CONVERGE
Extreme Events
Research Training
Modules Workshop

Tuesday March 3, 2020
9:00 a.m.-Noon
Today’s Schedule

1. Introduction & demonstration of CONVERGE Training Modules (1 hour)
2. Q & A and feedback discussion with participants (15 min)
3. Break (15 min)
4. Completion of the CONVERGE Cultural Competence Competence Training Module (1 hour)
5. Q & A and feedback discussion with participants (15 min)
6. Training evaluation (15 min)
Presenters

Rachel Adams, PhD, MPH
Postdoctoral Research Associate
Natural Hazards Center and CONVERGE
University of Colorado Boulder

Haorui Wu, PhD
Assistant Professor
School of Social Work
Dalhousie University
Acknowledgements

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Natural Hazards Engineering Research Infrastructure (NHERI)

CONVERGE

Coordinated, ethical, scientifically rigorous interdisciplinary extreme events research
Convergence builds upon principles of interdisciplinary research and relies on webs of partnerships

Why convergence science?

- Start with a complex problem that requires interdisciplinary collaboration
- Work toward applications and solutions

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NSF Award #1841338
CONVERGE is an NSF-Natural Hazards Engineering Research Infrastructure (NHERI) facility dedicated to:

1. **identifying** and **coordinating** researchers and research teams
2. **supporting** and **accelerating** training and mentoring to advance the ethical conduct and scientific rigor of hazards and disaster research
3. **funding** virtual reconnaissance, field research, and the development of novel research instruments and data collection protocols
4. **encouraging** the publication of data and data collection instruments and protocols (DesignSafe Cyberinfrastructure + CONVERGE)
5. **accelerating** the development of mobile applications for social science and interdisciplinary field data collection (RAPID + CONVERGE)

[converge.colorado.edu]
NSF Extreme Events Reconnaissance / Research (EER) Networks

1. Geotechnical Engineering (GEER)
2. Social Sciences (SSEER)
3. Structural Engineering (StEEER)
4. Nearshore Systems (NEER)
5. Operations and Systems Engineering (OSEEEER)
6. Sustainable Material Management Engineering (SUMMEER)
7. Interdisciplinary Science and Engineering (ISEEER)

converge.colorado.edu/research-networks
SSEER Webmap

converge.colorado.edu/research-networks/sseer
SSEER Virtual Forums

Social Science Extreme Events Research (SSEER) Virtual Forum:

Puerto Rico Earthquakes

Recorded Forum
Date: Friday, January 17, 2020
Time: 2:00 to 3:00 p.m. MST

Resources:

https://converge.colorado.edu/communications/virtual-forum/sseer-puerto-rico-earthquakes
The CONVERGE Leadership Corps is a novel organizational structure to support natural hazards research.

The Leadership Corps brings together the NSF principal investigators for the EER networks and the NHERI components that support their work.
Mobile Data Collection

RApp is a mobile app that provides tools for data collection in the field and synchronizes with DesignSafe Cyberinfrastructure

- iOS App for iPads
- Checklists
- Photos
- Videos
- Scans
- Questionnaires
Data Publication

DesignSafe Cyberinfrastructure provides a secure data repository and the computational tools needed to manage, analyze, and publish critical data for natural hazards research.

Publish Your Data! Event:
April 17th
8:00am-4:30pm MDT

https://converge.colorado.edu/data/events/publish-your-data/april-2020
Check Sheets and Briefing Sheets

CONVERGE Extreme Events Research Check Sheets Series

These short, graphical check sheets are meant to be used as researchers design their studies, prepare to enter the field, conduct field research, and exit the field. The series, which is currently in development, will offer best practices for extreme events research and consist of 1-2 page check sheets.

A list of planned check sheets follows:

Now Available

- Research Design Table
- Part I: Conducting a Systematic Literature Review
- Part II: Systematic Literature Review Table
- Don’t Forget: A Checklist of Things to Bring to the Field

https://converge.colorado.edu/resources

NSF Award #1841338
What are they?
- FREE online, interactive courses.

Who are they for?
- The training modules are designed for disaster researchers and practitioners with a special emphasis on students, emerging researchers, and those interested in joining or leading interdisciplinary teams.

How long do they take?
- 30-60 minutes.

Where can I register?
- converge-training.colorado.edu/register
Now Available

- Social Vulnerability and Disasters
- Disaster Mental Health
- Cultural Competence in Hazards and Disaster Research

Coming Soon

- Conducting Emotionally Challenging Research
- Institutional Review Board (IRB) Procedures for Hazards and Disaster Researchers
- Broader Ethical Considerations for Hazards and Disaster Researchers
- Social Science Methods and Approaches for Hazards and Disaster Research
Training Module Overview

Social Vulnerability and Disasters

This Training Module focuses on social vulnerability to hazards and disasters, with an emphasis on population groups that have been identified in the literature as especially at risk to the adverse effects of extreme events.

By the end of this module, you should be able to:

Lesson 1: Background
1. Define social vulnerability;
2. Understand the conditions and drivers that influence social vulnerability to hazards and disasters in the United States;
3. Identify particularly vulnerable groups and recognize the physical, psychological, and social factors that may amplify their vulnerability to hazards and disasters.

Lesson 2: Methodological Approaches
1. Explain the primary methodological approaches to studying social vulnerability;
2. Understand the importance of the ethical conduct of research;

Lesson 3: Knowledge to Action
1. Recognize how studying potentially vulnerable populations improves hazard and disaster practice and policy;
2. Understand how research on vulnerable populations can positively impact outcomes for individuals and can enhance community resilience.

Lesson 4: Future Directions
1. Recognize future directions for social vulnerability research and;
2. Learn about additional resources that support hazards and disasters research on vulnerable populations.
Learning Objectives

Lesson 1: Background
1. Define social vulnerability;
2. Understand the conditions and drivers that influence social vulnerability to hazards and disasters in the United States;
3. Identify potentially vulnerable groups and recognize the physical, psychosocial, and social factors that may amplify their vulnerability to hazards and disasters.

Lesson 2: Methodological Approaches
1. Explain the primary methodological approaches to studying social vulnerability;
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Lesson 3: Knowledge to Action
1. Recognize how studying potentially vulnerable populations improves hazards and disaster practice and policy;
2. Understand how research on vulnerable populations can positively impact outcomes for individuals and can enhance community resilience.

Lesson 4: Future Directions
1. Recognize future directions for social vulnerability research and;
2. Learn about additional resources that support hazards and disasters research on vulnerable populations.
Learning Objectives: Social Vulnerability

Lesson 1: Background

1. Define social vulnerability;
2. Understand the conditions and drivers that influence social vulnerability to hazards and disasters in the United States;
3. Identify potentially vulnerable groups and recognize the physical, psychological, and social factors that may amplify their vulnerability to hazards and disasters;

Lesson 2: Methodological Approaches

1. Explain the primary methodological approaches to studying social vulnerability;
2. Underscore the importance of the ethical conduct of research;

Lesson 3: Knowledge to Action

1. Recognize how studying potentially vulnerable populations improves hazards and disaster practice and policy;
2. Understand how research on vulnerable populations can positively improve outcomes for individuals and can enhance community resilience;

Lesson 4: Future Directions

1. Recognize future directions for social vulnerability research; and
2. Learn about additional resources that support hazards and disasters research on vulnerable populations
Learning Objectives: Disaster Mental Health

Lesson 1: Background

1. Describe specific mental health outcomes that may emerge in the aftermath of a disaster or emergency;
2. Understand the conditions and risk factors that exist before, during, and after disaster that can influence mental health outcomes, with an emphasis on the United States;
3. Identify potentially vulnerable populations that may be at greater risk for poor mental health outcomes in the aftermath of a disaster, with an emphasis on the United States;

Lesson 2: Methodological Approaches

1. Explain the primary methodological approaches to studying disaster mental health;
2. Understand the importance of the ethical conduct of research in disaster mental health;

Lesson 3: Knowledge to Action

1. Recognize how studying disaster mental health improves hazards and disaster practice and policy;
2. Understand how research on disaster mental health can positively improve population outcomes;

Lesson 4: Future Directions

1. Recognize future directions for disaster mental health research; and
2. Learn about additional resources that support disaster mental health research.

At the close of the module, you will have the opportunity to take a 10-question quiz. If you get 8 out of 10 questions correct, you will receive a certificate of completion for the CONVERGE Disaster Mental Health Training Module.
Module Home

Social Vulnerability and Disasters

This Training Module focuses on social vulnerability to hazards and disasters, with an emphasis on population groups that have been identified in the literature as especially at risk to the adverse effects of extreme events.

Lesson 1: Background
1. Define social vulnerability;
2. Understand the conditions and drivers that influence social vulnerability to hazards and disasters in the United States;
3. Identify vulnerable population groups and recognize the physical, psychosocial, and social factors that may amplify their vulnerability to hazards and disasters.

Lesson 2: Methodological Approaches
1. Explain the primary methodological approaches to studying social vulnerability;
2. Understand the importance of the ethical conduct of research.

Lesson 3: Knowledge to Action
1. Recognize how studying potentially vulnerable populations improves hazards and disaster practice and policy;
2. Understand how research on vulnerable populations can positively improve outcomes for individuals and can enhance community resilience.

Lesson 4: Future Directions
1. Recognize future directions for social vulnerability research and;
2. Learn about additional resources that support hazards and disaster research on vulnerable populations.

Module Home
- Pre-Module Assessment
- Lesson 1: Background
  - Defining Social Vulnerability
  - Understanding Conditions and Drivers of Social Vulnerability to Disasters
  - Vulnerable Populations
  - Knowledge Check
- Lesson 2: Methodological Approaches to Studying Social Vulnerability
  - Qualitative Approaches
  - Quantitative Approaches
  - Mixed Methods Approaches
  - Secondary Data Approaches
  - Ethical Considerations for Vulnerable Populations Research
  - Knowledge Check
- Lesson 3: Knowledge to Action
Children are dependent on adults for shelter, safety, and sustenance, and thus rely on others to prepare for, respond to, and recover from disasters. In addition, their still-developing bodies and minds make them highly susceptible to dangerous infections and diseases that can result from exposure to hazardous conditions such as contaminated water, polluted air, and radiation. Children are at risk for a range of negative psychological outcomes and behavioral issues.

DID YOU KNOW?
4,909 children were missing or separated from their families during the first 3 months following Hurricane Katrina.

Older adults experience higher rates of chronic health issues and disabilities, and are more likely to live in isolation, have little economic and social capital, require assistance in daily living, and have limited access to Internet and social media, through which disaster-related information is commonly disseminated. Disastrous events can also trigger certain psychological and emotional reactions among the elderly, such as fear of the unknown and reluctance to leave pets, property, and other possessions.

DID YOU KNOW?
77% of the people who died in the Camp Fire in Butte County, California were over the age of 65.
As the previous sections have described, disasters may result in either positive or negative mental health outcomes.

How people are affected by disaster depends on factors before, during, and after the disaster. The figure below provides a summary of some, although not all, of the numerous variables that may influence disaster mental health outcomes.

Summary of Factors that Influence Disaster Mental Health Outcomes

### Before Disaster
- Income, age, race/ethnicity, gender, and other sociodemographic characteristics
- Past history of trauma
- Pre-existing mental health conditions
- Access to resources
- Coping abilities

### During Disaster
- Type of disaster
- Exposure
- Bereavement
- Injury
- Property damage or financial loss
- Peri-traumatic thoughts and feelings
- Emergency evacuation

### After Disaster
- Severity of resource loss
- Secondary stressors
- Social support and other social resources
- Coping skills and other personal resources
- Financial resources
- Displacement
Case Studies

Qualitative Approaches
Social Vulnerability and Disasters / Lesson 2: Methodological Approaches to Studying Social Vulnerability

Hazard and disaster research on vulnerable populations often involves qualitative research approaches.

Qualitative research methods, such as ethnography, participant observation, interviews, focus groups, photovoice, and content analysis, support the exploration of diverse disaster realities and the inductive development of theories related to human behavior in crisis situations. The purpose of qualitative research is often exploratory, focusing on the why and how underlying social phenomena. One of the main benefits of these methods is that they allow for flexibility in terms of design, data collection, and analysis, enabling the exploration of the experiences of diverse populations. Literature on gender, socioeconomic, age, and social class highlights how these different groups experience distinct disaster realities. These methods can also empower disenfranchised populations by providing them with a voice to share their unique disaster experiences.

EXAMPLE

Ethnography

Heads Above Water: Gender, Class, and Family in the Grand Forks Flood is an ethnographic book that tells the stories of women and their families who survived the Grand Forks, North Dakota, Flood of 1997. Their stories highlight the impact of the flood on women and families, the emotional and physical harm of the floods, and experiences with loss, vulnerability, and resistance. The book is based on in-depth interviews with local women to explore how gender, class, race, and social orientation, and disability impact disaster recovery. Through the experiences of these women, one explores the challenges women face in the disaster context, including the stigma of needing and receiving assistance, struggle of family relationships, economic viability, and economic insecurity.
Here are some additional resources that can be used to support hazards and disaster research on vulnerable populations.

These resources include key readings, standardized measures, secondary datasets, and other web resources.

**Measures:**
- The Centers for Disease Control and Prevention’s (CDC) Social Vulnerability Index (SVI)
- University of South Carolina’s Social Vulnerability Index (SoVI)

**Web Resources:**
- Disaster Ready
- Emergency Preparedness and Response for Vulnerable Populations
- Inter-Agency Standing Committee Task Team on Inclusion of Persons with Disabilities in Humanitarian Action
- Understanding Older People and Their Needs in a Humanitarian Context

**Secondary Datasets:**
- CDC’s Social Vulnerability Index (SVI)
Which of the following is an example of a similarity between physical and social vulnerability?

- Both physical and social vulnerability concentrate on the physical processes of the hazard
- Both physical and social vulnerability are influenced by the built environment
- Both physical and social vulnerability are fixed characteristics
- Both physical and social vulnerability concentrate on social conditions of populations
Certificate of Completion

CERTIFICATE
OF COMPLETION

THIS CERTIFICATE IS PRESENTED TO

Rachel Adams

FOR COMPLETION OF
Social Vulnerability and Disasters
CONVERGE Training Module

This Training Module focuses on social vulnerability to hazards and disasters, with an emphasis on population groups that have been identified in the literature as especially at risk to the adverse effects of extreme events.

September 4, 2019
Date

Lori Peek, Ph.D.
Principal Investigator
NSF: NHERI CONVERGE
Training Module Demonstration
Q & A

● What are your thoughts/general impressions on the two training modules presented?
● How would you use these modules in your work?
● Who might you recommend these modules to / would you require the training for any particular group of students or others?
● Are there other topics you would like to see developed into a training module?
● Do you have any additional feedback?
● Please meet back in this room in 15 minutes
Cultural Competence Training

CONVERGE Training Modules

Need an account? Create an account.

Username or Email
rachel.adams-1@colorado.edu

Password
*********

I'm not a robot

Forgot Password?
Instructions

1. Go to converge-training.colorado.edu/register
2. Enter information to complete account registration
3. Login to your account at converge-training.colorado.edu
4. Press View All Modules
5. Choose the Cultural Competence in Hazards and Disaster Research module
6. Complete training module
7. Take final quiz to receive certificate of completion
Q & A

● What are your thoughts/general impressions on the cultural competence module?
● How would you use this module in your work?
● Who might you recommend this module to / would you require it for any particular group?
● Do you have any additional feedback?
Contact Us at: converge@colorado.edu

Access the CONVERGE Training Modules at: converge.colorado.edu/training-modules
Acknowledgements

This material is based upon work supported by the National Science Foundation (NSF Award #1841338) with supplemental support from the Centers for Disease Control and Prevention (CDC).
Sign up for updates and information on new training modules at:

converge.colorado.edu/signup