

Development of an Online Post-Disaster Intervention to Promote Resilience and Rapid Recovery

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Overview of Presentation

- Background
 - mental health correlates of mass violence and disasters
 - status of research on early interventions
 - technology in health care
- Online intervention for disaster-affected adults
 - development process
 - Structure
- Preliminary data
- Related ongoing and future projects

Mass Violence and Disasters

- Mass violence and disasters are associated with risk for a range of psychosocial problems (Galea, 2005; Norris et al., 2002, 2006)
 - posttraumatic stress disorder (re-experiencing, avoidance, hyperarousal)
 - generalized anxiety (excessive worry)
 - major depression (loss of interest/pleasure in activities, depressed mood)
 - alcohol- and drug-use problems (binge drinking, substance use and abuse)
 - increased cigarette use
- Characteristics of disasters associated with risk:
 - widespread damage to property
 - serious and ongoing financial problems
 - human error or human intent that caused the disaster
 - high prevalence of injury, threat to life, loss of life

Addressing Mental Health Needs Post-Disaster

- Most disaster victims are resilient or recover fairly quickly relative to post-disaster mental health symptoms
- Single-session interventions for acute phase
 - Psychological Debriefing (poor outcomes)
 - Psychological First Aid (widely accepted but more evaluation needed)
- Brief, in-person, multi-session interventions grounded in cognitive and behavioral principles (1-6 months post-disaster)
- Full CBT packages for chronic problems (4+ months post-disaster)
- Brief self-administered (e.g., technology-based, workbook-based) interventions grounded in behavioral principles??????
- Most interventions have focused primarily on PTSD/depression
- Literature on children and adolescents is underdeveloped

Expert Consensus on Early Interventions

- Our Web intervention for disaster victims was developed with the goal of ultimately examining it as an early intervention. Experts (National Institute of Mental Health, 2002; Litz 2002, 2004; McNally, 2003) generally agree that:
 - Early interventions built on behavioral and cognitive principles may be beneficial in secondary prevention efforts
 - Psychological debriefing approaches are contraindicated
 - It is inappropriate to prescribe formal psychological services to all victims of disasters
 - The expectation of resilience and/or normal recovery is a reasonable working principle
 - Professionals should not wait to provide psychological care until problems have become chronic

Technology in Health Care

- Computerized interventions for mental-health related problems have had tremendous growth in availability and use
- Examples of computerized adjunctive interventions
 - social phobia (Przeworski & Newman, 2004)
 - panic disorder (Newman et al., 1997)
 - obsessive-compulsive disorder (Baer et al., 1988)
- Examples of computerized front-line interventions (for a review, see Amstadter et al., 2009)
 - anxiety and depression (Proudfoot et al., 2004),
 - panic (Carlbring et al., 2003; Klein et al., 2001)
 - depression (Christensen, 2004; Selmi, 1990)
 - smoking cessation (Feil et al., 2003)
 - posttraumatic stress disorder (Lange, 2001, 2003; Litz et al., 2007)

Internet Usage is Widespread

- 75-80% of Internet users look online for health information (Pew Internet and American Life Project, 2008)
- Household Internet access
 - 2009: 63% broadband access
 - 2008: 55% broadband, 15% dialup
 - 2000: 3% broadband, 33% dialup
- Access across various demographic groups from 2008-2009
 - 46% of rural households have broadband access (up from 38% in 2008)
 - 30% of adults age 65+ have broadband access (up from 19% last year)
 - 35% of households with incomes <\$20K (up from 25%)
 - 53% of households with incomes between \$20-30K (up from 42%)
- Disasters may affect access, but typically have minimal impact beyond 1-2 month period post-disaster

Web Approach Addresses Barriers to Care

- Stigma issues
 - Stigma more likely for psychological referral than medical
 - Stigma cited as major barrier among minorities and lower SES
 - Anonymity assists in decreasing stigma concerns
 - Stigma issues can be directly targeted via web intervention
- Scheduling and time off for treatment
 - Low time burden for web interventions
- Cost issues
 - Can be updated and widely disseminated at low cost
- Transportation and proximity to treatment providers
 - Access via home, even in rural areas

Web Intervention Development

Development of a Web-Based Intervention for Disaster Victims

- Design of initial intervention occurred in 2002, and was tailored to NYC residents affected by the 9/11 attacks. Latest iteration, *Disaster Recovery Web*, targets disaster-affected populations more broadly.
- Modules target PTSD symptoms, depressed mood, excessive worry, and panic (also cigarette use and substance abuse)
- Modules consisted of similar components
 - brief screening questions, used to guide educational content
 - education and recommendations
 - pre-/post-module knowledge questions
 - motivational enhancement strategies
 - interactive components to facilitate personalized feedback
 - information about and links to supplementary resources
 - printable worksheets and handouts

Development of a Web-Based Intervention for Disaster Victims

- Development of this protocol was based on
 - epidemiologic research on victims of mass violence and disasters (e.g., terrorist attacks, hurricanes, earthquakes)
 - research on early interventions, with particular emphasis on CBT-based early interventions
 - findings from a related video-based study at the NCVC designed to prevent post-rape mental health and health-risk problems
 - growing body of research on self-help and Internet-based interventions
 - research on best CBT practices in the treatment and secondary prevention of posttraumatic stress disorder, depression, generalized anxiety, alcohol abuse, drug abuse, and cigarette use

Approach to Module Development

- Identify experts to lead each module
- Set up a clear, reasonable timeline
- Hold regular (e.g., monthly) large-group check-in meetings
 - To monitor progress
 - To lay down the ground rules
 - To ensure that modules have parallel formats and use similar styles, levels of interactivity, and printable/downloadable forms
- Break out into subcommittees of 2-4 content developers
 - These subcommittees meet regularly (usually weekly or biweekly)
 - They outline specific tasks and deadlines and monitor progress
- A specific subcommittee is appointed to address Web-design issues, including graphics, video, layout, etc.

Example Pages from Web Intervention

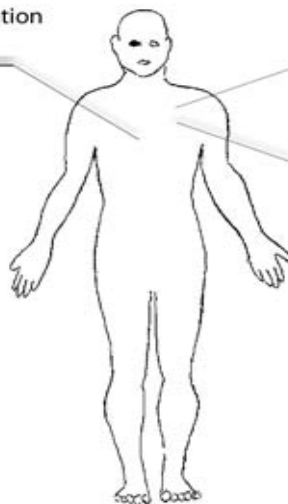


FIGHT OR FLIGHT RESPONSE

Breathing/respiration
increases

Heart rate increases

Blood pressure rises

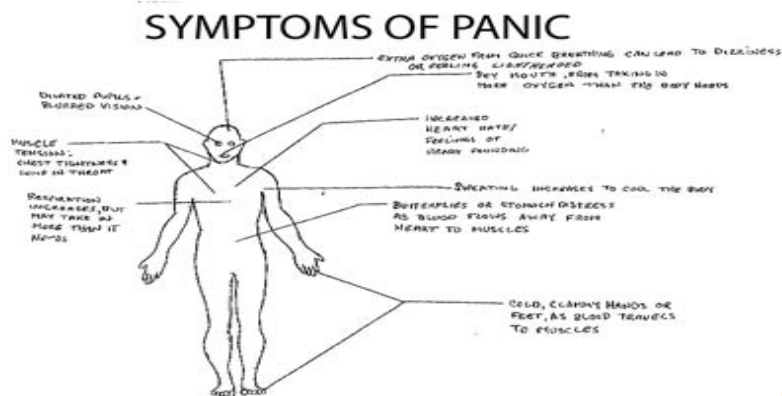


The first step to getting rid of panic is to learn about anxiety. Anxiety is a natural, normal system designed to help us in situations that are threatening—for example, when we are in actual danger. Sometimes, though, our body's natural "**alarm system**" goes off when we believe that something threatening might happen even when it is not really a dangerous situation. The body's natural response when we are stressed, threatened, or in danger is to make our hearts beat faster, make us breathe faster, and give us more energy. This is called a "**fight-or-flight**" response and it prepares our bodies to run away or to confront the dangerous situation.

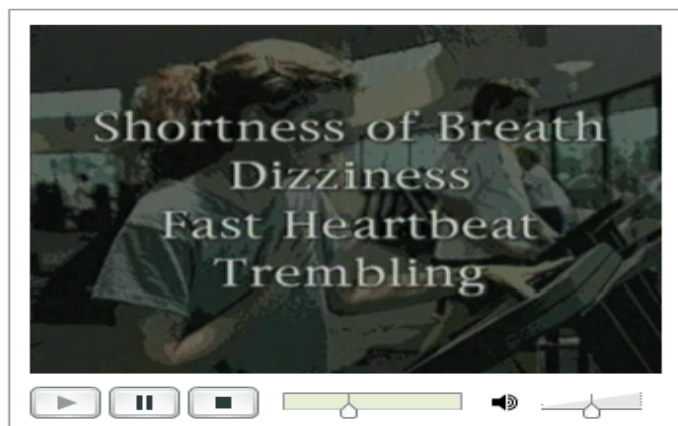
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How does the body respond to anxiety? The body responds physically, mentally, and behaviorally. These systems are separate, but, as you will see in a moment, they interact and influence each other.



panic.wmv



The Physical System (continued)

Breathing: Respiration speeds up as the body takes in more oxygen. Our breathing increases in rate and volume, again, to prepare the muscles for a "fight/flight" reaction. If you actually run away from a dangerous situation, your body uses the increased oxygen that it takes in. If you do not run away, then the body has taken in more oxygen than it will need. This may or may not result in hyperventilation.

Hyperventilation can create a variety of unpleasant sensations, such as:

- feeling light headed and dizzy
- feelings of unreality (like what is happening is not real)
- tingling sensations
- dry mouth

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Overview about Depressed Mood

Depressed mood is experienced by many Americans at some point in their lives. In fact, in any 1-year period of time, nearly 20 million Americans (about 1 out of every 10 American adults or 9.5%) have experienced depressed mood for two weeks or longer.

What causes depressed mood? Depressed mood can be caused or worsened by a lot of different types of stressful events. This could include events such as:

- losing a loved one
- being physically or sexually assaulted
- having serious relationship problems or getting divorced
- running into serious financial problems or job difficulties

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	This has not happened (0 times) in the past 30 days	This has happened a few times (1 to 6 times) in the past 30 days	This has happened often (7 or more times) in the past 30 days	This event is not enjoyable and not satisfying
Playing or learning to play a musical instrument	☐	☐	☐	☐
Sewing	☐	☐	☐	☐
Writing in a diary	☐	☐	☐	☐
Doing favors for people	☐	☐	☐	☐
Doing volunteer work; working on community service projects	☐	☐	☐	☐
Giving a small gift to a friend or family member or to a child in the family	☐	☐	☐	☐
Remembering a departed friend or loved one, or visiting the cemetery	☐	☐	☐	☐
Learning how to do something new	☐	☐	☐	☐
Stargazing with a friend, family member, spouse, or partner	☐	☐	☐	☐
Visiting people who are sick or in nursing homes	☐	☐	☐	☐
Type in your own activity here: Playing hockey	☐	☐	☐	☐
Type in your own activity here: Quilting	☐	☐	☐	☐
Type in your own activity here:	☐	☐	☐	☐

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Physical reactions, such as your heart beating faster or breathing in and out very quickly, are usually dangerous and are not part of the body's normal stress reaction.

☒ True

☐ False

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Disasters such as Hurricanes Ike, Rita, Katrina; the September 11 terrorist attacks; the Iowa City Floods; and the 2004 Florida Hurricane (Ivan, Charley, Jeanne, Frances) are examples of recent events that caused anxiety and fear for a lot of Americans. For many, this anxiety was directly related to the disasters themselves. For others who had been victims of past traumatic events, such as a physical or sexual assault or other experience involving injury, extreme fear, or harm to a loved one, these attacks may have brought back bad memories and feelings. It's true, a recent traumatic event that causes a lot of emotional pain can set off past feelings from previous traumatic events for some people.



Used with permission from the National Center for PTSD



coping with trauma reminders.wmv

Confronting Avoidance of Reminders in Every Day Life

Just the same writing about a traumatic event can lead to reduction of anxiety and distress over time, putting yourself in situations that are really safe but that you have been avoiding is the way to get over distress to every day reminders of a traumatic event. By confronting these situations you will get evidence that:

- You can go into these situations and see that the traumatic event is not happening, that the situation is safe
- You can go into these situations even if you are distressed or have thoughts about the traumatic event – and that your distress won't last forever – it will decrease as you stay in the situation.
- As you put yourself in the same situation on different days or times you will notice your distress is less the more times you confront the situation.

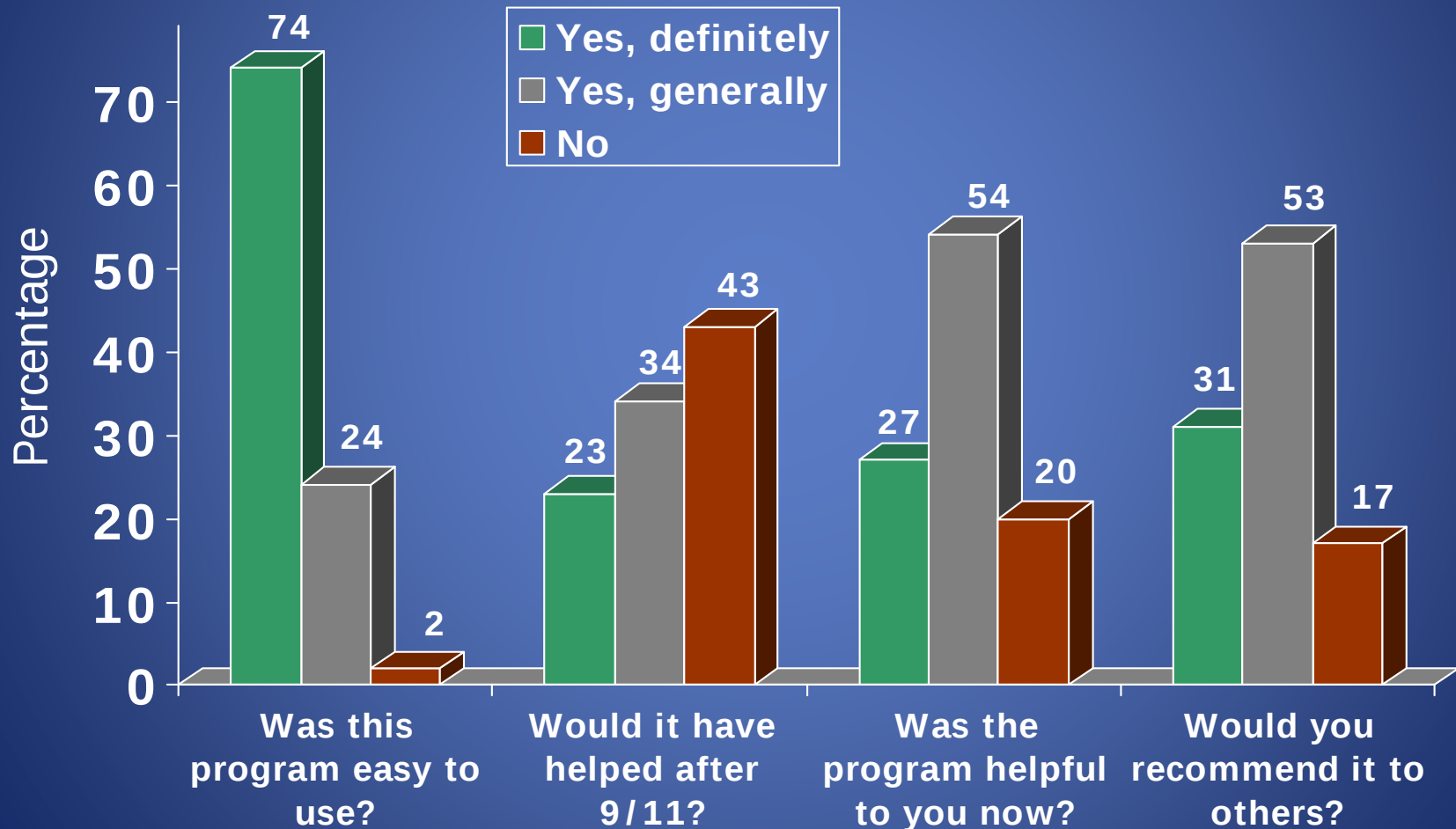
You are going to learn a very gradual, systematic way to confront these situations.



about exposure.wmv

Preliminary Findings

9/11 Study: Satisfaction Data ($n = 199$)



Hurricane Ike Study ($n = 1,249$)

■ Context

- Hurricane Ike was the 3rd costliest hurricane in US history
- Devastated upper Texas coast in September, 2008
- Galveston and Chambers counties among those hardest hit by Ike

■ Methodology

- Random-digit-dial recruitment; September-October 2009
- Recruited 1,249 adults residing in Galveston and Chambers counties
- Structured telephone interviews assessing demographics, disaster-exposure characteristics, and mental health outcomes
- At the conclusion of the interview, we invited ALL participants (including asymptomatic) to access the *Disaster Recovery Web* site
- Participants offered \$30 to access the Website
- Participants were randomized to experimental vs. assessment-only condition after accessing the Website

Hurricane Ike Study Results

- Disaster impact
 - 49.7% personally present for hurricane-force winds or major flooding
 - 33.7% unsure about safety or whereabouts of family members
 - 74.5% experienced displacement
 - Two-thirds returned to their homes within one week
 - One-tenth were displaced for more than one month
 - 6.8% met criteria for past-year (since Ike) PTSD; 4.4% Ike-related
 - 5.6% met criteria for past-year major depressive episode
 - 8.8% met criteria for past-year generalized anxiety disorder
- Website data and follow-up interviews
 - Website data collection period will end in March, 2010
 - Follow-up interviews are underway and will be done by April, 2010
 - Follow-up interviews primarily assess knowledge and mental health

Website Access Patterns and Usability

- 667 (53%) of 1,249 have accessed *DRW* to date
- 387 participants completed at least 1 of 4 mental health modules (PTSD, panic, depression, excessive worry) or 1 of 3 substance-related modules (smoking, marijuana, alcohol)
 - 250 completed the depression module
 - 124 completed the PTSD module
 - 103 completed the excessive-worry module
 - 88 completed the panic module
 - 129 completed the alcohol module
 - 122 completed the cigarette-use module
 - 42 completed the marijuana module
- the latter 3 modules were optional, and were not tied to incentive

User Reaction

- For PTSD, Depression, Panic, Worry, and Smoking modules:
 - Over 60% estimated that the module would have been helpful to them in the more immediate aftermath of Ike
 - Over 70% stated that the module was helpful to them now
- For the Alcohol Use module:
 - Half stated the module would have been helpful to them in the more immediate aftermath of Ike
 - Nearly 60% stated that the module was helpful to them now
- Over 80% stated that they would recommend the module to family/friends with relevant symptoms (except Alcohol—70%)
- Reactions more favorable for experimental than comparison condition; but users seemed to like comparison condition too

Knowledge and Symptom Change

- Preliminary knowledge change analyses compared experimental and assessment-only modules pre/post intervention.
- Significant between-group differences were found for all four mental health modules: PTSD, worry, panic, depression)
- Substance-related modules have not been examined yet
- Efficacy and knowledge-retention data (via structured telephone interview) will be available by April 2010.
- Knowledge change also will be examined in relation to symptom change.

Ongoing Work and Future Directions

- Ongoing NIMH R01 to develop and evaluate an online intervention for disaster-affected adolescents and parents
 - currently in development phase
 - RCT planned for Fall/Winter ($n = 3,000$)
 - 4 groups: (1) assessment only, (2) adolescent/parent intervention only, (3) adult (parent) self-help only, (4) adolescent/parent intervention plus adult (parent) self-help.
- Possible future efficacy evaluation targeting substance-related modules of the adult disaster intervention
- Development of multi-session structure to encourage users to re-visit site, monitor progress, and receive ongoing feedback

Conclusions

- Most disaster victims are resilient, but there is significant mental health need after disasters
- Research on Internet-based interventions has provided support for efficacy for numerous multi-session protocols in the areas of mental health and substance use
- Limited data are available regarding the use and efficacy of brief Web-based interventions in the aftermath of disasters
- Preliminary data for these interventions are promising, and efficacy data are being gathered
- Studies evaluating the use and efficacy of such interventions with adolescents are also underway