute such a major portion of modern culture that most of today's terrorists have factored them into their tactics in one way or another."*

[Biernatzke, SJ 2002]

# Media Related Trauma

- The internet, video games and reality-based TV has replaced Parcheesi, Monopoly, conversation at the dinner table, letter writing.
- The adult brain, with its ability to logically reason and control emotional reactivity has the capacity to filter out much of the traumatic input from our modern media.
- The child's brain is a captive audience of such sensory input; the limbic system reacts wholeheartedly, un-tethered from frontal lobe influence.

# Media and Children

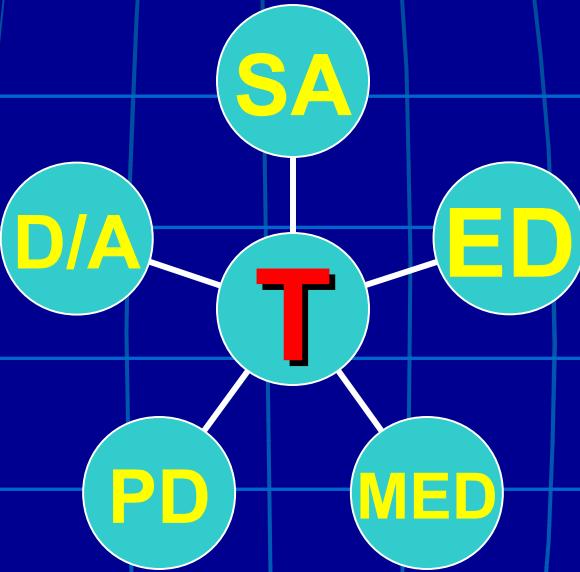
- It is our young that are at greatest risk.
  - Neurodevelopmental vulnerability of the immature nervous system.
- We used to believe that the brain was fully mature by the age of 13.
- Not so. Recent neuroscience advances indicate that the frontal lobes do not fully mature until the late teens to the mid twenties.

# **MR-PTSD**

- Media Related Post Traumatic Stress Disorder (*MR-PTSD*).
- What has the multimedia revolution and market share financial greed done to our children?
- To our family unit?

# **TREATMENT**

# The Trauma Psychopathology Wheel



# CBT

- The goal of CBT is to be rescued from the past, to be placed safely and firmly in the present.
- Learned safety – Cognitive reprocessing does reprogram neural networks so that they cease to have sensitized communication with a pathologically over reactive amygdala.
  - As noted, the impact of a pathologically hyper-reactive amygdala can attenuate the frontal cortex's inhibitory influences on the amygdala.
- CBT enhances cortical inhibition of amygdala.

# CBT

- “We want to help our patients learn that when the amygdala triggers a fight or flight response, it may not be relevant to current experience.”
- Facilitates the reprocessing of traumatic experience that frees the individual from reliving the past.
- “Allow them to understand the past from a firmly rooted present.”

[Harig, PT Currents, 27(4), 2008]

# Edna Foa, PhD: Imaginal Desensitization

- By speaking about the trauma repeatedly and in greater detail over several sessions they experience the intensive affect in a safe environment which desensitizes the emotional response.
- They learn that they can manage their affect, especially in PTSD triggering situations.
- Perceptions change and existential danger diminishes.

## CBT Timing

- When to start exposure therapy?
- We know that incident debriefing does more harm than good.
  - Level 1 trauma center emergency dept., n=137
  - “Prolonged exposure therapy administered within 12 hrs. of a highly traumatic event such as rape, appears to help prevent the development of PTSD and depressive symptoms.”

[Rothbaum, BO et al Biol Psychiatry 2012; 72: 957-963]

# CBT and Functional Imaging

## ■ fMRI in PTSD

- Amygdala (depository of emotional engrams and fight-flight control system) **hyperactivity**.
- Frontal cortex **hypoactivity**.
- Cognitive therapy and exposure therapy work to boost prefrontal cortical control of deep limbic structures.
  - Cognitive reprocessing puts traumatic memories into context, develops new neural networks and extinguishes the emotional avoidance reaction.
  - Trauma memory is retained without the affective connection (leaving the amygdala out of the loop).

# Trauma Psychotherapy v. Pharmacotherapy:

## Jerusalem Trauma Outreach and Prevention Study

- 289 adult survivors with PTSD (work, vehicular, terror and other trauma) received either cognitive therapy (CT), prolonged exposure therapy (ET), wait list, *escitalopram* (10-20mg), or placebo.
  - All within 28 days of trauma for 12 weeks
  - CT and ET were equipotent in reducing PTSD prevalence by 80%.
  - Wait list group prevalence reduction-40%
  - SSRI reduction – 40%

[Shalev,AY Amer Coll Neuropsychopharmacol 46<sup>th</sup> Annual Meeting, Dec. 2007]

# WHO 2013 Guidelines

- **PTSD:** individual/group CBT with trauma focus, eye movement desensitization reprocessing (EMDR) or stress management for adults; CBT, EMDR for children, adolescents.
  - No first line antidepressants (ADs) unless moderate-severe depression.
  - Does not recommend ADs in children, adolescents
- **ASD:** trauma focused CBT for adults, children, adolescents.
  - No benzodiazepines or ADs.

# Pharmacotherapy

- **SSRIs**
- **Buspirone**
- **Beta blockade** – propranolol
  - Emergency use for prevention
  - May block adrenergic trauma memory consolidation in amygdala
- **Alpha 2 agonist** – *clonidine, guanfacine*  
(n.b., recent double blind failure)
  - Anti-arousal agents
- **Peripheral alpha blockade** – *hytrin, minipres*
  - Nightmare flashbacks, insomnia

# The Addict and PTSD

- What to treat first, the SA or PTSD?
- Role of the addiction lifestyle.
- Pathological exposure.
- A progressive process.
- Learned helplessness.
  - Life becomes unmanageable and powerlessness ensues.
- Role of brain changes?
  - Prefrontal cortex becomes helpless in the face of all powerful pleasure centers and limbic system.
  - Neurotoxicity

# **PREVENTION**

# Resilience

- Not the same as trauma recovery.
- Much more than the absence of psychopathology.
- It incorporates the healthy perpetuation of the status quo, the ability to maintain life balance.
- Concepts of *hardiness, self-enhancement, repressive coping, positive emotion and laughter*.

[Bonano, GA; *American Psychologist*, 39 (1), 2004, 20-28]<sup>55</sup>

# **Hardiness**

- The pursuit of meaningfulness in life.
- Development of self value, self worth.
- The belief that one is an integral part of a larger social system.
- The assertive belief that one can influence their environment and can learn from failure, pain and success.

# How to Cope

## *Immediately after:*

- Remain informed.
- Recognize the need for a time out.
- Be active, help others..
- Try to return to regular routine.
- Be in contact with others, don't become disconnected.
- Be attentive to your feelings and thoughts, accept them as “normal” even if abnormal.
- Avoid media overload, promotes trauma.

# How to Cope

## *Coping in the long run:*

- Coping develops automatically if we allow ourselves to relax.
- Maintain people contact.
- When you feel overwhelmed, accept it as normal but a state that will pass.
- Don't avoid the memories, give yourself permission to be upset, let the feelings pass, relax.
- It is perfectly okay to use humor as a way of coping.
- Use positive memories to aid calming.

# Psychobiology of Resilience

- Character traits associated with resilience (and associated neural circuitry/chemistry)
  - Altruism, bonding, and teamwork  
(adaptive social behavior)
  - Effective behavioral repertoire in the face of fear  
(fear responsiveness)
  - Hedonia, optimism, and learned helpfulness  
(reward and motivation neural mechanisms)

[Charney, DS, Am J Psychiatry, 161:2, 2004, 195-216]

# The Israeli Reality

- Trauma exposure is a given.
- Where to intercede?
  - Before the event
- Best psychosocial arena?
  - The school
  - Training teachers and social workers on the development of resilience in their students

[Daniel Brom, Israel Center for Psychotrauma, personal communication]

# Israeli National School Resilience Project (2000)

- Building resilience in school and home
  - Teachers as agents of change by
    - Learning how to communicate with students about trauma loss and long term stress.
    - Becoming available to students to explore not only realities and cognitions but also emotions.
    - Helping students to develop individual coping resources.

[Baum, NL et al, Israel Center for the Treatment of Psychotrauma, report, 2006]

# The Media and Resilience

- "Resilience rests, fundamentally, on relationships, the desire to belong...Accordingly, serious disruptions in the early relationships with caregivers-in the form of physical, sexual, or emotional abuse-strongly impair the chances of resilient adaptation later in life."

[Luthar, SS; Resilience in development: A synthesis of research across five decades, in Cicchetti et al *Developmental Psychopathology: Risk, disorder, and adaptation*, vol 3 Wiley:NY 2003]

Must seriously consider the 21<sup>st</sup> century impact of texting, Facebook, internet surfing, video games, email etc. on the establishment and maintenance of relationships. The next generation's "desire to belong" may be geared to electrons and photons and not protoplasm.

# **Is ongoing low level childhood trauma more problematic than isolated episodes of intense trauma?**

- Consider persistent emotional abuse:
  - Lack of nurturance.
  - Dysfunctional parental marriage.
  - A lifetime of double bind messages.
  - Family of origin substance abuse environment.
  - Parental loss and single parenting.
  - Living in a war zone or crime ridden ghetto.

# Future Questions

- Changes in the definition of trauma.
- Do traumatic life experiences accumulate over time and lead to greater psychopathology?
- What trauma is worse, an isolated trauma episode like rape or the day to day experience of living in an emotionally abusive and frightening home?
- What is the long term effect of traumatic media?
- Sadly, only time will provide us with these answers unless we take action and improve diagnostic and prevention capabilities.

# Trauma Concept Reconsidered:Key Variables

- Nature of traumatic event
- Number of traumatic events
- Frequency of traumatic events
- Context of traumatic event
- Developmental age at time of trauma
- Pre-existing psychopathology
- Presence of active addiction
- Genetic predisposition(s)

# **ADDITIONAL SLIDES**

## Modern Trauma Nosology : Kardiner (1940s)

- Benefited from wartime trauma experience, identified *post traumatic stress* & *traumatic neurosis* nosology
- Noted enduring vigilance & excessive reactivity to environmental threats
- Described a *physioneurosis (neurasthenia)* “that outlives every intermediary accommodative device”

**N.B.** Organized psychiatry (APA) doesn't include PTSD in the DSM (III) until 1980 Spurred by returning Vietnam vets!

# Childhood Trauma & Old Age Stroke?

- N=188 autopsied non-demented over 55 assessed for childhood adversity prior to their demise
- 46% had cerebral infarcts
- Infarcts were 2.8 times more likely an emotional neglect score at 75 %ile

[Wilson RS et al. Neurology 2012; 79:1534]

## More On Trauma-Related Neuropathologic Change

- N=19 with >6 mos. physical or sexual abuse or witnessing domestic violence
- N=13 matched controls
- At baseline, mean age 16, well functioning, intact families, without child protective services files
- Found white matter changes associated with later onset SA and mood pathology
  - Don't let your guard down with a well functioning teen with a h/o significant abuse

[Huang H et al Neuropsychopharmacology 2012; 10:1038]

# Trauma Memory

- Ledoux demonstrated the indelibility of subcortical emotional memories via repetitive stimulation of AM resulting in conditioned fear responses

[Ledoux, JE et al *J Cog Neurosci* 1991;1:238-243]

- Cortical lesions can prevent their extinction suggesting that subcortical childhood emotional memory may last forever?

# Critical Brain Regions and PTSD Development

- Analysis of brain scans of 193 Viet Nam vets with penetrating brain injuries vs. 52 without head injuries
  - 1/3 of the total developed PTSD during their lifetime
  - PTSD rarely occurred in those with damage to the Amygdala and the Ventro-medial Prefrontal Cortex, areas related to fear conditioning/anxiety and executive planning respectively

[Koenigs, M et al, Nature Neuroscience, 11, 2008, 232-237]

# Combat As Defacto PTSD Risk Factor?

## Has the Iraq war created a new trauma category?

- Military personnel repeatedly exposed to the threat of combat or those in combat are at risk for developing core symptoms of PTSD
  - High risk situations
  - Helplessness and vulnerability
  - Learned vulnerability, like learned helplessness
  - Lack of predictability

[Harig, PT Currents, 27(3), 2008, 5-9]

- Iraq: Role of comorbid closed head injury?

## Subclinical PTSD

- 76% of adolescents from 9 U.S. middle schools reported witnessing or being the victim of at least one violent event in a 3 month period.
- High prevalence of subclinical PTSD comorbid with depression and anxiety disorders
- Traumatic experiences like MVA, family violence or invasive medical procedures have an impact on psychophysiological reactivity regardless of PTSD diagnosis

[Caffo,E et al, Curr Opin Psychiatry, 18(4) 2005, 422-428]

# Exposure Therapy

- Randomized controlled trial of either prolonged exposure [PE] ( $n=141$ ), present-centered therapy [PC] ( $n=143$ ) over 10 weekly 90min sessions to female veterans with PTSD
  - PE – repetitive vivid re-experiencing until extinction
    - 41.0% initial remission
  - PC – supportive here-and-now therapy
    - 27.8% initial remission – required more psychotropic intervention

[Schnurr, et al JAMA, 2007, 297:820-830]

# 2007 NICE Guidelines

- CBT
  - Cognitive restructuring
  - Exposure therapy
- EMDR (eye movement desensitization reprocessing)
  - What represents adequate training?
- Debriefing
  - Critical incident stress debriefing
  - May make trauma response worse

# Comorbid PTSD, SA & Exposure Therapy

- What to treat first, the SA or the trauma?
- N=55 comorbid pts. treated with prolonger exposure
- N=48 comorbid pts. Receiving usual SA treatment
- “an exposure therapy strategy for treating comorbid SA and PTSD achieved greater reductions in PTSD sxs than did usual treatment for SA”

[Mills, KL et al JAMA, 2012;308:690-699]

# NICE Pharmacology Guidelines

- Used an effect size greater than 0.5 to warrant guidelines recommendation
- Both FDA approved *paroxetine* and *sertraline* results were below the 0.5 effect size cut off for efficacy
- *Phenelzine*, *mirtazapine* and *amitriptyline* results were above the 0.5 cut off

# CBT Works Better Than Pharmacotherapy in UK

- National Institute for Clinical Excellence (NICE) recommended in 2007 that cognitive therapy is treatment of choice for PTSD
- APA guidelines heavy on pharmacotherapy
  - Why? Research grants? Big Pharma? Molecules are sexy?

# Childhood Trauma and Hallucinations

- Assessment of childhood trauma using a childhood trauma questionnaire
  - N= 127 nonpsychotic disorder but frequent auditory/visual hallucinations(AVH)
  - N= 100 psychotic disorder and frequent AVH
  - N= 124 healthy controls without psychosis or AVH
- “compared to healthy controls, nonpsychotic individuals with AVH were 2.5 times more likely to have experienced sexual abuse and 7.3 times more likely to have experienced emotional abuse during childhood.

[Daalman, K Psychol Med2012;42:2475-2484]

# PTSD, Childhood Attachment and the Right Brain

- Right brain's role in attachment, affect regulation and modulation of stress
- Early abuse (first two years of life) negatively impacts on the neuro-development of the child's right brain.
- Traumatic attachments (disorganized, disoriented, insecure, chaotic) interfere with the infant's ability to develop cognitive models for dealing with relationship stress
- Trauma-related episodes of hyperarousal and dissociation may be imprinted into the infant's developing limbic and autonomic nervous systems resulting in ongoing structural alteration that predisposes the individual to trauma syndrome development at some point in the future.

## Van der Kolk's Model

- Cortical centers function to prevent the disinhibition of indelible subcortical traumatic emotional memory traces
- Cortical impairment can lead to abnormalities of subcortical learning, habituation & stimulus discrimination
- Do PTSD sufferers have impaired cortical-to-subcortical control?
- Impact of blast injuries to CNS?