

MENTAL HEALTH CORRELATES OF HURRICANE SANDY EXPOSURE AMONG NY RESIDENTS

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Presenter Disclosures Rebecca M. Schwartz, Ph.D.

- **(1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:**
- **No relationships to disclose**

Project LIGHT: Leaders in Gathering Hope Together



- PI: Dr. Emanuela Taioli (Icahn School of Medicine at Mount Sinai)
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- Co-PI: Commissioner Lisa Murphy (Nassau County Dept of Human Services)
- Project Coordinator: Samantha Kerath (NSLU)
- Project Coordinator: Trista Breil (NCDHS)
- Research Assistants: Becky Bajwa, Alexis Watson, Peta-Gaye Reid, Patricia Rothenberg
- Data Manager: Glenn Murawski
- Extensive Project Advisory Board
 - Subcommittees
 - Integral in implementation and dissemination activities
- <http://www.feinsteininstitute.org/project-light/>
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Research Questions, Aims, and Objectives

- **Objective:** To understand the psychological impact of Hurricane Sandy in an effort to inform current intervention and future prevention efforts. This is a partnership between the North Shore-LIJ Health System (NSLIJHS), and the Nassau County Department of Human Services.
 - **Aim 1:** Assess the psychological and behavioral effects of Hurricane Sandy on the residents of Nassau, Suffolk, Queens and Richmond (Staten Island) counties.
 - **Aim 2:** Examine the prevalence of specific mental health diagnoses presenting to local Emergency Departments in the affected counties
 - **Aim 3:** Develop a vulnerability profile based on the results of Aims 1 and 2, and disseminate findings to local and national public health stakeholders.

Sampling Goals

- Recruitment of 669 study participants.
- Sampling areas: Nassau County, Suffolk County, Queens County, and Richmond County (Staten Island).
- Sampling was conducted from both heavily and mildly affected areas to ensure variability in exposure.
- Recruitment strategy is one of convenience sampling at various community sites and events
 - Contacts established through key stakeholders have been crucial to success.

Questionnaire Sections

General Information:

- Section A: Basic Information
- Section B: Demographic Information
- Section C: Occupation and Environment
- Section D: Medical History
- Section E: Behavioral Health (Tobacco, Alcohol and Substance Use)

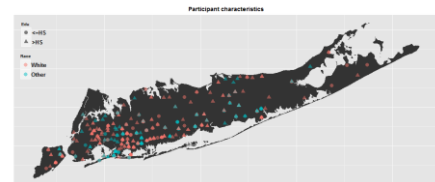
Mental Health Measures

- Section F: Perceived Stress Scale (Stress)
- Section G: PHQ-4 (Anxiety and Depression Symptoms)
- Section H: PCL-S (PTSD Symptoms)
- Section I: Mental Health History
- Section J: PTGI (Post-Traumatic Growth)
- Section K: Hurricane Sandy Exposure Assessment

Demographics

- Total sample size through 2/25/15 - 669
- Gender: 36% male; 64% female
- Race:
 - 65% White
 - 20% Black/African American
 - 3% Native American/Pacific Islander
 - 3% Asian
 - 2% Other
- Ethnicity:
 - 20% Hispanic
- Mean age= 47.6 Years; Range = 18-104 Years

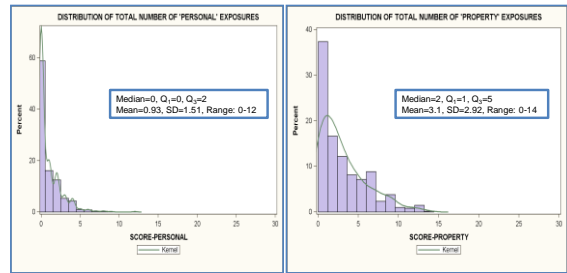
Sampling Area and Demographics



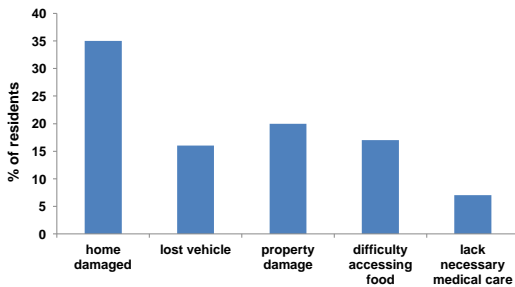
Sample Hurricane Exposure Items

- Family member missing: 2%
 - Physical harm to family member: 5%
 - Felt life was in danger: 8%
 - Evacuated emergently: 11%
 - Loss of electricity: 71%
 - Displaced from home: 31%
 - Home damaged: 31%
 - Vehicle loss: 14%
 - Became unemployed: 5%
 - No access to gasoline: 33%
 - Difficulty accessing food: 15%
 - Flooding in the home: 26%
- Overall mean (out of 30 items): 3.83 items endorsed (SD=3.86)

Personal and Property Exposures Based on Principal Components Analysis



Examples of Frequencies of "Property" Exposures



Mental Health Outcomes

- **Perceived Stress:** Mean= 15.6, SD= 7.3; Range= 0-37
 - General population mean = 13
- **Anxiety:** Mean=1.6, SD=1.7; Range: 0-6
 - Mean_≥2 = Probable anxiety; 47.5% of sample
- **Depression:** Mean=1.2, SD=1.7; Range: 0-6
 - Mean_≥2 = Probable depression; 34.3% of sample
- **PTSD:** Mean=25.0, SD=11.1; Range: 16-85
 - Mean_≥30 = Probable PTSD; 20.5% of sample

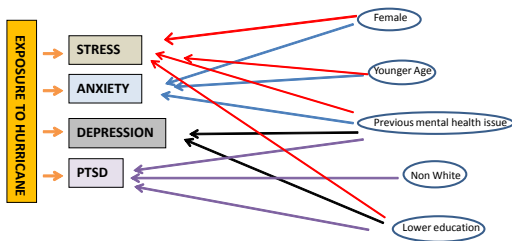
Perceived Stress Findings

Variable Name	Parameter Estimate	S E	p-value
Younger Age	-0.09	0.01	<.0001
Hispanic Ethnicity	1.74	0.72	0.01
Non-White Race	0.04	0.63	0.94
Female Gender	1.72	0.6	0.004
Lower Education	-1.12	0.6	0.06
Mental Health History	3.12	0.64	<.0001
Total Hurricane Exposure	0.34	0.07	<.0001

Overall Mental Health Findings

	DEPRESSION			ANXIETY			PTSD		
	OR	95% CI		OR	95% CI		OR	95% CI	
AGE	0.99	0.98	1.00	0.98*	0.97	0.99	1.00	0.99	1.01
FEMALE GENDER	0.93	0.63	1.36	1.81*	1.25	2.63	1.17	0.7	1.96
EDUCATION (HS OR LESS)	1.69*	1.15	2.48	1.28	0.88	1.85	2.05*	1.22	3.45
RACE (NON-WHITE)	1.09	0.73	1.63	0.87	0.59	1.29	2.3*	1.33	3.95
HISPANIC ETHNICITY	1.41	0.9	2.22	1.12	0.72	1.75	2.86*	1.6	5.11
PREVIOUS MENTAL HEALTH HISTORY	2.41*	1.61	3.6	3.3*	2.17	5.03	3.14*	1.87	5.26
TOTAL HURRICANE EXPOSURES	1.1*	1.05	1.15	1.08*	1.03	1.13	1.32*	1.24	1.41

Factors Associated with Mental Health Outcomes



Mental Health Findings by Gender

	DEPRESSION						ANXIETY						PTSD					
	MALES			FEMALES			MALES			FEMALES			MALES			FEMALES		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
AGE	0.98	0.96	1.00	1.00	0.98	1.01	0.97	0.96	0.99	0.98	0.99	0.98	0.96	1.01	1.01	0.99	1.02	
EDUCATION (HS OR LESS)	2.88	1.48	5.6	1.18	0.72	1.93	2.19	1.13	4.25	0.93	0.58	1.48	5.02	2.01	12.55	1.14	0.59	2.19
RACE (NON-WHITE)	0.78	0.37	1.62	1.23	0.74	2.03	0.9	0.44	1.82	0.82	0.51	1.32	1.46	0.53	4.04	2.99	1.51	5.92
HISPANIC ETHNICITY	1.05	0.47	2.31	1.75	1.00	3.08	0.74	0.34	1.64	1.38	0.79	2.42	1.84	0.65	5.25	4.15	1.98	8.7
PREVIOUS MENTAL HEALTH HISTORY	3.08	1.49	6.38	2.01	1.23	3.31	3.15	1.51	6.58	3.2	1.89	5.41	4.05	1.6	10.29	2.73	1.44	5.2
TOTAL HURRICANE EXPOSURES	1.08	0.98	1.18	1.09	1.03	1.16	1.13	1.02	1.24	1.06	1.00	1.12	1.33	1.16	1.51	1.32	1.22	1.42

Mental Health Findings by Gender

- Total hurricane exposure was associated with all outcomes for both males and females
- With one exception: hurricane exposure was not associated with depression among males
- Lower education was consistently associated with poorer mental health among males, not females

Additional Findings

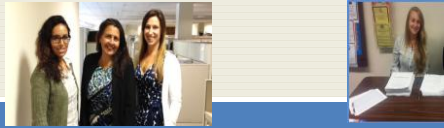
- Personal exposure was significantly associated with PTSD only
- Property exposure was significantly associated with all outcomes
- Days since hurricane was NOT associated with any associated outcome except for lower stress

Project LIGHT Summary

- ❖ Increased Hurricane Sandy exposure was significantly associated with increased mental health difficulties across all outcomes (i.e., stress, anxiety, depression and PTSD symptoms) even after adjusting for factors known to be associated with mental health.
- ❖ A history of mental health difficulties and lower education were consistently associated with poorer mental health across most outcomes.
- ❖ Depending on the outcome, age, gender, race and ethnicity also may have had an impact
- ❖ Property (as compared to personal) exposure drove the effect of total hurricane exposure on outcomes

Implications/Future Research

- Findings are being disseminated to local mental health and disaster preparedness stakeholders particularly with respect to vulnerable populations and high exposure areas
- Findings can inform current post-disaster assessment and treatment as well as planning in the case of future disasters
- Future analyses:
 - ▣ Substance use
 - ▣ Stratification by exposure
 - ▣ GIS analysis



Any questions? Contact Dr. Rebecca Schwartz:
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Thank you!