CONVERGE COVID-19 Working Groups for Public Health and Social Sciences Research

Research Agenda-Setting Paper

This paper was written to help advance convergence-oriented research in the hazards and disaster field. It highlights areas where additional research could contribute new knowledge to the response to and recovery from the pandemic and other disasters yet to come. Questions about the research topics and ethical and methodological issues highlighted here should be directed to the authors who contributed to this paper.

Working Group Name:

Cultural Perceptions of Risk, Behavioral Responses, and Community Resilience in COVID-19

Working Group Description:

Our team includes experts in psychology, anthropology, geography, computer science, economics, and civil engineering. We have been developing methodologies to study community resilience after natural hazards like hurricanes and earthquakes with a focus on how perceptions shape behavior and recovery soon after disaster impact using proxy metrics and post-hoc reconstruction of behaviors. COVID-19 provides a unique opportunity to study these processes in real time to validate our methodologies. We will study how perceptions of COVID-19 risk are formed and transformed into behaviors that impact the recovery of institutions and households.

We conceptualize risk perception as a cultural construction based on group identity, shared cognitive schemas and metaphors, and trust in community institutions that shape community resiliency. We are studying how perceptions of risk influence behaviors and recovery from the COVID-19 pandemic by combining a longitudinal online survey administered at multiple time-intervals with in-depth telephone interviews, data mined from utilities and social media, and models of risk, recovery, and resilience developed by engineers. The research scope includes all of the United States. Measures of performance include perceived stress, household finances, community services including medical care, and power and cyber-infrastructure functionality. Data analysis will include quantitative statistical modeling, qualitative discourse analysis, econometric modeling and systems performance modeling. The research is funded by Lehigh University's Office of Research and Graduate Studies and NHERI-CONVERGE of the Natural Hazards Center at the University of Colorado Boulder. We are seeking additional funding to extend this research.

Priority Research Topics and Specific Research Questions:

Priority Research Topics	Potential Research Questions
1. How perceptions of COVID-19 risk are formed and transformed into behaviors that impact the recovery of institutions and households.	• Research Question 1: How does access to information influence risk perception and behavior choices as predicted statistically from survey responses and explained by people during in-depth interviews?

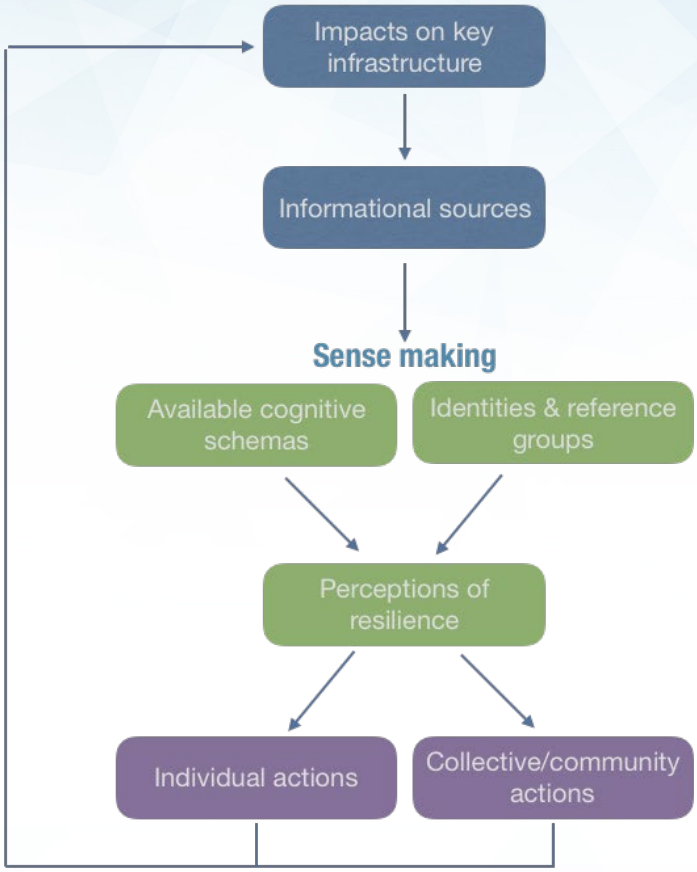
	• Research Question 2: How do cognitive schemas of disease, social behavior, and past disaster experience influence risk perception and behavior choices as predicted statistically from survey responses and explained by people during in-depth interviews?
2. How perceptions of one's community are formed and transformed into behaviors that impact the recovery of institutions and households.	• Research Question 1: How do group identity and perceptions of behaviors of others influence risk perception and behavior choices as predicted statistically from survey responses? • Research Question 2: How does trust in community institutions influence risk perception and behavior choices as predicted statistically from survey responses and explained during in-depth interviews?
3. How perceptions of recovery differ from objective or professional measures of recovery.	• Research Question 1: Do perceptions of unemployment obtained through our surveys at four time-intervals correlate with publicly available employment data? • Research Question 2: Do perceptions of supply chain, educational, and hospital functionality obtained through our surveys at four time-intervals correlate with publicly available data? • Research Question 3: How do perceptions of response and recovery as expressed in interviews with the general public differ from perceptions expressed in interviews with professional decision-makers in supply-chain management, health care, and education?
4. How proxy data be developed and used to predict behaviors reported by people.	• Research Question 1: Do behaviors like wearing protective masks in public as self-reported in our surveys at four time-intervals correlate with publicly available indices, such as webcam images analyzed using methods developed by our team?

Ethical / Methodological Considerations:

Our research design emphasizes racial and ethnic inclusivity. This is necessary for empirical validity. Our focus on group identity and dynamics requires us to consider various ways people self-identify within different groups. Because our research questions also have implications for risk communication that may impact public health, we will strive to ensure marginalized and vulnerable populations are well-represented in our analyses. We have been in communication with the CONVERGE Working Group at the University of Missouri-St. Louis who are investigating cultural perceptions of risk in marginalized urban neighborhoods to explore points of collaboration.

Our in-depth interview recruiting is targeting African American, Asian American, and Latinx participants. Our interest in the role of past disaster experience in response to COVID-19 has led us to concentrate on the Puerto Rican population near our university who are still responding to the internally displaced persons crisis of Hurricane Maria. We intend to conduct interviews in Spanish as well as English. We are interested in communicating with other CONVERGE groups working with Latinx communities or other disaster researchers studying the effects of Hurricane Maria on COVID-19 as identified through the Social Science Extreme Events Research (SSEER) network.

Other Frameworks, Considerations for Collaboration, and/or Resources:



Infrastructure includes health systems supply chains, communications, as well as transportation, electrical, and other physical systems. Data to be harvested…

Information (e.g., about hospital overloads) is filtered through informational sources (e.g., news media, social media). Relevant data will be collected.

Cognitive schemas include prior experiences with disasters, historical knowledge, and cultural tropes - all provide causal interpretive lens.

Identities influence interpretations by multiple mechanisms, including social comparisons: how am I doing relative to the group, how are we doing relative to them?

Perceptions of resilience will include perceptions of key infrastructure, of community cohesion/ coping, and of personal coping.

Perceptions produce individual (e.g., distancing) and collective (e.g., community organizing) actions that feed back on the actual resilience of key infrastructure

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