

TRAUMA

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FIVE ACRES
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Armenia Earthquake



- About 11,500 miles
- Pop. of about 3 mill.
- Land locked
- Genocide
- Republic but 70 yrs of Soviet Domination

- December 7, 1988 at 11:41 a.m.
- 6.9 Richter Scale
- Another earthquake 5.8 four minutes later
- Multiple After-shocks 5.0 magnitude for months

- Lenninakan—Spitak—Kirovakan
- 25,000 deaths
- 19,000 injured
- 500,000 homeless
- 350 towns and villages were affected
- 58 completely destroyed
- \$16 Billion (US)









Mercy Trip to Armenia

- December of 1989
- Resilient 5
- 747 full
- One month

- PURPOSE
 - Direct Aid
 - Psychology Center in Kirovakan
 - Research
 - Prevalence Rate (2 to 87%)—Bosoglu et al., 2004.

- WAR ZONE
 - Infrastructure was devastated
 - Villages without utilities
 - Tents
 - Devastation

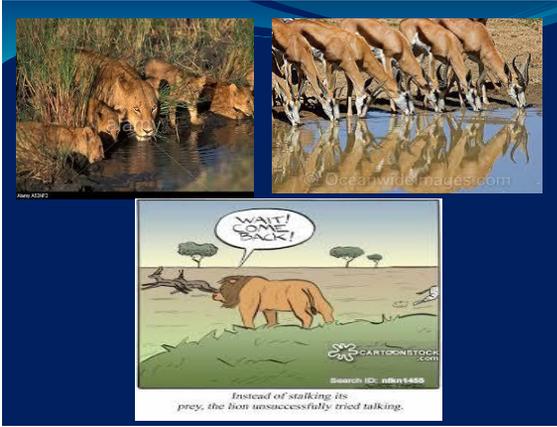
- PSYCHOLOGICALLY
 - No knowledge/information of loved ones
 - Flat affect
 - General sense of depression and despair
 - Survival Mode

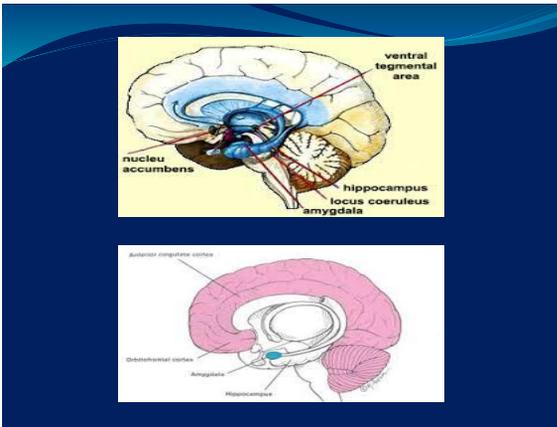
- Anecdotal evidence for PTSD
- People buried alive and bulldozed
- Women and children rounded up in boxcars and shipped to Soviet Cities
- No knowledge/information of loved ones
- Dismemberment
- Horror stories
- Heroes
- Life had not returned to normal

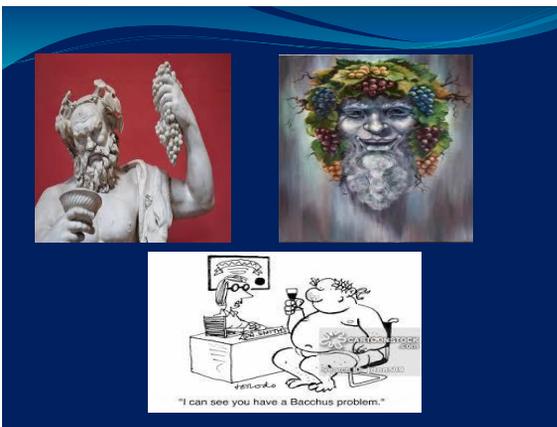
“My mother-in-law”

DSM

- EXPOSURE
 - Directly experiencing
 - Witnessing it as it occurs to others
 - Learning it occurred to family/friends
 - Experiencing repeated or extreme exposure to aversive details of the incident
- Fear RESPONSE
 - Intrusive sx's
 - Dreams/nightmares
 - Flashbacks etc., “dissociative reactions”
 - “psychological distress”













AGE

(Bal and Jensen, 2007) 1999 Marmara earthquake Turkey

- Majority of research past 20 years focuses on adult PTSD
- Developing countries generally have younger populations
- Children and Adolescents tend to be the group most vulnerable to physical, social and psychological effects of natural disasters
- Such events shatter child's perception of world as a "safe and predictable" place

AGE

- 3-15% girls, 1 to 6% boys dx with PTSD (Hamblen, 2004)
- Pynoos, 1998 (Armenia earthquake) PTSD incident rate of 70% even after 1 ½ yrs post event
- 40% to 70% PTSD 6 months > Athens Quake (Kolaitis et al., 1999)
- Neuner (2006) 45% incident rate PTSD Indian Ocean tsunami
- Bal and Jensen (2007) 71% of "young survivors" of Hurricane Floyd demonstrated symptoms of PTSD

AGE

- Sahin, et al., 2007
 - Psychological Symptoms in Children and Adolescents 1999 earthquakes in Turkey
 - Perceived Posttrauma Stress Symptoms Scale (PPTSS)
 - Arousal, Avoidance, Somatization—factor analyzed
 - Results showed, in general, earthquake had "very strong" impact on children and adolescents

AGE

- Bodvarsdottir, et al., 2006
 - PTSD in children > earthquakes in Iceland
 - 3 months > event
 - Child PTSD Reaction Index
 - 33% of exposed group vs. 6% of control met PTSD criteria
 - "great horror," ruminating thoughts about future earthquakes
 - Wish to be relocated (avoidance) and arousal sx's noted
 - Children not given crisis intervention reported "significantly higher" PTSD symptoms

Prior Pathology

- Prior pathology/traumatic experiences
 - Personality, parental and family factors, prior pathology, prior victimization (Green, et al., 1991)
 - Schizophrenics, bipolars vs normal controls > Northridge 1994 (Foy, et al., 2007)
 - Both patient groups reported higher Impact of Events Scale Scores
 - Schizophrenics decreased coping ability, self-esteem, and social support
 - Schizophrenics higher levels of avoidance
 - Schizophrenics respond differently than normal controls to stressful events

PROXIMITY

- Tale of Two Cities
 - Yerevan
 - Residual problems
 - No real PTSD
 - Euthymic/unrestricted
- Lenninakan (Gumry)
 - Flattened affect
 - Malaise
 - Depression
 - hopelessness
- Goenjian, et al., 1995
 - Correlated high rates of PTSD and comorbid depression with proximity to epicenter in Armenia earthquake

PTSD Symptoms by Location

(Sahin, et al., 2007)

	Slight	Moderate	Epicenter
PPTSS	19.03*	29.87	34.52
Arousal	6.11	11.41	12.85
Avoidance	7.28	9.92	12.31
Somtiztion	5.64	8.53	9.36
School	4.93	7272	8.34

*means

Developing/Low Income

- Higher devastation in developing versus developed countries (Kilic, et al., 2006)
- 6.9 Richter Scale
- Republic but 70 yrs of Soviet Domination
 - Building Codes
 - Graft/Corruption

INTERVENTIONS

Assessment Tools

- Posttrauma Stress Symptoms Scale (PPTSS)
- Post-traumatic Stress Disorder Reaction Index for Children
- Earthquake Experience Questionnaire
- Traumatic Stress Symptoms Checklist
- Impact of Events Scale
- MMPI—2
 - PTSD SCALES—PS and PK
- CHECK DSM—IV for CHILD REACTIONS

Identification

- (Sahin, et al., 2007) negative school performance best predictor for the development of PTSD in all regions
- “this is an interesting finding because it highlights the importance of schools [school based clinicians] after disasters”
 - Psychologists working in school settings
 - Identify children referred for decrease in academic/school functioning from baseline levels

Treatment

- Critical Incident Debriefing
- Cognitive Restructuring
- Systematic Desensitization
- Psychiatric Intervention
- Even just journaling without professional intervention was found to be helpful (STUDY?)

Treatment

- Shattering of one's basic beliefs and assumptions about security
 - Trust
 - Safety
 - Meaning of life
 - Sense of invulnerability (denial can be a good thing)

Treatment

- Attribution
 - Causal Beliefs (pessimistic explanatory style)—Massad and Hulsey, 2006. Event is ...
 - GLOBAL—will affect every aspect of one's life
 - STABLE—will last forever
 - INTERNAL Attribution—my own fault
- Why God

Treatment

VICTIM to SURVIVOR

Victim

Global
Stable
Internal

Survivor

Limited
Time Limited
External Causation

RESILIENCY

- People vary widely in their vulnerability for developing PTSD
- Event + response
- Natural remission of symptoms
- Resilience
 - Two main findings currently ...
 - Higher cognitive ability
 - Strong social support

RESILIENCY

- Bosoglu et al., (1994) studied political prisoners who had been tortured for nearly four years and found 67% never developed PTSD!
 - Political dissidents and expected to be tortured if arrested
 - Higher intelligence
 - Social support
 - Emerged as heroes

RESILIENCY

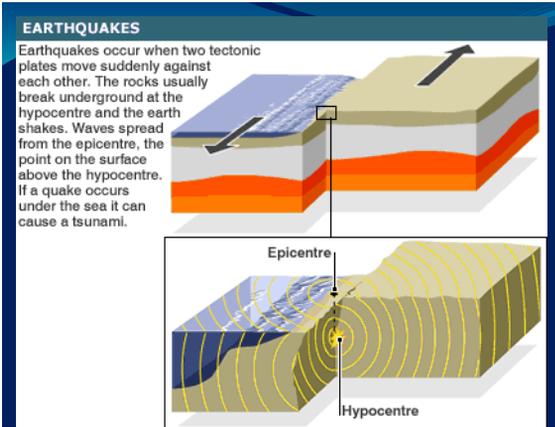
- McNally et al., 2003—9/11 tragedy. 9000 mental health workers descended on NY assuming people would develop PTSD if they didn't receive immediate intervention
- Trauma Centers were established (Project Liberty)
 - Millions of dollars were allotted
 - Nobody showed up for help
 - 2.5 million pts expected, 643K utilized services
 - \$90 million in therapy funds remained unused
 - NY-ers more resilient than thought, and relied on greater social support networks such as churches and others

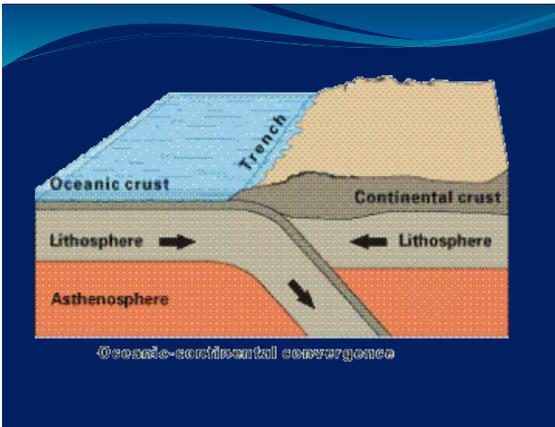
FURTHER RESEARCH

- Adult PTSD vs. child/adolescent reactions
- Eren-Kocak et al., (2009) neurocognitive differences in PTSD diagnosed earthquake survivors (decreased attention, verbal memory, verbal fluency, and psychomotor speed).
- Karakashian, 1994—professional vs. indigenous counselors who had, themselves, experienced the traumatic event
- Najarian, et al., 2001 – effects of relocation after an earthquake
- “Culture-Bound Stress Reactions” in *Psychological Assessment of Adult Posttraumatic States* by John Briere (1997)

Increase in Natural Disasters ?







- Smyth, 1999
 - $\frac{3}{4}$ of the US population has been exposed to “one or more life - threatening event” in their lifetime
 - Of those exposed $\frac{1}{4}$ develop “full-blown” PTSD (75 mill)

Magnitude 4.4 Date-Time Tuesday, March 16, 2010 at 11:04:00

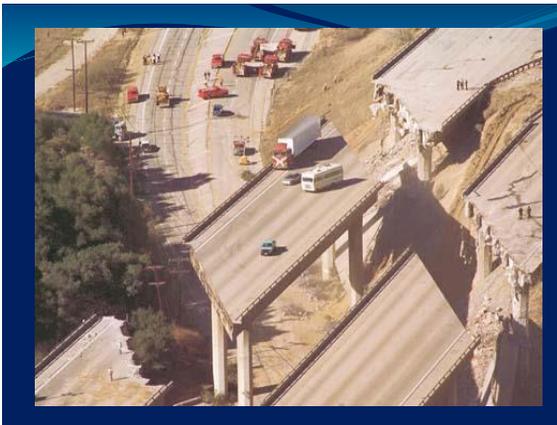
UTC Tuesday, March 16, 2010 at 04:04:00 AM at epicenter
Time of Earthquake in oter Time Zones Location 33.992°N, 118.082°W Depth 18.9 km (11.7 miles) Region GREATER LOS ANGELES AREA, CALIFORNIA Distances 1 km (0 miles) ENE (62°) from Pico Rivera, CA 4 km (2 miles) SE (129°) from Montebello, CA 5 km (3 miles) SSW (212°) from Whittier Narrows Rec. Area, CA 8 km (5 miles) NE (37°) from Downey, CA 17 km (10 miles) ESE (115°) from Los Angeles Civic Center, CA Location Uncertainty horizontal +/- 0.3 km (0.2 miles); depth +/- 0.6 km (0.4 miles)
Parameters Nph=177, Dmin=6 km, Rmss=0.39 sec, Gp= 22°, M-type=local magnitude (ML), Version=4 Source California Integrated Seismic Net: USGS Caltech CGS UCB UCSD UNR Event ID ci1460172

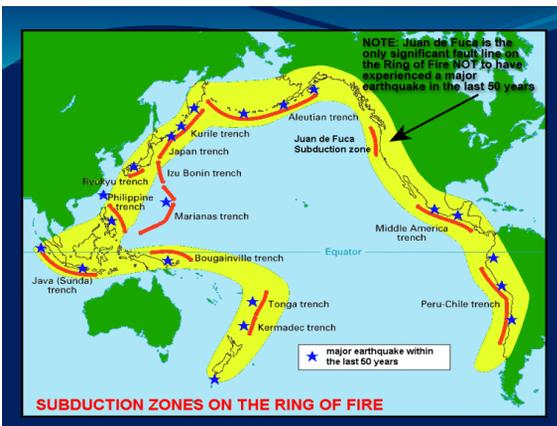
Illinois earthquake third to rattle upper Midwest since 1999

Wednesday's Illinois earthquake rated a 3.8 magnitude according to the US Geological Survey, and was the third mild temblor experienced in the region in recent years.
(Christian Science Monitor.com)











Earthquake Survival Kits

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