1. **Natural disasters** include the elements of being infrequent, unexpected, threatening to well-being, traumatic, and overwhelming to the coping resources of individuals and communities.

Do disasters produce *identifiable* mental health problems?

- Clinical significance

- Diagnosable mental disorder
  - For example, e.g., at least four symptoms, from a list of symptoms, have been present nearly every day for a period of two or more weeks.

Questions of interest, from a public health perspective:

a. If disasters do produce *identifiable* mental health problems, what is it about the disaster that produced these effects?

b. How long do these effects last?

c. What else besides the disaster is important? That is, are there other factors that might make an individual more or less vulnerable?
2. **Posttraumatic stress disorder (PTSD)** consists of a specific set of symptoms that persist after exposure to a traumatic event that is “outside the range of usual human experience” (American Psychiatric Association, 1987).

   The defining characteristic of a traumatic event is its capacity to provoke fear, helplessness, or horror in response to the threat of injury or death.

To meet the criteria for PTSD, an individual must experience each of three distinct types of symptoms, which each persist for at least one month. These include:

   a. *Reexperiencing the event*: unwanted recollections in the form of distressing images, nightmares, or flashbacks.

   b. *Avoidance of reminders of the event*: these can be persons, places, or even thoughts associated with the event.

   c. *Hyperarousal*: physiological manifestations such as insomnia, irritability, impaired concentration, hypervigilance, and increased startle reactions.
3. UCLA Center for Public Health and Disasters: research study on emotional impact of earthquakes

Civilian Version of the Mississippi PTSD Scale

Sample questions:

“At times, I suddenly act or feel as though something that happened in the past were happening all over again.”

“I feel numb.”

Responses range from “not at all true” to “extremely true.”

Emotional injury from the earthquake

In the context of questions on quake outcomes, respondents were asked about physical injuries and then:

"What about emotional injuries? Would you say that you had any emotional injuries as a result of this earthquake?"

Brief Symptom Inventory
Sample questions:

“How much would you say you were bothered by nervousness or shakiness in the past two weeks, including today?”

“How about trouble concentrating? How much were you bothered by this feeling in the past two weeks, including today?”

Responses range from “not at all” to “extremely.”
4. We considered:

- **Demographic attributes** (gender, income)

- **Characteristics of the earthquake experience** (how much shaking, did they evacuate, were they injured physically)

- **Resources available to the respondent** (social support, were they prepared)

We looked at the relationship of these variables to PTSD and also to reporting an emotional injury.
5. None of these variables were related to PTSD.

Characteristics related to emotional injury (which was sustained by about a third of the sample) in a multivariate model were:

- Completing the interview in Spanish
- Perceiving oneself as a victim of the quake
- Being female
- Having utilities disrupted
- Sustaining damage
6. Consistent themes in the **natural disaster** literature:

- Persons surviving natural disasters generally do *not* meet criteria for psychiatric disorders.

- *Stress reactions* (as opposed to clinically significant PTSD) to natural disasters are frequent, tending to increase in a dose-response relationship with intensity of exposure.

- Vulnerable individuals are more affected by disasters.
7. WTC studies

3-5 days after September 11th (Schuster et al., New England Journal of Medicine, 345, 1507-1512)

National sample

Posttraumatic Stress Disorder Checklist: Used 5 of the 17 questions

Since Tuesday, have you been bothered by:

- Feeling very upset when something reminds you of what happened?
- Repeated, disturbing memories, thoughts, or dreams about what happened?
- Having trouble concentrating?
- Trouble falling or staying asleep?
- Feeling irritable or having angry outbursts?

Responses range from “not at all” to “extremely.” “Quite a bit” and “extremely” coded as substantial stress.
8. WTC studies (continued)

90% of the people questioned reported one or more stress symptoms to some degree.

- 44% of the adults reported one or more substantial symptoms of stress.

Other factors associated with substantial stress reactions (in multivariate models) were:

- Being female
- Being nonwhite
- Having a prior mental health problem
- Living less than 100 miles from WTC (this appeared to be dose response)
- Watching a lot of television on Sept 11 (also dose response)
9. **WTC studies** (continued)

5-8 weeks after the attack (Galea et al., New England Journal of Medicine, 2002, 346, 982-987)

Restricted the sample to respondents south of 110th street in Manhattan.

PTSD measure is a modified version of the Diagnostic Interview Schedule for PTSD

To meet criteria for PTSD, requires 1 recurrent symptom, three avoidance symptoms, and three hyperarousal symptoms.
10. **WTC studies** (continued)

7.5% of adult respondents had symptoms consistent with a PTSD diagnosis.

- Prevalence was 20% for those living south of Canal Street, which is the area of the WTC.
- 9.7% met criteria for current depression.

Other predictors of PTSD (in multivariate model) were:

- Hispanic identity
- Two or more prior stressors (from a list of 8 stressful events that may have occurred in the previous year)
- A panic attack during or shortly after the events (also assessed using diagnostic criteria)
- Residence south of Canal Street
- Loss of possessions due to the event

Population estimate for the entire country of current PTSD is about 3.6%
11. WTC studies (continued)

Similar time frame - about two months after disaster (Schlenger et al., Journal of the American Medical Association, 2002, 288, 581-588).

National sample

Posttraumatic Stress Disorder Checklist (same as first study but used all 17 items)

- PTSD was significantly higher in the NYC metropolitan area (11.2%) than the rest of the country (4.0%).

Other predictors of PTSD (in multivariate model) were:

- Proximity to the crash
- Television watching after the event
12. **WTC studies** (continued)

Last study, ongoing panel study, so had *pre* 9/11 measures (Silver et al., *Journal of the American Medical Association*, 2002, 288, 1235-1244).

National sample but respondents in NYC area *excluded*.

6 month time frame

Looked at Post Traumatic Stress, but not Post Traumatic Stress *Disorder* because they didn’t collect all of the information (e.g., duration of symptoms) that they would need to assess the disorder

Used the Impact of Events Scale, another well validated measure of post traumatic stress.

Predictors of PTSD (in multivariate model) were:

- Being female
- Reporting a pre-Sept. 11th physician diagnosed mental disorder
- Using certain coping strategies immediately following the disaster
Actively coping (e.g., problem solving) was associated with *symptom reduction*

Disengaging (e.g., giving up, denial, self distraction) *increased symptoms.*