Psychiatric Fallout: Mental Health Following a Disaster

page 59 in syllabus

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Individual Disclosure Statement

Faculty Co-Author / Presenter

Ronnie Gorman Swift, MD, is a professor in and associate chairman of the department of psychiatry and behavioral sciences at New York Medical College in Valhalla, NY, and the chief of psychiatry and associate medical director at Metropolitan Hospital Center in New York, NY.

No financial relationships to disclose.
Learning Objectives

• Identify practical consequences of disasters on mental health employees and institutions

• Identify psychiatric consequences of disasters on affected populations

• Utilize strategies to address disaster-related complications affecting mental illness and the distribution of mental health care
Pretest Question

What is the evidence base for the use of benzodiazepines to treat posttraumatic stress disorder (PTSD)?

1. Substantial evidence of benefit
2. Some evidence of benefit
3. No evidence of benefit, possible harm
4. Insufficient evidence
HURRICANE SANDY: HOW WE HANDLED THE SYSTEMS-BASED CHALLENGES OF A MAJOR DISASTER
Metropolitan Hospital Center

- NYC Health and Hospitals Corporation (HHC) – Public benefit corporation
- Largest municipal healthcare organization in the country
- Metropolitan Hospital Center – established in 1875, affiliated with New York Medical College (NYMC)
- Oldest partnership between a hospital and a private medical school in the United States
- Metropolitan Hospital Center’s vision is to be a patient centered, acute care facility, in support of primary care initiatives
Metropolitan Hospital Center

The Department of Psychiatry and Behavioral Health provides:

- 104 inpatient adult beds
- 18 inpatient child & adolescent beds for ages 10–17 yrs. 11 mos.
- 19 inpatient detoxification beds (coed) for patients addicted to opiates, alcohol, barbiturates, or benzodiazepines
Metropolitan Hospital Center

Multidisciplinary Teams on Inpatient Units
- Attending Physicians
- Nurses
- Residents
- Medical students
- Social workers
- Activity Therapists
- Addiction Counselors

Treatment Modalities
- Medications
- Milieu Therapy
- Individual Therapy
- Group Therapy
- Family Therapy
- Substance abuse treatment
- Activity therapy
Outpatient Services

- Adult Mental Health Clinic
- Child Mental Health Clinic
- Continuing Day Treatment Program
- Walk-In Evaluation Unit

The Walk-In Evaluation Unit is a unique service in that a patient can come in and receive a psychiatric evaluation on the same day. The clinic is staffed by a multidisciplinary team of clinicians. Nurses do an upfront triage to prioritize the order in which patients are seen.
Methadone Program

• Our continuum of services also includes a methadone program

• Patients receiving care in this program are provided:
  – Individualized therapy
  – Holistic care, focusing on recovery and rehabilitation
  – Abstinence from elicit and problematic drug use
  – The development of a sober and drug free life style
  – The promotion of self-sufficiency and employment
  – Use contingency management
October 30, 2012

• Heavy rains and flooding led to generators failing at several Manhattan hospitals
• Patients were successfully evacuated thanks to the hard-working hospital staff and first responders
• Bellevue Medical Center would not fully re-open for more than 3 months
• Metropolitan Hospital Center, a member of the New York City Health and Hospitals Corporation, took on the Bellevue psychiatric and methadone patients (among others)
Problem 1: Preparing for the Storm

- Discharged all patients that we could safely discharge
- Predicted staffing needs and asked staff whether they thought they would be able to come in
  - Some staff came in before the storm prepared to stay several days
- Had vans to bring staff from the train station to the hospital
- Set up a command center of senior medical, administrative and nursing personnel
- Made sure we had enough food for our staff and patients
- Made sure we had fuel for all of the hospital vehicles
- Following the storm, we had a tanker at a station that provided free gas to our staff
Problem 2: Getting to the Hospital
Problem 3: Surviving the Storm at MHC
Problem 3: Surviving the Storm at MHC
Problem 3: Surviving the Storm at MHC
Problem 4: Influx of Methadone Patients

- More than 24,000 New Yorkers in more than 112 programs had their substance abuse treatment interrupted by program closures

- Clinics closed
  - Bellevue Hospital MMTP (Manhattan)
  - Vincent Dole MMTP (Beth Israel) (Brooklyn)
  - Long Beach Medical Center MMTP (Long Beach)

- MHC took on Bellevue patients as well as many patients from other clinics
How to…
Verify Methadone Doses?
How to…Calm the Displaced (and Possibly Withdrawing) Patients?
Problem 5: Housing the Bellevue Staff
Problem 6:
Accessing Medical Records
Problem 7: Taking in Bellevue Psychiatric Inpatients
Lessons Learned

- There is no current authority to support substance abuse prevention, treatment and recovery services after a disaster
- Importance of a Methadone Treatment Registry
- Human touch
- Keeping patients and their staff together
- Importance of electronic medical records
- Different problems and strategies for different types of disasters
Comparison: How Did a Predicted Natural Disaster Differ from an Unpredicted Act of Terror?

• Issues we dealt with for 9/11
  – Initially not understanding what was happening
    • Whether or not to lock down the facility
    • Scared and concerned staff—missing loved ones, wanting to go pick up their children
  – Disaster Plan in place—but command center for disaster management was in World Trade Center
  – Telephone lines disrupted, cell phone lines overloaded
  – Many volunteers—needed to verify credentials
Comparison: How Did a Predicted Natural Disaster Differ from an Unpredicted Act of Terror?

• What we did from a staffing perspective
  – Immediately determined number of physicians in hospitals
  – Set up shifts to avoid exhaustion
  – Senior physicians went through the ER to determine if all staff were functioning appropriately
  – Set up some mental health staff to work with distraught staff who couldn’t reach loved ones
  – Expanded capacity of hospital to accommodate additional patients
  – Set up triage for emotionally but not physically hurt
  – Arranged for some physicians to remain overnight
Comparison: How Did a Predicted Natural Disaster Differ from an Unpredicted Act of Terror?

- What we did from a patient perspective
  - Specifically instructed patients NOT to watch TV over and over again
  - Allowed psychiatric patients in our day-treatment program and in the clinics to remain in the building until the situation was clarified
  - Some homeless patients were terrified to be on the street and a small number had to be admitted
  - Some previously stable patients decompensated and needed medication adjustments/hospitalization
MAJOR DISASTERS: IMPACT ON SURVIVORS AND LESSONS LEARNED
Phases of Disaster

- Predisaster
  - Threat
  - Warning
- Heroic
  - Impact
  - Inventory
- Honeymoon (Community Cohesion)
- Disillusionment
- Reconstruction
  - A New Beginning
  - Working Through Grief
  - Trigger Events and Anniversary Reactions

--- 1 TO 3 DAYS ---  Time  --- 1 TO 3 YEARS ---
Responses to Mass Trauma

• Specific psychological problems 74%
  – PTSD 64%
  – Depression 37%
  – Anxiety disorders 19%

• Non-specific distress 39%

• Health problems and concerns 25%

Norris et al, 2002
Magnitude of Impairment

Overall impairment
- Minimal 9%
- Moderate 52%
- Severe 13%
- Very severe 16%

Severe impairment in special populations
- School-aged 69%
- Mass violence 67%
- Natural disaster 42%
- Tech disaster 34%

Norris et al., 2002
Factors Contributing to the Intensity of the Response to Trauma

- Degree of controllability, predictability, perceived threat (e.g., intensify fear)
- Relative success of attempts to minimize injury
- Actual loss
- Exposure to pain, heat, cold
- Perceived sense of failure to act in ways that might have mitigated the circumstances of the event (e.g., intensify guilt, anger, humiliation)
Disasters Causing Severe, Lasting and Pervasive Psychological Effects

• Characterized by at least two of the following:
  – Extreme and widespread damage to property
  – Serious, ongoing financial problems for the community
  – Human carelessness / intent
  – High prevalence of injury, death, threat to or loss of life

Risk Factors for PTSD after a Major Disaster

- Severe exposure to the disaster
- Living in a highly disrupted community
- Female gender, middle age, ethnic minority
- Poverty or low socioeconomic status
- Presence of children in the home
- Presence of a distressed spouse
- Psychiatric history
- Impoverished support system

Norris et al, 2002
What is Resilience?

• Capacity to avoid adverse mental and physical outcomes following exposure to extreme stress
• 70% of individuals free of major psychiatric outcome following exposure to traumatic event
What Promotes Resilience?

- More education
- Older age
- Social support
- Specific training
- Absence of early life trauma
- Genetics
- Looking at ‘glass half full’
Factors of Resilience

- Seeking support, bonding
- Seeking purpose in life
- Optimism
- Belief in self
  - To overcome adversity, influence outcomes
  - To learn and grow from experience
- Self enhancement
- Repressive coping
- Positive emotion, laughter
- Altruism
- Revisiting and reframing
- Contingency planning
Key Factors to Resilience for Preventing and Recovering from PTSD

1. **Active coping style**: problem-solving; accepting/dealing with stress-related emotions; learning to face fears

2. **Physical exercise**: to improve mood and health

3. **Positive outlook**: cognitive-behavioral strategies to enhance optimism and decrease pessimism; embracing humor

4. **Moral compass**: developing and living by meaningful principles; putting them into action through altruism

5. **Social support**: developing and nurturing friendships; seeking resilient role models and learning from them

6. **Cognitive flexibility**: finding good in adversity; remaining flexible in one’s approach to solving problems

Haglund et al. Curr Psychiatry 2007;6(4)
Acute Phase Intervention

• Three levels
  – Relieve normative distress
  – Address exacerbations of pre-disaster psychiatric conditions
  – Prevent new-onset of psychiatric illness

• How to reach those in need
  – Place mental health outreach where basic need services are being provided
Some Basics

- Expect normal recovery
- Assume survivors are competent
- Recognize survivor strengths
- Promote resilience

Melissa Brymer, Psy.D.; Director, Terrorism & Disaster Programs
National Center for Child Traumatic Stress: UCLA/Duke University
http://www.nctsnet.org/
START

Seek Safety and Support.

Talk about your trauma. Tell people how you feel. Translate feelings into words.

Act; move beyond your restricted sphere. Use Altruism as a way to move beyond your trauma.

Re-write history. Re-visit the scene of the trauma. Re-live it with new eyes.

Transform yourself from victim into survivor. Transform society to make it a better place (MADD, Megan's law, etc.)
Basics of Psychological First Aid (PFA)

• **What:** establish safety and security, connect to restorative resources, reduce stress-related reactions, and foster adaptive short- and long-term coping

• **For:** those experiencing acute stress reactions or who seem at risk for significant impairment in functioning

• **By:** mental health professionals and others who provide crisis assistance after catastrophic events

• **When:** Immediate and early phase post-event, in as little as 30 minutes and extended as needed

• **Where:** in a broad range of emergency settings, single or multiple sessions, adapted for use in group settings

Melissa Brymer, Psy.D. : Director, Terrorism & Disaster Programs
National Center for Child Traumatic Stress : UCLA/Duke University
http://www.nctsnet.org/
What Helped After A Disaster? Survivors’ Perceptions

Lessons Learned

• Advance planning
  – Build relationships ahead of time (MOUs)
  – Prepare for different types of disasters (natural, terror)
  – Due diligence--who to invite to your disaster? (other states, Red Cross, etc.)
  – Plan, Mock Drill, Adjust, Plan

• Role of MHC (in emergency planning, as interim base operations)

• Importance of communication technology

• Medical model: rounds each AM
  – Like Med-Psyc consult service + triage
  – Psyc MDs on ‘state’ DMAT teams
Lessons Learned

• Become familiar with your state Office of Emergency Preparedness Plan
• Screening Forms: Epidemiology Help
• Contemplate Credentialing
• Mobile Med Boxes / Early intervention
• Transportation / Housing Needs
• Role Internet with Volunteers
• Logistics Assistance: Phone Tree / Contact Lists
• Organized Medicine and Allied Assoc
• Stafford Act needs to be Revisited
• 'Civilized Disaster': Take Care self
MAJOR DISASTERS:
SPECIAL CONSIDERATIONS
FOR CHILDREN
Reactions to Disaster: Children May…

- Blame themselves for the disaster
- Not understand the disaster event
- Not understand cause and effect
- Reenact the trauma in play activities
- React based on developmental level

Lack cognitive ability to understand
Can be especially resilient (with support, stability)
Can be both more withdrawn and more aggressive
Anxiety may manifest as physical symptoms
Affected most by social isolation
Children’s Greatest Fears, Post-Disaster

- Separation from family
- Being left alone
- Disaster recurrence
- Death of loved ones
- Injury to loved ones
### Children and PTSD: Data and Recommendations from 9/11 Studies

<table>
<thead>
<tr>
<th>Risk factors</th>
<th>Recommendations</th>
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<tr>
<td>Personal physical exposure to attack</td>
<td>Population-based mental health support services</td>
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<tr>
<td>Previous exposure to potentially traumatic event</td>
<td>Screening/identification of children in need of services</td>
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<tr>
<td>Family exposure and loss</td>
<td>Family-focused services</td>
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<tr>
<td>4x risk if parents had PTSD</td>
<td>Parental limits on children’s disaster-related TV viewing</td>
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<tr>
<td>3x risk if saw parents cry</td>
<td>Parents should discuss disaster and child’s reactions to it</td>
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<tr>
<td>Amount of TV viewing</td>
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My Personal Story About Hurricanes Katrina and Rita: A Guided Activity Workbook for Children, Families and Teachers
Summary: Have We Learned Our Lessons?

- Advance Preparation for Disasters and Catastrophes!
- How to deal with the mentally ill & disabled during an evacuation?
- Improved Communication!
- Electronic medical records that could be accessed
- Pharmacy Services and emergency medication supplies!
- Resource Shortages of clinicians and beds!
- License issues and malpractice coverage!
- Maintaining teaching hospitals and training!
- Rewriting Stafford Act for crisis mental health!
- Where is the Money for mental health care?
- Who takes care of the First Responders?
- What happens after the crisis is over?
MAJOR DISASTERS: PROVIDING CARE AT THE PATIENT LEVEL
PTSD: DSM-5 Changes

- PTSD is now included in a new chapter on "Trauma and Stressor-Related Disorders"
- Stressor criterion (Criterion A) more explicit; elimination of subjective reaction (Criterion A2)
- Expansion to 4 distinct diagnostic clusters, with avoidance/numbing cluster divided into 2 distinct clusters: avoidance and persistent negative alterations in cognitions and mood
- More focus on behavioral symptoms
- Additional criteria set focused solely on symptoms in children ages 6 years and younger
PTSD "Non-Pharmacy"

## Pharmacological Treatment of PTSD

<table>
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<th>Strength</th>
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<th>Some benefit</th>
<th>Unknown benefit</th>
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<td>mirtazapine, TCA, MAOI, prazosin (nightmares)</td>
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<tr>
<td>C</td>
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<td>--</td>
<td>prazosin (PTSD)</td>
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<td>buspirone, bupropion, non-Bz hypnotics, lamotrigine, gabapentin, pregabalin, clonidine, trazodone, AAP (mono and adjunct), propranolol</td>
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Benzodiazepines…

- Are frequently prescribed in PTSD\(^1\)
- Have no evidence of efficacy in PTSD\(^2,3\)
- Can hinder exposure therapy\(^4,5\)
- Are contraindicated for patients with substance use or disinhibition\(^6\)
- Are not recommended as monotherapy or adjuncts in the treatment of PTSD\(^6\)

## Recent Meta-analysis of PTSD Pharmacotherapy

**Table:**

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<th>Medication</th>
<th>Study</th>
<th>Total</th>
<th>Mean</th>
<th>S.D.</th>
<th>Placebo</th>
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**Random effects model:** 2425

**Heterogeneity:** $I^2=21.8\%$, $Q=4.208$, $p=0.1717$

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Prazosin for Nightmares: Evidence Base

- Alpha 1 adrenergic blocker (antihypertensive drug)
- May reduce noradrenergic hyperactivity associated with hyperarousal and nightmares
- Normalizes slow-wave sleep; used to prevent nightmares in patients with PTSD
- Evidence base is small but positive
  - 4 RCTs (n=96), 4 open-label (n=31), 4 retrospective chart reviews (n=132)
  - Most studies from a single VA research group

Prazosin in Practice

• Dose
  – 1–16 mg/day
  – Many patients only need <4 mg/day
  – Initial titration 1 mg every 2 or 3 days

• Therapeutic effects
  – Onset within a few days to weeks
  – Nightmares return with drug discontinuation

• Side effects
  – Orthostatic hypotension, dizziness, insomnia, fatigue, depression, nervousness, syncope, headache, GI effects
  – Generally decrease with time

• Notable interactions
  – Diuretics, other antihypertensive drugs

Atypical Antipsychotics for PTSD: Increasing Serious Side Effects Without Therapeutic Benefits?

SSRI-resistant PTSD

Olanzapine Monotherapy in Chronic PTSD

Mean CAPS Total Score

- Baseline
- Week 4: p=0.014
- Week 8: p=0.018

Aripiprazole

Preventing Fear Conditioning and Reconsolidation of Fear

- Fear conditioning
- Opiates
- β1 blocker
- Locus coeruleus
- No fear response

Traumatic experience retrieved

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Propranolol

- Beta-blocker and antihypertensive drug
- Might block effects of stress from prior traumatic experiences—data are mixed
- Usual dosage range: up to 240 mg/day; effective dose varies greatly
- Side effects include insomnia/fatigue, depression, vivid dreams, gastrointestinal effects
- Notable interactions: most atypical antipsychotics, alcohol, ibuprofen/NSAIDs, SSRIs, duloxetine
- A recent study showed that propranolol was ineffective for reducing PTSD-like onset in a rat model

Pharmacotherapy Following Traumatic Injury May Prevent the Development of PTSD

- 696 injured U.S. military personnel
- Intravenous administration of morphine during resuscitation and trauma care

Odds ratio adjusted for Injury Severity Score (95% CI): 0.48 (0.34–0.68) p<0.001

Novel PTSD Psychopharmacology

- Hydrocortisone may be beneficial
- D-cycloserine
  - A recent double-blind, placebo-controlled RCT showed some response in severe PTSD
- Endocannabinoids

Prophylactic Use of Cortisol

- PTSD may develop as a result of subadequate cortisol response

Cortisol Following Stress Increases BDNF in Hippocampus

MDMA: Improvement on Clinician-Administered PTSD Scale (CAPS)

Summary: Treatment of PTSD

- First-line treatment for PTSD includes exposure therapy, cognitive restructuring, and SSRI/SNRI (paroxetine and sertraline approved)
- There is a small but positive evidence base for using prazosin to treat nightmares
- There is no evidence to support use of benzodiazepines
- Role of atypical antipsychotics to treat and propranolol to prevent PTSD is still unclear
- Novel strategies under investigation include prophylactic treatment with cortisol or opioids
What is the evidence base for the use of benzodiazepines to treat posttraumatic stress disorder (PTSD)?

1. Substantial evidence of benefit
2. Some evidence of benefit
3. No evidence of benefit, possible harm
4. Insufficient evidence