

## Posttraumatic Stress Disorder

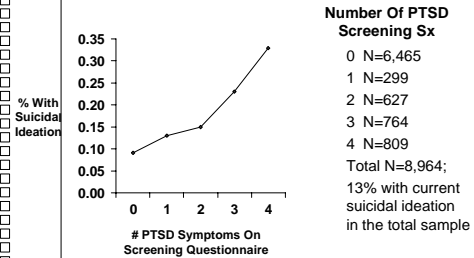
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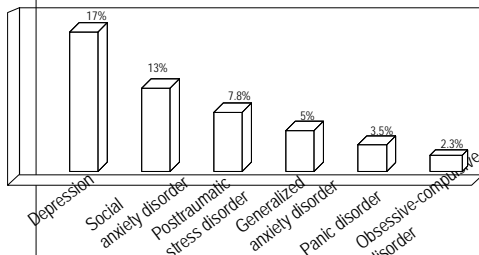
Center for the Study of Trauma and Resilience  
(www.columbiatrauma.org)

## Suicidal Ideation Among Individuals With Subthreshold PTSD Symptoms



Marshall RD et al. *Am J Psychiatry*. 2001(Sept);158:1467-1473.

## Depression and Anxiety Disorders: Prevalence (lifetime, of 200M adults in U.S. )

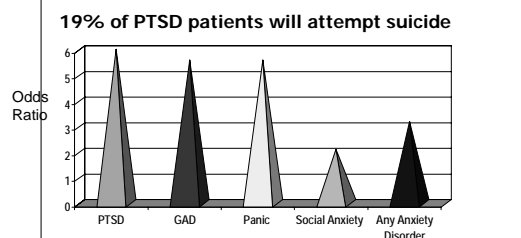


Kessler et al. 1995 *Arch Gen Psychiatry*; 51: 1048

## Normal Responses After Trauma

- Intensity of response varies with severity of trauma
- Re-experiencing symptoms (thoughts, dreams, images)
- Intense emotional reactions: fear, bewilderment, anger, helplessness and despair
- Increased vigilance and autonomic arousal
- Persistent memory often with vivid imagery
- Gradual adjustment over weeks to months

## Risk of Suicide Attempts for Anxiety Disorders



PTSD patients are 6 times more likely to attempt suicide than controls

Kessler et al. *Arch of Gen Psychiatry*. 1999; 56: 617

## PTSD—Definition

- Traumatic Event: Person experienced or witnessed actual or threatened death or injury to self or others
- Subjective Response of “fear, helplessness, or horror”
- Core symptoms
  - ◆ Intrusive re-experiencing
  - ◆ Avoidance
  - ◆ Numbing
  - ◆ Increased autonomic arousal

## Life events checklist

- Natural disaster
- Fire or explosion
- Transportation accident
- Other serious accident (at home, work or recreational)
- Toxic substance exposure
- Physical assault
- Assault with a weapon
- Sexual assault
- Other unwanted sexual experience

Johnson JH, McCutcheon S 1980

## Re-experiencing Symptoms

At least one required for DX

- Unwanted distressing recollections of the event
- Flashbacks
- Nightmares
- Exaggerated emotional and physical reactions to triggers
- Intense psychological distress when exposed to triggers

## Life Events Checklist

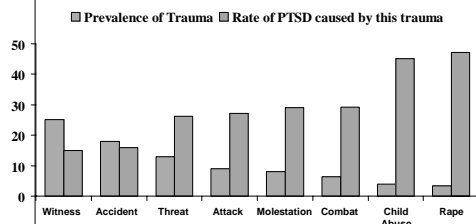
- War-related (combat or exposure to war zone)
- Captivity
- Life-threatening illness or injury
- Severe suffering of any kind
- Sudden violent death
- Sudden death of someone close
- Serious injury, harm or death caused to someone else
- Any other very stressful event or experience

## Avoidance Symptoms:

At least three required for DX

- Avoidance of thoughts and feelings about trauma
- Avoidance of activities, places or people related to the trauma
- Inability to recall aspects of the event
- Loss of interest or diminished participation in significant activities
- Feeling detached from others
- Restricted emotions
- Sense of foreshortened future

Prevalence Of Trauma And PTSD  
More Than 60% Experience A Traumatic Event  
More Than 25% Experience Multiple Traumatic Events



Many people develop this disorder (10-18%), but only a proportion of those exposed  
Kessler et al. 1999.

## Hyperarousal

At least two required for DX

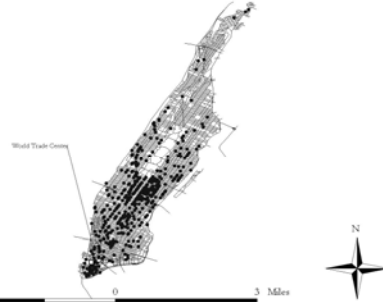
- Difficulty sleeping
- Irritability or outbursts of anger
- Difficulty concentrating
- Hypervigilance
- Exaggerated startle response

## Types of PTSD

- Acute < 3 months
- Chronic ≥ 3 months
- Delayed (rare)
  - ◆ symptom onset ≥ 6 months after traumatic event

American Psychiatric Association. *DSM-IV*. 1994.

## Survey 1: Respondents' Locations On 9/11



## PTSD and Depression In Manhattan (below 110<sup>th</sup> St) 1-2 Months Post-9/11

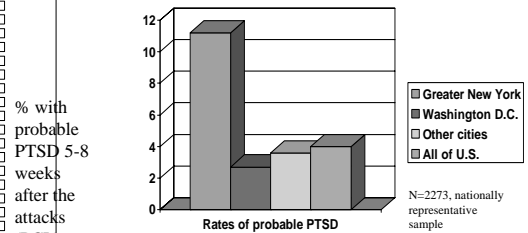
	N (Total = 988)	Weighted %	95% Confidence Interval	Population Estimate*
PTSD related to 9/11 attacks	78	7.5	5.7-9.3	67,000
Current depression	99	9.7	11.2-16.0	87,000
Current PTSD or depression	139	13.6	11.2-16.0	128,000

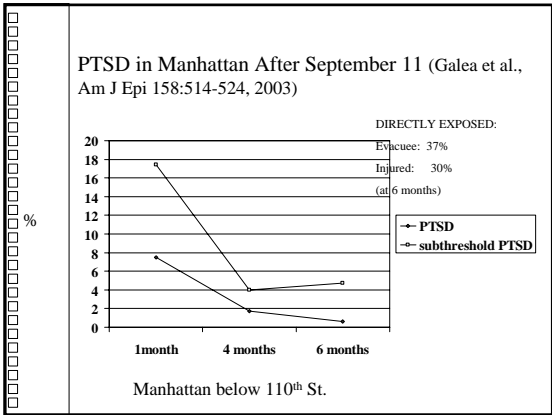
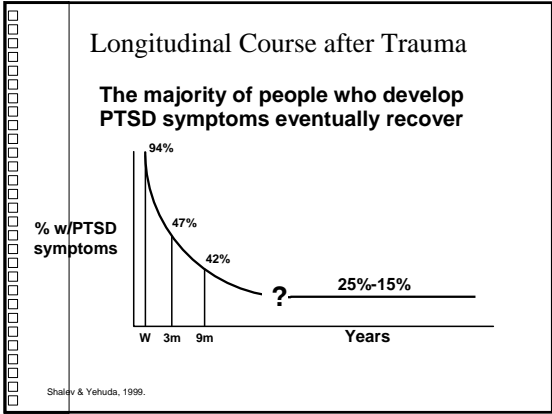
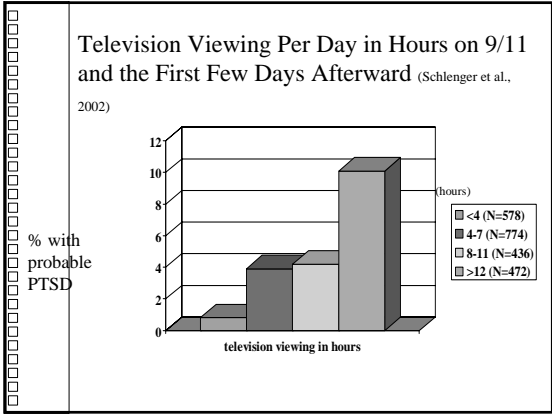
\*Based on US Census Bureau estimates that there were 918,665 residents of New York City in 2000. Rounded to nearest 1000.

## Survey 1: Respondents' Residences On 9/11



## Rates of Probable PTSD Related to 9/11 by Geographic Location (PCL>50) (Schlenger WE et al., JAMA. 2002 Aug 7;288(5):581-8)





### Number of Persons with PTSD related to 9/11 across the U.S., 5-8 weeks after the Attacks

Based on Schlenger et al 2002

- NY area: 1,072,500 adults with probable PTSD
- U.S. total: 8,640,000 adults with probable PTSD

Based on Galea et al (NY Area) (6% of 13.5M)

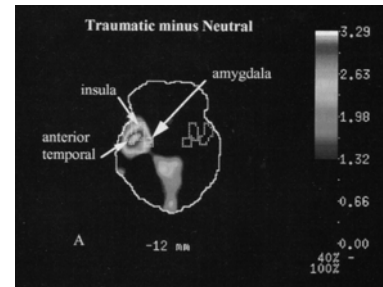
- 460,000 (directly affected) + 360,000 (indirectly affected) = 820,000

- ### PTSD: Risk and Protective Factors
- Severity of trauma
  - Genetic Vulnerability
  - History of previous trauma
  - Preexisting psychiatric disorder
  - Family history of psychiatric disorder
  - Available support systems
  - Exposure to reactivating environmental events

## PTSD: the Biological Perspective

- **Etiology:** PTSD involves a biological vulnerability, determined by genetic and/or developmental factors, to dysregulation of stress responses
- Perceived threat provokes a robust physiologic, systemic response, with increased amygdala and locus ceruleus activity, sympathetic arousal, and cortisol and opioid release
- Intense pain / fear responses are imprinted in cortical and subcortical synapses related to memory, perception, and arousal.

## Exposure to Traumatic Imagery in PTSD



Rauch et al. *Arch Gen Psychiatry*. 1996;53:380.

## PTSD: the Biological Perspective

### Etiology (continued:)

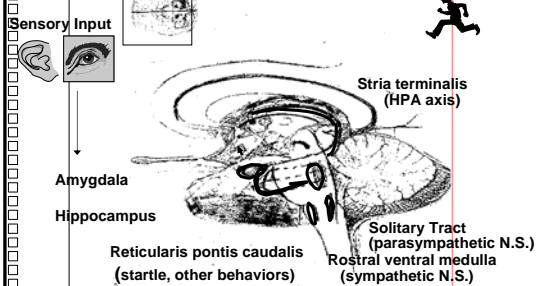
PTSD is associated with alterations of the HPA axis, hippocampus, serotonergic, noradrenergic, glutamatergic and GABAergic systems

**Treatment:** Pharmacotherapy or psychotherapy to correct dysregulation

## The Amygdala: Critical In Both *Perception* And *Expression* Of Fear

- Lesions to the amygdala:
  - ◆ impair recognition of fearful facial expressions
  - ◆ impair fear response (Kluver-Bucy)
- Electrical stimulation of the amygdala precipitates fearful, panic-like responses

## Neurobiology of the acute stress response



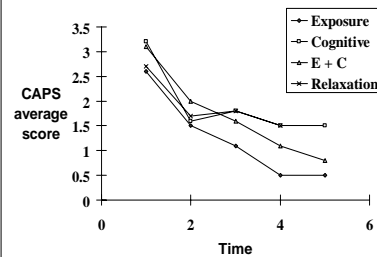
## PSYCHOTHERAPY FOR PTSD

**Use of new technologies:  
The computer as therapist**



Do you want to Save or Delete the relationship with your mother?

**Treatment of PTSD by Exposure and/or Cognitive Restructuring** Marks et al., *Arch Gen Psychiatry* 1998)



- PSYCHOSOCIAL MODEL OF PTSD
- To what degree is PTSD explained through learning mechanisms
  - ◆ role modeling (including parenting); classical and operant conditioning (trauma); higher order generalization (schema development); higher order schematization (Weltanschauung)
  - ◆ Corollary: Mood and anxiety symptoms and interpersonal problems are secondary to overlearning and its consequences (grim, restricted, and/or erroneous assumptions about the future, others, and the environment)

**Rationale for Prolonged Exposure Therapy**

Three main factors prolong post-trauma problems:

- ❖ Avoidance of trauma-related situations
- ❖ Avoidance of trauma related thoughts and images.
- ❖ The presence of maladaptive beliefs since the trauma: "The world is extremely dangerous"; "The victim is extremely incompetent."

The *avoidance strategies* prevent the client from processing the trauma, both emotionally and cognitively.

In other words. . .

- "One sees what one knows."  
--Goethe

The two main procedures for addressing avoidance behaviors:

- ❖ Telling the Story of the Trauma (Imaginal exposure) Confronting painful memories promotes processing of these experiences and allows the patient to reflect on frightening, overgeneralized beliefs about the trauma and themselves ("I can't trust anyone; I am weak")
- ❖ Homework to overcome avoidance (In vivo exposure) Approaching trauma-related situations that are being avoided. It enables the patient to learn experientially that these situations are not dangerous.

## Medication for PTSD

## Controlled trials in PTSD – not more effective than placebo

- Lamotrigine veterans (promising in N=15 study)
- Fluoxetine (Nagy *et al.*, unpublished; van der Kolk *et al.*, 1994, veterans subsample)
- Fluoxetine (Hertzberg *et al.*, 2000, N=12 veterans)
- Sertraline (Pfizer, unpublished, 1 veteran site, 1 civilian site)
- Phenelzine for civilians and veterans (N=10, crossover design, 5-week trial, Shestatzky *et al.*, 1988)
- Alprazolam for civilians and veterans (N=10, crossover design, 5-week trial, Braun *et al.*, 1990)
- Desipramine for veterans (N=18, 4-week trial, Reist *et al.*, 1989)
- Inositol for civilians and veterans (N=17, Kaplan *et al.*, 1996)



## Controlled trials in PTSD – more effective than placebo

- Venlafaxine, sertraline for PTSD (Davidson in press)
- Paroxetine for civilians and veterans (N= 551, Marshall *et al.*, 2001)
- Sertraline for mostly civilians (Davidson *et al.*, N=208, 2001)
- Sertraline for mostly civilians (N=187, Brady *et al.*, 2000)
- Fluoxetine for civilians (N=53, Connor *et al.*, 1999)
- Fluoxetine for civilians and veterans (N=64, van der Kolk *et al.*, 1994)
- Amitriptyline for veterans (N=46, Davidson *et al.*, 1990)
- Phenelzine for veterans (N=34, Frank *et al.*, 1988; N=60, Kosten *et al.*, 1991)
- Imipramine for veterans (Frank *et al.*, 1988; Kosten *et al.*, 1991)
- Brofaromine for civilians and veterans with PTSD >1 year (N=45, Katz *et al.*, 1995)

"I know *something* interesting is sure to happen," she said to herself, "whenever I eat or drink anything: so I'll just see what this bottle does."

--Lewis Carroll, *Alice's Adventures in Wonderland*

