


UNIVERSITY of DELAWARE 

Mental Health as an Influence on Disaster Preparedness

Findings from the Behavioral Risk Factor Surveillance Survey

Lauren Clay, MPH
James Goetschius, AICP
James Kendra, PhD, CEM
Mia Papas, PhD


UNIVERSITY of DELAWARE 

Presenter Disclosures

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose


1

UNIVERSITY of DELAWARE 

Purpose

Evaluate the association between mental health status and disaster preparedness among respondents to the Behavioral Risk Factor Surveillance Survey (BRFSS)

2

UNIVERSITY of DELAWARE 

Americans are Not Prepared

- "...only one-third (34%) of Americans have started preparing, or are prepared, for a major disaster." (Redlener, 2007)
- 53% of Americans are not prepared with a 3-day supply of food and water. (Currie, 2012)
- Being prepared may mitigate the negative impacts of disasters.

3

UNIVERSITY of DELAWARE Disaster Research Center

Mental Health Impact of Disasters

Population	PTSD Prevalence
General Population	8%
Direct disaster victims	30-40 %
Disaster response workers	10-20 %

(Galea, 2005)

Factors increasing likelihood of adverse outcomes (Bethel, 2011; Norris, 2002)

- Chronic disease
- Mental illness
- Physical disability

4

UNIVERSITY of DELAWARE Disaster Research Center

Vulnerable Populations at Risk

- **“Persons with a disability are 1.22 times more likely to be unprepared for an emergency.”** (Smith, 2009)
- **“Respondents with poorer health, disabilities, and multiple chronic diseases were generally less likely to have a complete set of disaster preparedness supplies.”** (Bethel, 2011)

5

UNIVERSITY of DELAWARE Disaster Research Center

Gaps in Research

- **Recent efforts focus on increasing preparedness levels in populations with disabilities.** (Christensen, 2007; Rowland, 2007; Eisenman, 2009)
- **Gaps**
 - Chronic conditions (eg: asthma, diabetes)
 - Mental health

6

UNIVERSITY of DELAWARE Disaster Research Center

Research Question

Are those with poor mental health more or less prepared for disasters than those without poor mental health?

7

UNIVERSITY of DELAWARE **Disaster Research Center**

Hypothesis

Individuals with poor mental health are less prepared for disaster than individuals without poor mental health.

8

UNIVERSITY of DELAWARE **Disaster Research Center**

Methodology

Behavioral Risk Factor Surveillance Survey (BRFSS)

- General Preparedness Module
- Mental Illness and Stigma Module

State	Year	Sample Size
Louisiana	2007	6,684
New Hampshire	2007	5,990
Mississippi	2009	11,194

9

UNIVERSITY of DELAWARE **Disaster Research Center**

General Preparedness Measure

General Preparedness

- Evacuation Plan
- 3-day Supply of Medication
- Summary Measure of Preparedness
 - 3-day Supply of Food and Water
 - Battery Powered Radio with Batteries
 - Flashlight with Batteries

10

UNIVERSITY of DELAWARE **Disaster Research Center**

Mental Health Measure

Mental Distress

- Kessler-6 (K-6)
- K-6 Score >12 indicates Serious Psychological Distress (SPD)

1. Nervous
2. Hopeless
3. Restless or fidgety
4. So depressed nothing could cheer you up
5. That everything was an effort
6. Worthless

11

UNIVERSITY of DELAWARE Disaster Research Center

Data Analysis

- Chi-square
- T-test
- Logistic regression
- Statistical analysis conducted in SPSS 19.0 accounting for complex sampling design and weighting.

12

UNIVERSITY of DELAWARE Disaster Research Center

Table: Prevalence of Preparedness and SPD		
Outcome	Percent	n
Preparedness (summary measure)	53.1 %	11,491
Evacuation Plan	29.0 %	6,377
3-Day Supply of Medication	91.2 %	18,209
Serious Psychological Distress	5.6 %	1,216

13

UNIVERSITY of DELAWARE Disaster Research Center

Table: Demographics by Mental Health			
		SPD	No SPD
Age	Age * (mean)	51.89	55.06
Income	< \$15,000	16.5 %	83.5%
	> \$50,000	1.4 %	98.6 %
Education	< HS graduate	14.7 %	85.3 %
	College graduate	2.0 %	98.0 %
Marital Status	Married	3.4%	96.6%
	Not Married	8.5%	91.5%
Employment	Not Employed *	8.1 %	91.9 %
Sex	Male	4.4 %	95.6 %
	Female	6.3 %	93.7 %

*p<.001

14

UNIVERSITY of DELAWARE Disaster Research Center

Table: Demographics by Preparedness			
		Prepared	Not Prepared
Income*	< \$15,000	60.0 %	40.0 %
	> \$50,000	51.3 %	48.7%
Marital Status*	Married	51.1%	48.9 %
	Unmarried	55.6%	44.4%
Sex*	Male	48.0 %	52.0%
	Female	55.8 %	44.2 %

*p<.001
Note: There are no differences for age, education, and employment

15

UNIVERSITY of DELAWARE Disaster Research Center

Table: Association Between SPD and Preparedness

	Serious Psychological Distress (SPD)	
	Unadjusted Odds Ratios (95% CI)	Adjusted Odds Ratios [^] (95% CI)
Prepared	0.57 *** (0.50, 0.64)	0.62 *** (0.52, 0.75)
Evacuation Plan	0.87 * (0.76, 0.99)	0.84 ‡ (0.69, 1.02)
3 Day Supply of Medication	0.41 *** (0.35, 0.48)	0.61 ** (0.48, 0.77)

[^]Results adjusted for age, income, education, marital status, sex, race, and employment status
 * p<0.05, ** p<0.01, *** p<0.001, ‡ p=0.08

16

UNIVERSITY of DELAWARE Disaster Research Center

Conclusions

- Differences in demographic characteristics
 - Preparedness
 - Serious Psychological Distress
- Mental distress is associated with a decrease in likelihood of being prepared.
 - AOR = 0.62 (95%CI: 0.52, 0.75)

17

UNIVERSITY of DELAWARE Disaster Research Center

Implications

- Individuals with SPD at-risk for adverse disaster outcomes
- Targeted risk communication messaging
 - Non-event times
 - When a disaster is looming
- Channels for messages
 - Emergency management and public health
 - Mental health and primary care service providers
- Promotion in disaster prone areas

18

UNIVERSITY of DELAWARE Disaster Research Center

Limitations

- Sampling
- Self-reported data
- Basic preparedness questions

19

UNIVERSITY of DELAWARE Disaster Research Center

Future Research

- **State level differences (LA, MS, NH)**
- **Validation of preparedness measures**
- **Cohort study to investigate longitudinal aspect of preparedness within vulnerable populations**

20

UNIVERSITY of DELAWARE Disaster Research Center


References

- Bethel, J. W., Foreman, A. N., & Burke, S. C. (2011). Disaster preparedness among medically vulnerable populations. *American Journal of Preventive Medicine*, 40(2), 139-143.
- Centers for Disease Control and Prevention (CDC). Behavioral Risk Factor Surveillance System Survey Data. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2007, 2009.
- Christensen, K. M., Blair, M. E., & Holt, J. M. (2007). The built environment, evacuations, and individuals with disabilities. *Journal of Disability Policy Studies*, 17(4), 249.
- Currie, D. (2012, November/December 2012). Emergency preparedness improving among americans, but gaps remain. *The Nation's Health*, pp. 8.
- DeBastiani, S., & Strine, T. (2012). Household preparedness for public health emergencies - 14 states, 2006-2010 (Morbidity and Mortality Weekly Report No. 61 (36))Centers for Disease Control and Prevention.
- Eisenman, D. P., Zhou, Q., Ong, M., Asch, S., Glik, D., & Long, A. (2009). Variations in disaster preparedness by mental health, perceived general health, and disability status. *Disaster Medicine and Public Health Preparedness*, 3(1), 33.
- Fox, M. H., White, G. W., Rooney, C., & Rowland, J. L. (2007). Disaster preparedness and response for persons with mobility impairments. *Journal of Disability Policy Studies*, 17(4), 196-205.
- Norris, F. H., Friedman, M. J., Watson, P. J., Byrne, C. M., Diaz, E., & Kaniasty, K. (2002). 60,000 disaster victims speak: Part I. an empirical review of the empirical literature, 1981-2001. *Psychiatry: Interpersonal and Biological Processes*, 65(3), 207-239.
- Redlener, I. E., Abramson, D. M., Stehling-Ariza, N. A., Grant, R., & Johnson, D. G. (2007). The american preparedness project: Where the US public stands in 2007 on terrorism, security, and disaster preparedness.
- Reeves, W., Strine, T., Pratt, L., Thompson, W., Ahluwalia, I., Dhingra, S., et al. (2011). Mental illness surveillance among adults in the united states (Morbidity and Mortality Weekly Report No. Vol 60)Centers for Disease Control and Prevention.
- Smith, D. L., & Notaro, S. J. (2009). Personal emergency preparedness for people with disabilities from the 2006-2007 behavioral risk factor surveillance system. *Disability and Health Journal*, 2(2), 86-94.

21

UNIVERSITY of DELAWARE Disaster Research Center

Questions



Contact Information:

Lauren Clay lclay@udel.edu	Jim Kendra jmkendra@udel.edu
James Goetschius jgoetsch@udel.edu	Mia Papas mpapas@udel.edu

22