Research on the Mental Health Consequences of Disaster

- Why study the effects of disasters and mass trauma
- Highlights – What Has Been Studied
- What Has Been Learned
- Implications for Intervention
Why Study Disaster Exposure:

Public Health Perspective

On average, a disaster occurs somewhere in the world each day (Flood, Hurricane, Earthquake, Nuclear, Industrial, and Transportation Accidents, Shooting Spree, Peacetime Terrorist Attack)

Common Features Relevant for Psychological Health

Engender an array of stressors for many persons simultaneously

* threat to one’s own life and physical integrity
* exposure to the dead and dying
* bereavement
* profound loss
* social and community disruption
* ongoing hardship

Why Study Disaster Exposure:

Public Health Perspective

- Assess the physical and emotional needs of individuals/populations
- Inform mental health management of victims and other disaster-affected persons
- Help prepare for subsequent incidents
Disasters and acts of mass violence by in large involve unselected populations

Strike without preference to personal characteristics that increase the risk of exposure to other kinds of traumatic events

Individual characteristics predisposing to traumatic events are also associated with vulnerability to post-traumatic psychopathology, thus confounding the effects of the event with predisposing characteristics

Estimates of PTSD after Various Disasters and Acts of Mass Violence

43% after a paint factory explosion
44% after a dam break and flood
53% after wildfires
54% after an airplane crash landing
2% after a tornado
28% after a mass shooting
29% after a plane crash
17% after a hurricane
16% after a terrorist attack

http://www.nimh.nih.gov/
Most studies examine the effects of
a particular event
that occurred at a particular time
to a particular sample/population
in a particular place

Generalizability is a challenge

Prevalence of PTSD
Galea and Vlahov, NYC
Prevalence of Depression
Galea and Vlahov, NYC

Highlights – What Has Been Studied
A Notable Summary –
225 samples and 132 events coded as to sample type, disaster type, disaster location, outcomes observed, and overall severity of impairment

- Specific psychological problems
- Non-specific distress
- Health problems and concerns
- Chronic problems in living
- Psychosocial resource losses
- Problems specific to youth


<table>
<thead>
<tr>
<th>Disaster Type</th>
<th>United States</th>
<th>Other Developed Country</th>
<th>Developing Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>11</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Technological</td>
<td>5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Mass Violence</td>
<td>5</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Summary of Samples by Outcomes Assessed

![Summary of Samples by Outcomes Assessed](image)

Figure 1
Percent of samples in which shown outcomes were assessed and observed.
Norris et. al.,
Severity of Effects

Figure 2
Distribution of sample-level severity of effects

9%  minimal impairment / transient stress
50%  moderate impairment / short term stress disorder
24%  severe impairment / significant psychopathology
17%  very severe impairment and psychopathology

Norris, F (2005) Range, Magnitude, and Duration of the Effects of Disasters on Mental Health: Review Update

Severity of effects were highly variable

Sample, disaster type, and timing of assessment were significant

Events involving massive injuries, death, and loss of property OR where an event symbolizes human maliciousness, are more likely to have adverse outcomes - beyond transient stress reactions
Mental Health and Illness

The vast majority of survivors will experience substantial distress and will recover – regain their health - and can benefit from assistance with practical needs and reassurance.

A significant minority will not recover naturally or with only routine assistance and can benefit from more intensive assistance/treatment.

Degree of Disaster-Related Mental Health impact

- Mild transitory distress
- Short-term stress reaction
  - Short-term mental disorders
  - Persistent mental disorders

Number of affected individuals

Greater

Fewer
Distribution of Need and Level of Intervention

- Population
- Community
- Family
- Individual

Need for Intensive Intervention

Number of Survivors / Magnitude of General Need

What about Suicide?

Recall Norris et.al, looking across disaster samples....

9% minimal impairment / transient stress
50% moderate impairment / short term stress disorder
24% severe impairment / significant psychopathology
17% very severe impairment and psychopathology

With impairment the risk is no doubt elevated but for who?
Post-quake mean monthly suicide rate (medical records)

<table>
<thead>
<tr>
<th>Affected counties</th>
<th>Control counties</th>
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<tbody>
<tr>
<td>*1,567 per 100,000</td>
<td>rate of 1.297 per 100,000.</td>
</tr>
</tbody>
</table>

* rate among the high-exposure group was higher

Conclusion: mean monthly suicide rate for earthquake victims was higher while the low-exposure group remained stable and consistent throughout the observation period


The people in Kobe sustained heavy losses and many people went through bereavements of one or more close interpersonal relationships.

Conclusion: Medical examiner data reveal a significant reduction in the suicide rate in Kobe following the quake

Katrina Survivors

Interviews with >1,000 persons initially residing in disaster declared areas of Gulf Cost – 6 months after disaster.

Compared to 800 NCS-R sample from same region in 2001-2003

<table>
<thead>
<tr>
<th></th>
<th>Pre</th>
<th>Post</th>
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</thead>
<tbody>
<tr>
<td>SMI</td>
<td>6.1</td>
<td>11.3</td>
</tr>
<tr>
<td>Mild to moderate</td>
<td>9.7</td>
<td>19.9</td>
</tr>
<tr>
<td>Any MI + Suicidality</td>
<td>8.4</td>
<td>0.7 (thoughts/plans)</td>
</tr>
</tbody>
</table>

Disaster and Suicide: Risk


Bourque, Linda B; Siegel, Judith M; Shoaf, Kimberley I. Psychological distress following urban earthquakes in California. Prehospital and Disaster Medicine, vol. 17, no. 2, pp. 81-90, April-June 2002.


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Suicide Attempts Increase in Katrina's Aftermath

NPR Morning Edition, November 16, 2005

Survivors of Katrina turning to suicide

The New York Times, Tuesday December 27, 2005

New Orleans' coroner says hurricane-related stress 'is a recipe for suicide'

AP Updated: 12:13 a.m. ET Jan 28, 2006
What if Anything Can We Conclude?

**Nothing Seems Constant**
- Methods Vary
- Measures Vary
- Samples Vary
- Time Frames Vary
- Findings Vary

What is constant is not unique to suicide or suicide risk – it’s applicable for adjustment in general.

Pre-Disaster, Disaster, and Post-Disaster Factors Shape Risk

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What if Anything Can We Conclude?

Risk is not equally distributed

- Loss of life
- Injuries
- Social network disturbance
- New stressors
- Levels of family and social support
- Pre & post mental disorders and suicidal ideation

Strategies to identify most directly impacted, including chronically stressed, (as opposed to all individuals touched) may be beneficial.
Implications: Risk in Perspective

Post 9/11 WTC, Pentagon, Anthrax, Washington Sniper
“What is the best way to protect my child?”

Make them avoid parks, monuments, malls, school?
Duct tape my windows?
Do not open the mail?
Tell them the world is dangerous and they are vulnerable?

OR

Make them wear their seat belt, eat their veggies, stay in school, and tell them they are loved

Implications: Risk in Perspective
(cont’d)

Clearly risk is increased when mental illness is present and hope is fading

Are some more vulnerable?

YES

Does anxiety, depression and SA matter?

ABSOLUTELY

Is the post-disaster period the time to abandon current best effort for outreach, identification, referral?

PROBABLY NOT
Making Use of What we Know
Early Mental Health Response Principles

October, 2001. DHHS, DOD, DOJ VA, ARC and experts from six countries:
• What works and what doesn't work
• Timing of responses by disaster stage
• The role of mental health providers
• Training of the health and human service work-force

http://www.nimh.nih.gov/