CONVERGE Perishable Data Annotated Bibliography

This annotated bibliography includes resources on perishable hazards and disaster data. This bibliography is meant to help researchers understand what perishable data is and why it is important, as well as to complement the CONVERGE Collecting and Sharing Perishable Data Training Module. If you identify missing references, please send them to converge@colorado.edu, and we will add them to the list.

Citation

Abramson, D. M., Redlener, I. E., Stehling-Ariza, T., Sury, J., Banister, A. N., & Park, Y. S. (2010). Impact on children and families of the Deepwater Horizon oil spill: Preliminary findings of the Coastal Population Impact Study. National Center for Disaster Preparedness. https://doi.org/10.7916/D8988GQT

Abstract

Although the ruptured Deepwater Horizon oil well was capped on July 15, 2010, an estimated 3 to 5 million barrels of oil spilled into the Gulf of Mexico over a three-month period. Several surveys prior to the capping of the well documented the concerns and immediate effects of the oil spill on coastal residents. One report by a team of LSU sociologists highlighted the anxiety caused by the oil spill - nearly 60% of the 925 coastal Louisiana residents interviewed said they were almost constantly worried by the oil spill. As the "acute phase" of the oil spill transitions to a longer-term "chronic phase," researchers at Columbia University's National Center for Disaster Preparedness, in collaboration with the Children's Health Fund and The Marist Poll, interviewed over 1,200 coastal residents in Louisiana and Mississippi, with a particular focus on the short- and potential long-term impact of the disaster on children. This study was informed by work the researchers have done post-Katrina as part of the Gulf Coast Child & Family Health Study, which has documented the enduring effects on impacted populations in the two states,
particularly children.

Citation

American Psychiatric Association, DSM-5 Task Force. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5™ (5th ed.)*. American Psychiatric Publishing, Inc.

Abstract

N/A

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Citation

Bahrampouri, M., Rodriguez-Marek, A., & Shing Thum, T. (2019). On the distribution of site amplification factors. In F. Silvestri & N. Moraci (Eds.), *Earthquake geotechnical engineering for protection and development of environment and constructions* (1st ed., pp. 1260-1264). Associazione Geotecnica Italiana.

Abstract

N/A

Citation

Beaven, S., Wilson, T., Johnston, L., Johnston, D., & Smith, R. (2016). Research engagement after disasters: Research coordination before, during, and after the 2011–2012 Canterbury earthquake sequence, New Zealand. *Earthquake Spectra*, *32*(2), 713-735. https://doi.org/10.1193/082714eqs134m

Abstract

This article argues that active coordination of research engagement after disasters has the potential to maximize research opportunities, improve research quality, increase end-user engagement, and manage escalating research activity to mitigate the ethical risks posed to impacted populations. We focus on the coordination of research activity after the 22 February 2011 Mw6.2 Christchurch earthquake by the then newly formed national research consortium, the Natural Hazards Research Platform, which included a social science research moratorium during the declared state of national emergency. Decisions defining this organization's functional and structural parameters are analyzed to identify lessons concerning the need for systematic approaches to the management of post-disaster research, in collaboration with the response effort. Other lessons include the importance of involving an existing, broadly based research consortium, ensuring that this consortium's coordination role is fully integrated into emergency management structures, and ensuring that all aspects of decision-making processes are transparent and easily accessed.

Citation

Berman, J. W., Wartman, J., Olsen, M., Irish, J. L., Miles, S. B., Tanner, T., Gurley, T., Lowes, L., Bostrom, A., Dafni, J., Grilliot, M., Lyda, A., & Peltier, J. (2020). Natural hazards reconnaissance with the NHERI RAPID facility. *Frontiers in Built Environment*, 6, 185. https://doi.org/10.3389/fbuil.2020.573067.

Abstract

In 2016, the National Science Foundation (NSF) funded a multi-institution interdisciplinary team to develop and operate the Natural Hazards Reconnaissance Facility (known as the "RAPID") as part of the Natural Hazards Engineering Research Infrastructure (NHERI) program. During the following 2 years, the RAPID facility developed its instrumentation portfolio and operational plan with input from the natural hazards community, the facility's leadership team, and an external steering committee. In September 2018, the RAPID began field operations, which continue today and include instrumentation, software, training, and support services to conduct reconnaissance research before, during, and after natural hazard and disaster events. Over the past 2

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years, the RAPID has supported the data collection efforts for over 60 projects worldwide. Projects have spanned a wide range of disciplines and hazards and have also included data collection at large-scale experimental facilities in the United States and abroad. These projects have produced an unprecedented amount of high-quality field data archived on the DesignSafe cyberinfrastructure platform. This paper describes the RAPID facility's development, instrumentation portfolio (including the mobile application Rapp), services and capabilities, and training activities. Additionally, overviews of three recent RAPID-supported projects are presented, including descriptions of field data collection workflows, details of the resulting data sets, and the impact of these project deployments on the natural hazard fields.

Citation

Bledsoe, C. H., Sherin. B., Galinsky, A. G., Headley, N. M., Heimer, C. A., Kjeldgaard, E., Lindgren, J., Miller, J. D., Roloff, M. E., & Uttal, D. H. (2007). Regulating creativity: Research and survival in the IRB iron cage. *Northwestern University Law Review*, *101*(2), 593-642. https://heinonline.org/HOL/LandingPage?handle=hein.journals/illlr101&div=24&id=&page=

Abstract

IRB has been generalized from the medical world to a wide range of social science and, in some cases, humanities research. The major American professional scholarly associations, in their ethics statements, tend to urge their members to obtain IRB approval as a matter of professional ethics. Although most approved FWAs are in the U.S., IRBs have inserted themselves into the research codes of one or more institutions in nearly all countries in the world.

Citation

Bonevski, B., Randell, M., Paul, C., Chapman, K., Twyman, L., Bryant, J., Brozek, I., & Hughes, C. (2014). Reaching the hard-to-reach: A systematic review of strategies for improving health and medical research with socially disadvantaged groups. *BMC Medical Research Methodology*, *14*(1), 1-29. https://doi.org/10.1186/1471-2288-14-42

Abstract

This study aims to review the literature regarding the barriers to sampling, recruitment, participation, and retention of members of socioeconomically disadvantaged groups in health research and strategies for increasing the amount of health research conducted with socially disadvantaged groups. A systematic review with narrative synthesis was conducted. Searches of electronic databases Medline, PsychInfo, EMBASE, Social Science Index via Web of Knowledge and CINHAL were conducted for English language articles published up to May 2013. Qualitative and quantitative studies as well as literature reviews were included. Articles were included if they reported attempts to increase disadvantaged group participation in research, or the barriers to research with disadvantaged groups. Groups of interest were those described as socially, culturally or financially disadvantaged compared to the majority of society. Eligible articles were categorised according to five phases of research: 1) sampling, 2) recruitment and gaining consent, 3) data collection and measurement, 4) intervention delivery and uptake, and 5) retention and attrition.

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Citation

Borgman, C. L. (2012). The conundrum of sharing research data. Journal of the Association for Information *Science and Technology, 63*(6), 1059-1078. https://doi.org/10.1002/asi.22634

Abstract

Researchers are producing an unprecedented deluge of data by using new methods and instrumentation. Others may wish to mine these data for new discoveries and innovations. However, research data are not readily available as sharing is common in only a few fields such as astronomy and genomics. Data sharing practices in other fields vary widely. Moreover, research data take many forms, are handled in many ways, using many approaches, and often are difficult to interpret once removed from their initial context. Data sharing is thus a conundrum. Four rationales for sharing data are examined, drawing examples from the sciences, social sciences, and humanities: (1) to reproduce or to verify research, (2) to make results of publicly funded research available to the public, (3) to enable others to ask new questions of extant data, and (4) to advance the state of research and innovation. These rationales differ by the arguments for sharing, by beneficiaries, and by the motivations and incentives of the many stakeholders involved. The challenges are to understand which data might be shared, by whom, with whom, under what conditions, why, and to what effects. Answers will inform data policy and practice.

Citation

Bray, J. D., Frost, J. D., Rathje, E. M., & Garcia, F. E. (2018). Turning disaster into knowledge in geotechnical earthquake engineering. In S. J. Brandenberg & M. T. Manzari (Eds.), *Geotechnical earthquake engineering and soil dynamics V: Seismic hazard analysis, earthquake ground motions, and regional-scale assessment* (pp. 186-200). American Society of Civil Engineers. https://doi.org/10.1061/9780784481462.018

Abstract

Field observations are particularly important in geotechnical earthquake engineering because it is difficult to replicate in the laboratory the characteristics and response of soil deposits built by nature over thousands of years. Much of the data generated by an earthquake is perishable, so it is critical that it is collected soon after the event occurs. Detailed surveys of damaged and undamaged areas provide the data for the well-documented case histories that drive the development of many of the design procedures used by geotechnical earthquake engineers. Thus, documenting the key lessons learned from major earthquakes contributes significantly to advancing research and practice in geotechnical earthquake engineering. This is one of the primary objectives of the Geotechnical Extreme Events Reconnaissance (GEER) Association. Recent GEER post-earthquake reconnaissance efforts and findings are described. The use of advanced reconnaissance techniques is highlighted, as well as specific technical findings from several earthquakes: 2010 Haiti, 2010 Maule, 2010–2011 Canterbury sequence, 2016 Ecuador, 2016 Central Italy, 2016 Kaikoura, and 2017 Puebla-Mexico City.

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Citation

Brodie, M., Weltzien, E., Altman, D., Blendon, R. J., & Benson, J. M. (2006). Experiences of Hurricane Katrina evacuees in Houston shelters: Implications for future planning. *American Journal of Public Health, 96*(8), 1402-1408. https://doi.org/10.2105/AJPH.2005.084475

Abstract

Objectives: To shed light on how the public health community can promote the recovery of Hurricane Katrina victims and protect people in future disasters, we examined the experiences of evacuees housed in Houston area shelters 2 weeks after the hurricane.
Methods: A survey was conducted September 10 through 12, 2005, with 680 randomly selected respondents who were evacuated to Houston from the Gulf Coast as a result of Hurricane Katrina. Interviews were conducted in Red Cross shelters in the greater Houston area.
Results: Many evacuees suffered physical and emotional stress during the storm and its aftermath, including going without adequate food and water. In comparison with New Orleans and Louisiana residents overall, disproportionate numbers of this group were African American, had low incomes, and had no health insurance coverage. Many had chronic health conditions and relied heavily on the New Orleans public hospital system, which was destroyed in the storm.
Conclusions: Our results highlight the need for better plans for emergency communication and evacuation of low-income and disabled citizens in future disasters and shed light on choices facing policymakers in planning for the long-term health care needs of vulnerable populations.

Citaton

Burn, E., Smith, J., Fisher, R., Locock, L., & Shires, K. (2022). Practising in a pandemic: A real time study of primary care practitioners' experience of working through the first year of COVID-19. *Frontiers in Sociology*, *7*, 959222. https://doi.org/10.3389/fsoc.2022.959222

Abstract

This article presents reflections on the lessons learnt from developing and initiating a rapid research project in 4 weeks during the first year of the COVID-19 pandemic. The article highlights the importance of selecting methods appropriate to rapid research, discusses the challenges of data collection in a shifting context, and the importance of the research team being prepared to cede some degree of control over the data collection process. To protect staff and patients and prevent the spread of COVID-19, general practice shifted to remote service delivery and consultations occurred via the telephone or online platforms. In the study, submissions were collected from those working in general practice to capture their experiences of the first year of the COVID-19 pandemic. Participants could choose how to submit their narratives, with some preferring to be interviewed and others contributing self-recorded submissions. This article offers practical reflections in response to the challenges of carrying out rapid research during a pandemic, including the importance of constructing a research team which can respond to the demands of the study, as well as the benefits of an expedited ethical review process. The study highlighted the importance of selecting appropriate methods to facilitate the rapid collection of data. In particular, the authors reflect on the differences between participants' response to interviews, written submissions, and audio diaries. Open approaches to data collection were

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found to encourage participation and reflexivity and also generated rich narrative accounts. Rapid research has progressed our understanding of general practice's experience of the first year of COVID-19.

Citation

Centers for Disease Control and Prevention (CDC). (2017, October 11). CDC Paperwork Reduction Act compliance: Ensuring quality and reducing public information collection burdens. https://www.cdc.gov/os/integrity/reducepublicburden/index.htm

Abstract

N/A

Citation

Centers for Disease Control and Prevention (CDC). (2018, December 14). National Environmental Public Health Tracking: Grantees & partnerships. https://www.cdc.gov/nceh/tracking/grants.htm

Abstract

N/A

Citation

Centers for Disease Control and Prevention (CDC). (2020, August 20). Community Assessment for Public Health Emergency Response (CASPER). https://www.cdc.gov/nceh/casper/

Abstract

N/A

Citation

Choudhary, E., Chen, T. H., Martin, C., Vagi, S., Roth Jr., J., Keim, M., Noe, R., Ponausuia, S. E., Lemusu, S., Bayleyegn, T., & Wolkin, A. (2012). Public health needs assessments of Tutuila Island, American Samoa, after the 2009 tsunami. *Disaster Medicine and Public Health Preparedness, 6*(3), 209. https://doi.org/10.1001/dmp.2012.40

Abstract

An 8.3 magnitude earthquake followed by tsunami waves devastated American Samoa on September 29, 2009, resulting in widespread loss of property and public services. An initial and a follow-up Community Needs Assessment for Public Health Emergency Response (CASPER) objectively quantified disaster-affected population needs.

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Citation

Collogan, L. K., Tuma, F., Dolan-Sewell, R., Borja, S., & Fleischman, A. R. (2004). Ethical issues pertaining to research in the aftermath of disaster. *Journal of Traumatic Stress, 17*(5), 363-372. https://doi.org/10.1023/B:JOTS.0000048949.43570.6a

Abstract

In January 2003, The New York Academy of Medicine and the National Institute of Mental Health sponsored a meeting entitled "Ethical Issues Pertaining to Research in the Aftermath of Disaster." The purpose of the meeting was to bring together various experts to examine evidence concerning the impact of research on trauma-exposed participants, review the applicable ethical principles and policies concerning protection of human subjects, and offer guidance to investigators, IRBs, public health and local officials, and others interested in assuring that research in the aftermath of a disaster is conducted in a safe and ethical manner. This article summarizes the group's key findings and outlines potential considerations for those working in this field.

Citation

Cox, B., & Vantassel, J. (2018). Dynamic characterization of Wellington, New Zealand. DesignSafe-CI. https://doi.org/10.17603/DS24M6J

Abstract

This project details work to characterize the subsurface of Wellington, New Zealand using surface wave methods (i.e., Multi-channel Analysis of Surface Waves [MASW] and Microtremor Array Measurements [MAM]). Shear wave velocity (Vs) profiles were developed for 15 reference locations across the city, including many at/near strong motion stations that recorded the 14 November 2016 Mw7.8 Kaikōura earthquake. This project includes the raw data files from the MASW and MAM experiments, processed experimental data in the form of Rayleigh wave dispersion with measures of uncertainty, non-unique Vs profiles from surface wave inversion, and various calculated parameters with measures of uncertainty from the Vs profiles, including the time averaged shear wave velocity in the upper 30 m (Vs30) and depth to soft (Vs > 760 m/s) and hard (Vs > 1500 m/s) rock where applicable. This data was analyzed and prepared for publication by Joseph Vantassel as part of his MSc research under supervision of Professor Brady R. Cox in the Department of Civil, Architectural, and Environmental Engineering at the University of Texas at Austin in 2018. Any opinions, findings, conclusions, or recommendations expressed in this project are those of the authors and do not necessarily reflect the views of either NSF or EQC.

Citation

Deom, N., Clark, S. E., Johnson, G. A., & Vindrola-Padros, C. (2023). Rapid research in action: Lessons from the field. *Frontiers in Sociology*, *8*, 1216834. https://doi.org/10.3389/fsoc.2023.1216834

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Abstract

In this Research Topic, we synthesize, criticize and pay tribute to the use of rapid methods across disciplines during the COVID-19 pandemic and for other health emergencies and settings (pre- and post-pandemic). The authors featured within this Research Topic explore important questions about the practicalities of implementing rapid studies, the challenges they faced, the contributions of rapid research and evaluation, and the lessons learned that can be helpful for other teams and the future development of this field. Articles draw from community based, health systems and research carried out in clinical settings that explore a wide range of health-related topics such as cancer research, mental health, female contraception, prenatal stress, infection prevention, drug use, and the delivery of care in the context of complex health emergencies.

Citation

DesignSafe-CI. (n.d.). The impact of data reuse. https://www.designsafe-ci.org/rw/impact-of-data-reuse/

Abstract

N/A

Citation

Díaz, L. G., Chopel, A., Fernós Sagebién, A., Bonilla Marrero, L., Rivera Figueroa, G., Pecci Zegrí, N., Cardona, A., Oliveras, J. M., La Santa, L., & Sánchez Rey, P. (2023). Collecting and communicating perishable data in a post-disaster context: Rapid research and rapid dissemination. *Frontiers in Sociology*, *8*, 959765. https://doi.org/10.3389/fsoc.2023.959765

Abstract

Context: Puerto Rico experienced four natural disasters in 4 years (2017–2021): Hurricanes Irma and Maria, thousands of earthquakes reaching 6.4 magnitude, and the COVID-19 pandemic. In this context, our team sought to understand the impact of disaster aid distribution on poverty and economic inequality, and their relationship to the spread of COVID-19 across Puerto Rico. Rapid research was required to ensure we could collect perishable data within this ever-changing context. *Challenges:* Our mixed methods design relied on both secondary and primary data. Because analyses of the former were to inform where and how to collect the latter, timing was of the essence. The data sources identified were not readily available to the public, and thus required gaining access through direct requests to government agencies. The requests coincided with a transition between administrations after an election. This resulted in unexpected delays. Once in the field, the team had to balance the rapid nature of the research with the mindful work to avoid compounding traumas experienced by participants, heightened risk for re-traumatization and fatigue, the risk of COVID-19, the digital divide, and intermittent electrical and telecommunication services. *Adaptations:* In response to the delayed access to secondary data, we adjusted our research question. We continued to collect data as they became available, incorporating some immediately into analyses, and cleaning and storing others for future research opportunities. To overcome ongoing trauma challenges and prevent fatigue, we recruited and hired a large temporary team, including members of communities where we collected data. By recruiting participants and co-researchers at the same time and place, we both collapsed time between these activities and increased our team's contextual competency. To adapt to challenges presented by the pandemic, we created hybrid data collection procedures where some data were collected online, and some in person, while maintaining COVID-

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19 protections. We used similar adaptations for dissemination*.* *Lessons:* Rapid research needs to be agile. Working within a convergence framework to investigate wicked problems had the unexpected added benefit of providing our team with a variety of disciplinary approaches which proved helpful in adapting to the changing conditions in the field. In addition to the resourcefulness of a transdisciplinary team, it is important to be willing to pivot in response to changes and to collect data where and when you can. To increase participation, opportunities need to be designed with flexibility, mindful of competing demands faced by individuals willing to collaborate. Collecting and analyzing data iteratively and utilizing local resources can enable rapid research that is rigorous and yields rich data. *Contributions:* Our team applied the lessons learned to structure a rapid and iterative dissemination plan. We combined member-checking with community-level dissemination, enabling us to hone findings further before presenting to policy makers and media. Rapid research creates opportunities to make data-informed program and policy adjustments when they can be most impactful. Both the media and policy makers pay closer attention to research on current events. Hence, our recommendation is to do more rapid research! The more we do, the better we will get at it, and the more accustomed community leaders, policy makers, and program designers will become to using data to inform decisions.

Citation

Donner, W., & Diaz, W. (2018). Methodological issues in disaster research. In H. Rodriguez, W. Donner, & J. E. Trainor (Eds.), *Handbook of disaster research* (2nd ed., pp. 289-309). Springer.

Abstract

N/A

Citation

Dynes, R. R., & Tierney, K. J. (Eds.). (1994). *Disasters, collective behavior, and social organization*. University of Delaware Press.

Abstract

N/A

Citation

Earthquake Engineering Research Institute (EERI). (n.d.). Learning from earthquakes. https://www.eeri.org/projects/learning-from-earthquakes-lfe/

Abstract

N/A

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Citation

Eguiluz, I., Sy, A., Brage, E., & González-Agüero, M. (2022). Rapid qualitative health research from the Global South: Reflections and learnings from Argentina, Brazil, Chile, and Mexico during the COVID-19 pandemic. *Frontiers in Sociology*, *7*, 983303. https://doi.org/10.3389/fsoc.2022.983303

Abstract

The objective of this paper is to provide insights into our experiences undertaking qualitative rapid research in Latin American contexts based on fieldwork from Argentina, Brazil, Chile, and Mexico. We focus on the insights and learning processes that emerged from our research teamwork during the COVID-19 pandemic. Our research projects are part of an international collaboration led by the Rapid Research Evaluation and Appraisal Lab (RREAL) to explore the experiences of COVID-19 Frontline Healthcare Workers. The analyzed experiences not only rely on the local studies but also on our reflections as a group of Latin American researchers collaborating along with an international team. Qualitative research has an important and long-lasting tradition in Latin America. However, healthcare professionals are still reluctant to use these methods. We highlight tensions and dilemmas that have emerged from our own empirical experience: First, the time for research ethics committees to evaluate the protocols; second, the difficulties in accessing funding to undertake research due to the lack of financial opportunities; third, having to decide the language of our publications. That is just the tip of the iceberg that allows us to show inequalities in the conditions under which scientific knowledge is produced between the North and the Global South. Following these points, our text explores the tension between the urgency to conduct rapid research and the multiple difficulties when undertaking it during the pandemic. It is important to point out that the problems we faced already existed before the sanitary emergency, being magnified by the former. At last, our conclusions delve into the reflexive process we, as a team of female researchers, undertook to explore the differences and similarities of our experiences. This analysis allowed us to solve obstacles and dilemmas when doing research. The winding road we describe here serves as an example for other research teams when planning and undertaking rapid qualitative research during future pandemics.

Citation

Engelhardt, M. D., & Sabol, T. A. (1997). Seismic-resistant steel moment connections: Developments since the 1994 Northridge earthquake. *Progress in Structural Engineering and Materials, 1*(1), 68-77. https://doi.org/10.1002/pse.2260010112

Abstract

Since the 1994 Northridge earthquake, major changes have occurred in US design and construction practice for seismic-resistant steel moment connections. These changes, motivated by the widespread failure of welded moment-resisting beam-to-column connections in the Northridge earthquake, hold the promise of significantly better connection performance in future strong earthquakes. While the debate and discussion on these connection failures continues, intensive research and testing efforts have led to major advances in diagnosing the causes of the failures, and in developing improved connections. This paper presents a summary of key US developments in seismic-resistant steel moment connections since the Northridge earthquake. A description of the typical moment connection detail in use prior to the earthquake is provided first, together with a description of damage observed at these connections after the earthquake. This is followed by a

discussion of some of the major causes of the failures. Finally, some of the approaches currently being used in the US for the design and construction of improved moment connections are presented.

Citation

Federal Emergency Management Agency (FEMA). (2019). Building cultures of preparedness: Report for the emergency management higher education community. U.S. Department of Homeland Security.

Abstract

N/A

Citation

Fischer, E. C., & Hakhamaneshi, M. (2019). The new paradigm of post-disaster reconnaissance: Using virtual methods to enhance systematic in-field data collection GeoInstitute. https://www.readgeo.com/geostrata/may_jun_2019/MobilePagedArticle.action?articleId=1489220#articleId1489220

Abstract

N/A

Citation

Frost, J. D., & Deaton, S. L. (2000, November 12-15). An integrated system for earthquake damage reconnaissance. [Conference presentation]. Sixth International Conference on Seismic Zonation: Managing Earthquake Risk in the 21st Century, Oakland, CA, United States.

Abstract

N/A

Citation

Gaillard, J. C. (2019). Disaster studies inside out. *Disasters, 43*(S1), S7–S17. https://doi.org/10.1111/disa.12323

Abstract

Disaster studies is faced with a fascinating anomaly: frequently it claims to be critical and innovative, as suggested by the so-called vulnerability paradigm that emerged more than 40 years ago, yet often it is perpetuating some of the core and problematic tenets of the hazard paradigm that we were asked to challenge initially. This paper interrogates why such an anomaly persists. In so doing, it employs Antonio Gramsci's concept of hegemony to unpack why disaster studies is still dominated by Western epistemologies and scholars that perpetuate an orientalist view of disasters. Ultimately, it suggests a research agenda for the 40 years to come, which builds on the importance of local researchers analysing local disasters using local

epistemologies, especially in the non-Western world. Such subaltern disaster studies are to be fueled by increasing consciousness of the need to resist the hegemony of Western scholarship and to relocate disaster studies within the realm of its original political agenda.

Citation

Gaillard, J. C., & Gomez, C. (2015). Post-disaster research: Is there gold worth the rush? Jàmbá: Journal of *Disaster Risk Studies, 7*(1), 1-6. https://doi.org/10.4102/jamba.v7i1.120

Abstract

Dynes, Haas and Quarantelli (1967) once set the agenda for disaster research as follows: high priority is given to those disasters which are quick and unexpected, which affect more than one industrial community, where there is heavy property damage, where the number of casualties exceeds 100 and which elicits the participation of national organizations during the emergency period. (p. 46) Almost 50 years afterwards, major disasters continue to stir the prime interest of researchers, who often immediately rush to the affected areas to conduct studies of various kinds, from hazards observations to social surveys on the impact of the events and post-traumatic stress disorder research. Stallings (2007:56) actually suggests that 'arriving on site as soon as possible is generally seen by field researchers as key to the success of their work'. Recently, this 'research gold rush' has been observed in the regions hit by the 2004 Indian Ocean tsunami, Hurricane Katrina in the United States of America (USA) in 2005, the 2008 earthquake in China, the 2010 earthquake in Haiti, the 2010-2011 Canterbury earthquakes in New Zealand and the 2011 earthquake and tsunami in Japan.

Citation

Gaillard, J. C., & Peek, L. (2019). Disaster-zone research needs a code of conduct. *Nature, 575*(7783), 440–442. https://doi.org/10.1038/d41586-019-03534-z

Abstract

Study the effects of earthquakes, floods and other natural hazards with sensitivity to ethical dilemmas and power imbalances.

Citation

Ge, Y. G., Zobel, C. W., Murray-Tuite, P., Nateghi, R., & Wang, H. (2019). Building an interdisciplinary team for disaster response research: A data-driven approach. *Risk Analysis.* https://doi.org/10.1111/risa.13280

Abstract

Building an interdisciplinary team is critical to disaster response research as it often deals with acute onset events, short decision horizons, constrained resources, and uncertainties related to rapidly unfolding response environments. This article examines three teaming mechanisms for interdisciplinary disaster response research, including ad hoc and/or grant proposal driven teams, research center or institute based teams, and teams oriented by matching expertise toward long-term collaborations. Using hurricanes as the response context, it further examines several types of critical data that require interdisciplinary collaboration on

collection, integration, and analysis. Last, suggesting a data-driven approach to engaging multiple disciplines, the article advocates building interdisciplinary teams for disaster response research with a long-term goal and an integrated research protocol.

Citation

Gunay, S., Mosalam, K., Archbold, J., Dilsiz, A., Djima, W., Gupta, A., Javadinasab Hormozabad, S., Hassan, W., Heresi, P., Morales-Beltran, M., Muin, S., Robertson, I., Romão, X., & Kijewski-Correa, T. (2020, October 30). Preliminary virtual reconnaissance report (PVRR). StEER-Aegean Sea Earthquake. DesignSafe-CI. https://doi.org/10.17603/ds2-kmxd-gj50

Abstract

On October 30, 2020, a magnitude 7.0 earthquake took place near Izmir, Turkey and Néon Karlovásion, Greece and was felt across a large area of both countries. The main shock of the earthquake led to a small local tsunami and was followed by more than 1,250 aftershocks, 43 of which were above magnitude 4.0. At the time of writing this report, during the first week of November 2020, at least 114 fatalities in Turkey and 2 in Greece were reported, along with 1,035 injuries. In the island of Samos, Greece, the worst damage was observed in older masonry and adobe houses. There were also partial collapses and other damages observed in several churches. Damages in Turkey were more substantial: seventeen buildings collapsed and a preliminary damage assessment conducted by Turkey's Ministry of Environment and Urbanization on 10,287 buildings in Izmir tagged 124 (1.2%), 119 (1.2%), 730 (7.1%) and 9,314 (90.5%) buildings with heavy, moderate, light, and no damage, respectively. This project encompasses the products of StEER's response to this event: a Preliminary Virtual Reconnaissance Report (PVRR).

Citation

Higham, R., Pini, S., Quyn, A., Kowal, M., Helliwell, J., Saman, R., Lewthwaite, P., Young, N., & Rousseau, N. (2022). Rapid qualitative analysis in a mixed-methods evaluation of an infection prevention intervention in a UK hospital setting during the COVID-19 pandemic: A discussion of the CLEAN study methodology. *Frontiers in Sociology*, *7*, 958250. https://doi.org/10.3389/fsoc.2022.958250

Abstract

The COVID-19 pandemic created an urgent need for high-quality rapid research. One clinical challenge was how to minimise the risk of transmission in the hospital setting. The CLEAN study conducted a rapid evaluation of the potential utility of a spray-based disinfectant in a hospital setting. The study was undertaken between December 2020 and March 2021 and involved the implementation of the spray in 10 different clinical areas in one UK teaching hospital. A mixed-methods approach was adopted (including observations, surveys, and qualitative interviews) informed by the theories for understanding the implementation of new healthcare technologies. The evaluation found that while the spray had a number of perceived benefits when added to existing disinfection processes, other factors limited its potential utility. These findings informed a number of recommendations for future adoption within hospital settings. This paper describes and reflects on the rapid methodology that allowed us to undertake the study and deliver results in a short space of time. We experienced a number of pressures during set-up and fieldwork due to the challenging conditions caused by the pandemic, and the methodological approach had to evolve throughout the study because of the changing

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clinical context. The involvement of clinicians from the research setting as full members of the research team was key to the rapid delivery of the research. They provided an essential link to the implementation environment, and their experiential knowledge of the setting added an important perspective to the analysis. Balancing their involvement with their clinical roles was challenging, however, as was coordinating a large and diverse team of interviewers in such a short space of time. Overall, the study highlighted the value of rapid research to inform urgent healthcare decisions in a pandemic. Although our experience suggests that conducting such research requires some practical and methodological trade-offs, we found that there were also numerous benefits of using rapid methods and identified various opportunities to ensure their robustness.

Citation

Howells, M., & Dancause, K. (2022). "Go with the Flo": Conducting rapid research on prenatal stress following Hurricane Florence as participant observers. *Frontiers in Sociology*, *7*, 957127. https://doi.org/10.3389/fsoc.2022.957127

Abstract

In this article, we explore the challenges of conceptualizing, designing, and establishing a rapid research agenda as a local researcher following a disaster. We share what we learned while developing and implementing this rapid study and explore the challenges shaped by time pressures, our local context, and resource availability. We identify four core challenges, experienced conducting rapid research, and provide suggestions to overcome these challenges. Our goal is to provide insight to undergraduates, graduate students, and professionals who are considering rapid research inside or outside their own communities.

Citation

Johnson, G., Wally, K., Willoughby, J. R., Williamson, R., Corvey, K., Becker, M., Morman, T., & Dunning, K. (2022). Application of the Policy Regime Framework to understand COVID-19 policy response in the Southeast US: How RAPID research can provide lessons learned after a public health crisis. *Frontiers in Sociology*, *7*, 959553. https://doi.org/10.3389/fsoc.2022.959553

Abstract

Quick-response research during a time of crisis is important because time-sensitive findings can inform urgent decision-making, even with limited research budgets. This research, a National Science Foundation-funded Rapid Response Research (RAPID), explores the United States (U.S.) government's messaging on science in response to the COVID-19 pandemic, and how this messaging informed policy. Using rapidly emerging secondary data (e.g., policy documents taken from government websites and others), much of which has since been removed or changed, we examined the interactions between governing bodies, non-governmental organizations, and civilian populations in the Southeastern U.S. during the first 2 years of the pandemic. This research helps to better understand how decision-makers at the federal, state, and local levels responded to the pandemic in three states with the lowest vaccine rates and highest levels of poverty, income inequality, and disproportionate impacts borne by people of color in the nation: Alabama, Louisiana, and Mississippi. This study incorporates the Policy Regime Framework to discuss how two foundational concepts (ideas and institutions) helped govern policy implementation during the COVID-19 pandemic. This research fills a

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significant information gap by providing a better understanding of how policy regimes emerge across multiple levels of government and impact vulnerable populations during times of a public health crisis. We use automated text analysis to make sense of a large quantity of textual data from policy-making agencies. Our case study is the first to use the Policy Regime Framework in conjunction with empirical data, as it emerged, from federal, state, and local governments to analyze the U.S. policy response to COVID-19. We found the U.S. policy response included two distinct messaging periods in the U.S. during the COVID-19 pandemic: pre and post-vaccine. Many messaging data sources (agency websites, public service announcements, etc). have since been changed since we collected them, thus our real-time RAPID research enabled an accurate snapshot of a policy response in a crisis. We also found that there were significant differences in the ways that federal, state, and local governments approached communicating complex ideas to the public in each period. Thus, our RAPID research demonstrates how significant policy regimes are enacted and how messaging from these regimes can impact vulnerable populations.

Citation

Kelman, I. (2005). Operational ethics for disaster research. *International Journal of Mass Emergencies and Disasters, 23*(3). http://www.ijmed.org/articles/379/download/

Abstract

Operational ethics for disaster research is suggested as an important area for further investigation. The main questions are suggested as:

1. Could carrying out disaster research interfere with disaster and risk management activities?
2. Could publishing disaster research interfere with disaster and risk management activities?
3. Should researchers take responsibility for the operational outcomes of their research?

The example of technical rescue illustrates how these questions might be addressed in order to better understand operational ethics for disaster research. Experiences from field work on active volcanoes are presented as a research area where operational ethics have been applied, although improvements are needed. Researcher good governance is an approach which consolidates many of the issues discussed. Although disaster researchers might feel that no further governance steps are necessary, these questions should be openly debated.

Citation

Kendra, J., & Gregory, S. (2015). Workshop on deploying post-disaster quick-response reconnaissance teams: Methods, strategies, and needs. Disaster Research Center. http://udspace.udel.edu/handle/19716/17479

Abstract

The National Science Foundation funded the University of Delaware's Disaster Research Center to convene a workshop in June, 2012 on quick-response disaster research, with the purpose of probing the state-of-the-art and to provide recommendations to NSF on the administration of the RAPID grant program--a principal source of funding for quick response reconnaissance deployments. This workshop brought together experts in this particular research genre to share methods and best practices in order to improve the science and art craft of

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quick response research, and to bolster methods for conducting quick-response post-disaster reconnaissance studies.

Citation

Kendra, J. M., & Wachtendorf, T. (2016*). American Dunkirk: The waterborne evacuation of Manhattan on 9/11.* Temple University Press.

Abstract

N/A

Citation

Kijewski-Correa, T., Roueche, D., Mosalam, K. M., Prevatt, D. O., & Robertson, I. (2021). StEER: A community-centered approach to assessing the performance of the built environment after natural hazard events. *Frontiers in Built Environment, 7*. https://doi.org/10.3389/fbuil.2021.636197

Abstract

Since its founding in 2018, the Structural Extreme Events Reconnaissance (StEER) Network has worked to deepen the capacity of the Natural Hazards Engineering (NHE) community for coordinated and standardized assessments of the performance of the built environment following natural hazard events. This paper positions StEER within the field of engineering reconnaissance and the Natural Hazards Engineering Research Infrastructure (NHERI), outlining its organizational model for coordinated community-led responses to wind, seismic, and coastal hazard events. The paper's examination of StEER's event response workflow, engaging a range of hardware and delivering a suite of products, demonstrates StEER's contributions in the areas of: workflow and data standardization, data reliability to enable field-observation-driven research & development, efficiency in data collection and dissemination to speed knowledge sharing, near-real- time open data access for enhanced coordination and transparency, and flexibility in collaboration modes to reduce the "overhead" associated with reconnaissance and foster broad NHE community engagement in event responses as part of field and virtual assessment structural teams (FAST/VAST). StEER's creation of efficient systems to deliver well-documented, reliable data suitable for diverse re-uses as well as rapidly disseminated synopses of the impact of natural hazard events on the built environment provide a distinctive complement to existing post-event reconnaissance initiatives. The implementation of these policies, protocols and workflows is then demonstrated with case studies from five events illustrating StEER's different field response strategies: the Nashville, Tennessee Tornadoes (2020) – a Hazard Gradient Survey; the Palu Earthquake and Tsunami in Indonesia (2018) – a Representative Performance Study; the Puerto Rico Earthquakes (2019/2020) – using Targeted Case Studies; Hurricane Laura (2020) – leveraging Rapid Surveys to enable virtual assessments; and Hurricane Dorian (2019) in the Bahamas – a Phased Multi-Hazard Investigation. The use of these strategies has enabled StEER to respond to 36 natural hazard events, involving over 150 different individuals to produce 45 published reports/briefings, over 5000 publicly available app-based structural assessments, and over 1600 km (1000 mi) of street-level panoramic imagery in its first 2years of operation.

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Citation

Kong, L. (2011). Post-tsunami field surveys are essential for mitigating the next tsunami disaster. *Oceanography, 24*(2), 222-226. https://doi.org/10.5670/oceanog.2011.48

Abstract

Post-tsunami field investigations are an essential component in improving our understanding of tsunamis and in developing the tools and programs necessary to mitigate their effects. A destructive tsunami can attract a large number of international, national, and local tsunami professionals interested in conducting post-tsunami science surveys to investigate and document its scientific, economic, and social impact on affected coasts and communities. Science data collected immediately after a damaging tsunami are important for government decision makers. In the short term, these data help to better organize and deploy often-limited resources to the most critical areas needing response. In the long term, these data are used for recovery planning that will mitigate the losses of the next tsunami. Without a coordination plan that is integrated into government emergency response operations, perishable data may prove to be logistically difficult to gather before erosion or bulldozers eliminate the evidence, and in all likelihood, the operations could interfere and conflict with emergency activities. Additionally, during catastrophic tsunamis, affected areas and local jurisdictions may also be simultaneously overwhelmed by many government agencies, nongovernment organizations, and the media all demanding information and/or access, thus making collection of useful data even more challenging unless a coordination and information sharing plan is already in place.

Citation

Hunt, M., Tansey, C. M., Anderson, J., Boulanger, R. F., Eckenwiler, L., Pringle, J., & Schwartz, L. (2016). The challenge of timely, responsive and rigorous ethics review of disaster research: Views of research ethics committee members. *PLoS One, 11*(6), e0157142. https://doi.org/10.1371/journal.pone.0157142

Abstract

We used interpretive description methodology and conducted in-depth interviews with 15 respondents. Respondents were chairs, members, advisors, or coordinators from 13 RECs, including RECs affiliated with universities, governments, international organizations, a for-profit REC, and an ad hoc committee established during a disaster. Interviews were analyzed inductively using constant comparative techniques. Through this process, three elements were identified as characterizing effective and high-quality review: timeliness, responsiveness and rigorousness. To ensure timeliness, many RECs rely on adaptations of review procedures for urgent protocols. Respondents emphasized that responsive review requires awareness of and sensitivity to the particularities of disaster settings and disaster research. Rigorous review was linked with providing careful assessment of ethical considerations related to the research, as well as ensuring independence of the review process.

Citation

LeNoble, C. A., Horan, K. A., & Steigerwald, N. (2022). Rapid human subjects research in times of disruption. *Frontiers in Sociology*, *7*, 959730. https://doi.org/10.3389/fsoc.2022.959730

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Abstract

One significant challenge facing the implementation of rapid research studies, or research that responds quickly to societal needs, involves the recruitment and retention of human subjects research participants. The purpose of this paper is to offer insights into the nuances of conducting rapid research during times of disruption. The first-hand accounts of participants experiencing disruption are critical and perishable. Although it may be difficult to recruit and retain participants, their data are needed to best understand and learn from novel, unprecedented situations. To this end, the authors draw from and analyze their experience conducting rapid research funded by the National Science Foundation to examine the effects of the COVID-19 pandemic on undergraduate education. The paper begins with a summary of the rapid project aims and research questions. Then, participant recruitment and retention challenges are briefly introduced as an advanced organizer of the paper. From there, the paper is structured in three sections that represent the human subjects research challenges faced during rapid study implementation. In the discussion, the authors summarize the above challenges and lessons learned in the larger context of rapid research. They reflect on a sometimes-forgotten issue: the wellbeing of research team members who face these and other salient challenges reflective of navigating life during a worldwide pandemic. By describing human subjects research challenges experienced in the implementation of a rapid study and lessons learned from experiencing and adapting to these challenges, this paper contributes meaningful insights into the daily challenges of carrying out rapid research.

Citation

Malilay, J. (2000). Public health assessments in disaster settings: recommendations for a multidisciplinary approach. *Prehospital and Disaster Medicine, 15*(4), 41-46. https://doi.org/10.1017/S1049023X00025279

Abstract

Introduction: Rapid assessments of needs and health status have been conducted by the U.S. Centers for Disease Control and Prevention (CDC) in natural disaster settings for gathering information about the status of affected populations during emergencies. A review of eight such assessments (6 from hurricanes, 1 from an ice storm, and 1 from an earthquake) examines current methods and applications, and describes the use of results by policy makers so assessments in post-disaster settings can be improved.
Objective: Because the results of assessments greatly influence the nature of relief activities, a review can: 1) ascertain strengths and limitations; 2) examine the methods; and 3) ascertain the utility of results and their use by policy makers. This review compares assessments for similarities and differences: 1) across disaster types; 2) within similar disasters; 3) by timing when the assessments are conducted; and 4) in domestic and international settings. The review also identifies decision-making actions that result from the assessments, and suggests direction for future applications.

Citation

Mervis, J. (2020, March 26). Congress pumps up NSF program to fast-track COVID-19 research. https://www.sciencemag.org/news/2020/03/congress-pumps-nsf-program-fast-track-covid-19-research

Abstract

N/A

Citation

Mezinska, S., Kakuk, P., Mijaljica, G., Waligóra, M., & O'Mathúna, D. P. (2016). Research in disaster settings: A systematic qualitative review of ethical guidelines. *BMC Medical Ethics, 17*(62), 1-11. https://doi.org/10.1186/s12910-016-0148-7

Abstract

Background: Conducting research during or in the aftermath of disasters poses many specific practical and ethical challenges. This is particularly the case with research involving human subjects. The extraordinary circumstances of research conducted in disaster settings require appropriate regulations to ensure the protection of human participants. The goal of this study is to systematically and qualitatively review the existing ethical guidelines for disaster research by using the constant comparative method (CCM).
Methods: We performed a systematic qualitative review of disaster research ethics guidelines to collect and compare existing regulations. Guidelines were identified by a three-tiered search strategy: 1) searching databases (PubMed and Google Scholar), 2) an Internet search (Google), and 3) a search of the references in the included documents from the first two searches. We used the constant comparative method (CCM) for analysis of included guidelines.
Results: Fourteen full text guidelines were included for analysis. The included guidelines covered the period 2000-2014. Qualitative analysis of the included guidelines revealed two core themes: vulnerability and research ethics committee review. Within each of the two core themes, various categories and subcategories were identified.
Conclusions: Some concepts and terms identified in analyzed guidelines are used in an inconsistent manner and applied in different contexts. Conceptual clarity is needed in this area as well as empirical evidence to support the statements and requirements included in analyzed guidelines.

Citation

Michaels, S. (2003). Perishable information, enduring insights? Undertaking quick response research. In R. Zimmerman (Ed.), *Beyond September 11th: An account of post-disaster research.* (Special Publication No. 39, pp. 15–48). Natural Hazards Research and Applications Information Center, University of Colorado.

Abstract

N/A

Citation

Mileti, D. S. (1987). Sociological methods and disaster research. In R. Dynes., B. de Marchi, & C. Pelanda (Eds.), *Sociology of disasters: Contributions of sociology to disaster research* (pp. 57-69). Franco Angeli.

Abstract

N/A

Citation

Montgomery, J., Wartman, J., Reed, A. N., Gallant, A. P., Hutabarat, D., & Mason, H. B. (2021). Field reconnaissance data from GEER investigation of the 2018 MW 7.5 Palu-Donggala earthquake. *Data in Brief, 34*, 106742. https://doi.org/10.1016/j.dib.2021.106742

Abstract

The Mw7.5 Palu-Donggala earthquake occurred on 28 September 2018 and caused significant damage in Palu City and the surrounding Central Sulawesi region of Indonesia. The earthquake initiated a series of catastrophic landslides (classified as flowslides), collapsed buildings, and generated tsunami waves that impacted Palu Bay's coast. The earthquake claimed over 4000 lives, making it the deadliest natural disaster of 2018. We performed a post-earthquake field reconnaissance and collected perishable data at the sites of five significant flowslides (named for the communities where they occurred: Balaroa, Petobo, Lolu Village, Jono Oge, and Sibalaya), as well as at other damage locations in the mesoseismal region. Our field team consisted of five U.S.-based members, who were sponsored by the U.S. National Science Foundation-supported Geotechnical Extreme Events Reconnaissance (GEER) organization, in collaboration with geologists, geotechnical engineers, and other researchers from Indonesia's Center for Earthquake Studies (PusGen) and the Indonesian Society of Geotechnical Engineers (HATTI) [this international team is collectively referred to as the Palu Earthquake "GEER" team]. The GEER team arrived at Palu City on 13 November 2018 and conducted five days of extensive fieldwork using instrumentation from the Natural Hazards Reconnaissance Facility (known as the "RAPID"), including mobile data collection software, digital imaging systems, high-resolution Global Navigation Satellite System (GNSS) antennas, and unmanned aerial vehicles (UAVs, or "drones"). The resulting dataset includes over 2000 geotagged photographs, UAV images, ground coordinates, and other field measurements and observations, as well as associated post-processed geospatial data products (point clouds, digital surface models, orthomosaic images). Additionally, we used remote sensing data (i.e., pre- and post-event satellite imagery) to generate displacement vectors for over 1200 structures affected by the flowslides. The complete reconnaissance dataset is openly available on DesignSafe. The data collected by the field team and subsequent mapping efforts, which document the morphology and patterns of movements of the flowslides, may be used by researchers studying liquefaction-induced flowslides. In addition, the displacement mapping provides a unique dataset for researchers who are calibrating and verifying simulation models of landslide displacements, or who are seeking a validation dataset for image correlation analysis (including machine learning routines). This dataset is associated with original research presented in "East Palu Valley Flowslides Induced by the 2018 MW 7.5 Palu-Donggala Earthquake" and also is the basis of research presented by Gallant et al.

Citation

Montgomery, J., Wartman, J., Reed, A., Gallant, A., Hutabarat, D., & Mason, B. (2020) Data report. In J. Montgomery, A. Gallant, D. Hutabarat, B. Mason, & J. Wartman (Eds.), GEER reconnaissance of 2018 Palu-Donggala earthquake and flowslides. DesignSafe-CI. https://doi.org/10.17603/ds2-fv2y-5z03

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Abstract

This collection includes a preprint of the paper "Field Reconnaissance Data from GEER Investigation of the 2018 MW 7.5 Palu-Donggala Earthquake" submitted for publication in Data in Brief. This article describes details of the data collection and processing used for this dataset.

Citation

Murray-Tuite, P., Yin, W., Ukkusuri, S. V., & Gladwin, H. (2012). Changes in evacuation decisions between Hurricanes Ivan and Katrina. *Transportation Research Record, 2312*(1), 98-107. https://doi.org/10.3141/2312-10

Abstract

N/A

Citation

Natural Hazards Center (NHC). (n.d.). History and recent efforts. https://hazards.colorado.edu/research/quick-response-report/history

Abstract

N/A

Citation

National Institute of Environmental Health Sciences. (2021, May 27). NIH Public Health Emergency and Disaster Research Response (DR2). https://www.niehs.nih.gov/research/programs/disaster/human-studies/index.cfm

Abstract

N/A

Citation

National Research Council (NRC). (2006). *Facing hazards and disasters: Understanding human dimensions.* National Academies Press.

Abstract

N/A

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Citation

National Research Council (NRC). (2009). *Ensuring the integrity, accessibility, and stewardship of research data in the digital age.* National Academies Press.

Abstract

N/A

Citation

National Science Foundation (NSF). (2010). Descriptions of RAPID and EAGER programs. https://www.nsf.gov/geo/plr/opp_advisory/briefings/may2010/gpg_rapid_eager.pdf

Abstract

N/A

Citation

National Science Foundation (NSF). (2020, May 20). RAPID responders: How NSF support is enabling the fight against COVID-19 in real time. https://beta.nsf.gov/science-matters/rapid-responders-how-nsf-support-enabling-fight-against-covid-19-real-time

Abstract

N/A

Citation

Nuffield Council on Bioethics. (2020, January 28). Research in global health emergencies. https://www.nuffieldbioethics.org/publications/research-in-global-health-emergencies

Abstract

N/A

Citation

Oulahen, G., Vogel, B., & Gouett-Hanna, C. (2020). Quick response disaster research: Opportunities and challenges for a new funding program. *International Journal of Disaster Risk Science, 11*(5), 568-577. https://doi.org/10.1007/s13753-020-00299-2

Abstract

Quick response research conducted by social scientists in the aftermath of a disaster can reveal important findings about hazards and their impacts on communities. Research to collect perishable data, or data that will

change or be lost over time, immediately following disaster has been supported for decades by two programs in the United States, amassing a collection of quick response studies and an associated research culture. That culture is currently being challenged to better address power imbalances between researchers and disaster-affected participants. Until recently, Canada has not had a quick response grant program. In order to survey the state of knowledge and draw from it in helping to shape the new program in Canada, this article systematically analyzes the body of research created by the two US programs. The results reveal a wide-ranging literature: the studies are theoretically, conceptually, topically, and methodologically quite unique to one another. This diversity might appropriately reflect the nature of disasters, but the finding that many studies are not building on previous quick response research and other insights indicate opportunities for how a new grant program in Canada can contribute to growing a robust subdiscipline of disaster research.

Citation

Packenham, J. P., Rosselli, R. T., Ramsey, S. K., Taylor, H. A., Fothergill, A., Slutsman, J., & Miller, A. (2017). Conducting science in disasters: Recommendations from the NIEHS working group for special IRB considerations inthe review of disaster related research. *Environmental Health Perspectives, 125*(9), 094503. https://doi.org/10.1289/EHP2378

Abstract

Research involving human subjects after public health emergencies and disasters may pose ethical challenges. These challenges may include concerns about the vulnerability of prospective disaster research participants, increased research burden among disaster survivors approached by multiple research teams, and potentially reduced standards in the ethical review of research by institutional review boards (IRBs) due to the rush to enter the disaster field. The NIEHS Best Practices Working Group for Special IRB Considerations in the Review of Disaster Related Research was formed to identify and address ethical and regulatory challenges associated with the review of disaster research. The working group consists of a diverse collection of disaster research stakeholders across a broad spectrum of disciplines. The working group convened in July 2016 to identify recommendations that are instrumental in preparing IRBs to review protocols related to public health emergencies and disasters. The meeting included formative didactic presentations and facilitated breakout discussions using disaster-related case studies. Major thematic elements from these discussions were collected and documented into 15 working group recommendations, summarized in this article, that address topics such as IRB disaster preparedness activities, informed consent, vulnerable populations, confidentiality, participant burden, disaster research response integration and training, IRB roles/responsibilities, community engagement, and dissemination of disaster research results.

Citation

Palinkas, L. A., Springgate, B. F., Sugarman, O. K., Hancock, J., Wennerstrom, A., Haywood, C., Meyers, D., Johnson, A., Polk, M., Pesson, C. L., Seay, J. E., Stallard, C. N., & Wells, K. B. (2021). A rapid assessment of disaster preparedness needs and resources during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 18(*2), 425. https://doi.org/10.3390/ijerph18020425

Abstract

This year has seen the emergence of two major crises, a significant increase in the frequency and severity of

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hurricanes and the COVID-19 pandemic. However, little is known as to how each of these two events have impacted the other. A rapid qualitative assessment was conducted to determine the impact of the pandemic on preparedness and response to natural disasters and the impact of past experiences with natural disasters in responding to the pandemic. Semi-structured interviews were conducted with 26 representatives of 24 different community-based programs in southern Louisiana. Data were analyzed using procedures embedded in the Rapid Assessment Procedure-Informed Community Ethnography methodology, using techniques of immersion and crystallization and focused thematic analysis. The pandemic has impacted the form and function of disaster preparedness, making it harder to plan for evacuations in the event of a hurricane. Specific concerns included being able to see people in person, providing food and other resources to residents who shelter in place, finding volunteers to assist in food distribution and other forms of disaster response, competing for funds to support disaster-related activities, developing new support infrastructures, and focusing on equity in disaster preparedness. However, several strengths based on disaster preparedness experience and capabilities were identified, including providing a framework for how to respond and adapt to COVID and integration of COVID response with their normal disaster preparedness activities. Although prior experience has enabled community-based organizations to respond to the pandemic, the pandemic is also creating new challenges to preparing for and responding to natural disasters.

Citation

Peek, L., Tobin, J., van de Lindt, J., & Andrews A. (2021). Getting interdisciplinary teams into the field: Institutional Review Board pre-approval and multi-institution authorization agreements for rapid response disaster research. *Risk Analysis*. https://doi.org/10.1111/risa.13740

Abstract

This article describes an interdisciplinary community resilience research project and presents a case study that supports bringing researchers together before a disaster to develop plans, procedures, and preapproved Institutional Review Board (IRB) protocols. In addition, this article explains how researchers from various academic institutions and their federal agency partners can effectively collaborate by creating an IRB Authorization Agreement (IAA). Such preparations can support interdisciplinary rapid response disaster fieldwork that is timely, ethically informed, and scientifically rigorous. This fieldwork preplanning process can also advance interdisciplinary team formation and data collection efforts over the long term.

Citation

Peek, L., Tobin, J., Adams, R., Wu, H., & Mathews, M. (2020). A framework for convergence research in the hazards and disaster field: The Natural Hazards Engineering Research Infrastructure CONVERGE facility. *Frontiers in Built Environment, 6*, 110. https://doi.org/10.3389/fbuil.2020.00110

Abstract

The goal of this article is twofold: to clarify the tenets of convergence research and to motivate such research in the hazards and disaster field. Here, convergence research is defined as an approach to knowledge production and action that involves diverse teams working together in novel ways – transcending disciplinary and organizational boundaries – to address vexing social, economic, environmental, and technical challenges in an effort to reduce disaster losses and promote collective well-being. The increasing frequency and intensity

of disasters coupled with the growth of the field suggests an urgent need for a more coherent approach to help guide what we study, who we study, how we conduct studies, and who is involved in the research process itself. This article is written through the lens of the activities of the National Science Foundation-supported CONVERGE facility, which was established in 2018 as the first social science-led component of the Natural Hazards Engineering Research Infrastructure (NHERI). Convergence principles and the Science of Team Science undergird the work of CONVERGE, which brings together networks of researchers from geotechnical engineering, the social sciences, structural engineering, nearshore systems, operations and systems engineering, sustainable material management, and interdisciplinary science and engineering. CONVERGE supports and advances research that is conceptually integrative, and this article describes a convergence framework that includes the following elements: (1) identifying researchers; (2) educating and training researchers; (3) setting a convergence research agenda that is problem-focused and solutions-based; (4) connecting researchers and coordinating functionally and demographically diverse research teams; and (5) supporting and funding convergence research, data collection, data sharing, and solutions implementation.

Citation

Perry, R. W. (2007). What is a disaster? In H. Rodriguez, E. L. Quarantelli, & R. Dynes (Eds.), *Handbook of disaster research* (1st ed., pp. 1-15). Springer.

Abstract

N/A

Citation

Pieterse, P. (2022). Conducting rapid research to aid the design of a health systems governance intervention in the Somali Region of Ethiopia. *Frontiers in Sociology*, *7*, 947970. https://doi.org/10.3389/fsoc.2022.947970

Abstract

Introduction: The rapid research described in this chapter was conducted as an assignment for a UN agency in Ethiopia's Somali Region. The agency's aim was support the implementation of an interim citizen engagement intervention, with a view of supporting of the Ethiopian Government's Citizen Score Card at primary healthcare facilities and hospitals in future. Many health facilities in Somali Region struggle with budget shortages related to ineffective budget planning and budget execution at woreda health office levels. In this context, an intervention to first improve budget accountability, through the implementation of citizen audits, was proposed. *Methodology:* The rapid study focused on five woredas (districts) within Somali Region, where interviews were conducted with the heads of woreda health offices. In the same five woredas, directors of healthcare facilities were interviewed and offices and healthcare facilities were observed. The framework of assessment and analysis was based on health systems literature on fragile and conflict affected states guided the questions for the health authorities and health facility management. *Findings:* The research yielded five distinct *mini case studies* covering woreda health office planning and budgeting capacity and support (or lack thereof), and related impressions of challenges regarding healthcare delivery at health facilities in the same five woredas. *Results:* The findings demonstrated that the capacity for healthcare planning and budgeting Somali Region at woreda level varied significantly and that little guidance was available from regional level health authorities. Frontline health services clearly suffered from budget shortages as a result. *Conclusion:* The

research provided an evidence base for the delay of the roll-out of the Community Scorecard implementation across Somali Region. In a context whereby health facilities remain under-resourced due to budgeting constraints, a citizen-service provider-focused accountability intervention would have been of limited utility. The rapid case study research, conducted by condensing the usual case study research process, allowed for the production of evidence that was "robust enough" to demonstrate heterogeneity and challenges regarding budgeting quality across the five research sites. This evidence clearly transcended the hitherto anecdotal evidence that woreda-level health budget planning remains an area that faces significant shortcomings.

Citation

Phillips, B. D. (2014). *Qualitative disaster research*. Oxford University Press.

Abstract

N/A

Citation

Quarantelli, E.L. (1997). The Disaster Research Center field studies of organized behavior in the crisis time period of disasters. *International Journal of Mass Emergencies and Disasters, 15*(1), 47–69. http://www.ijmed.org/articles/406/download/

Abstract

N/A

Citation

Rathje, E. M., Dawson, C., Padgett, J. E., Pinelli, J., Stanzione, D., Adair, A., Arduino, P., Brandenberg, S. J., Cockerill, T., Dey, C., Esteva, M., Haan, F. L., Hanlon, M., Kareem, A., Lowes, L., Mock, S., & Mosqueda, G. (2017). DesignSafe: New cyberinfrastructure for natural hazards engineering. Natural Hazards Review, 18(3), 6017001. https://doi.org/10.1061/(ASCE)NH.1527-6996.0000246

Abstract

Natural hazards engineering plays an important role in minimizing the effects of natural hazards on society through the design of resilient and sustainable infrastructure. The DesignSafe cyberinfrastructure has been developed to enable and facilitate transformative research in natural hazards engineering, which necessarily spans across multiple disciplines and can take advantage of advancements in computation, experimentation, and data analysis. DesignSafe allows researchers to more effectively share and find data using cloud services, perform numerical simulations using high performance computing, and integrate diverse datasets so that researchers can make discoveries that were previously unattainable. This paper describes the design principles used in the cyberinfrastructure development process, introduces the main components of the DesignSafe cyberinfrastructure, and illustrates the use of the DesignSafe cyberinfrastructure in research in natural hazards engineering through various examples.

Citation

Resnik, D. B., Miller, A. K., Kwok, R. K., Engel, L. S., & Sandler, D. P. (2015). Ethical issues in environmental health research related to public health emergencies: Reflections on the Gulf study. *Environmental Health Perspectives, 123*(9), A227-A231. https://doi.org/10.1289/ehp.1509889

Abstract

Health research in the context of an environmental disaster with implications for public health raises challenging ethical issues. This article explores ethical issues that arose in the Gulf Long-term Follow-up Study (GuLF STUDY) and provides guidance for future research. Ethical issues encountered by GuLF STUDY investigators included a) minimizing risks and promoting benefits to participants, b) obtaining valid informed consent, c) providing financial compensation to participants, d) working with vulnerable participants, e) protecting participant confidentiality, f) addressing conflicts of interest, g) dealing with legal implications of research, and h) obtaining expeditious review from the institutional review board (IRB), community groups, and other committees. To ensure that ethical issues are handled properly, it is important for investigators to work closely with IRBs during the development and implementation of research and to consult with groups representing the community. Researchers should consider developing protocols, consent forms, survey instruments, and other documents prior to the advent of a public health emergency to allow for adequate and timely review by constituents. When an emergency arises, these materials can be quickly modified to take into account unique circumstances and implementation details.

Citation

Rodriguez, H., Wachtendorf, T., Kendra, J., & Trainor, J. (2006). A snapshot of the 2004 Indian Ocean tsunami: societal impacts and consequences. *Disaster Prevention and Management, 15*(1), 163-177. https://doi.org/10.1108/09653560610654310

Abstract

The purpose of this paper is to explore the societal impacts and consequences of the Dec 26, 2004 Indian Ocean tsunami. One month after the tsunami, a group of social science researchers from the Disaster Research Center, University of Delaware, and the Emergency Administration and Planning Program, University of North Texas, participated in an Earthquake Engineering Research Institute reconnaissance team, which traveled to some of the most affected areas in India and Sri Lanka. Data were obtained through informal interviews, participant observation, and systematic document gathering. This research yielded important data and information on disaster preparedness, response, and recovery. A number of issues are identified that emerged from the field observations, including: tsunami education and awareness; the devastation and the loss; economic impact; mental health issues; irregularities and inequities in community based response and recovery efforts and in the distribution of disaster relief aid; gender and inequality; and relocation and housing issues.

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Citation

Rodriguez, S. R., Tocco, J. S., Mallonee, S., Smithee, L., Cathey, T., & Bradley, K. (2006). Rapid needs assessment of Hurricane Katrina evacuees—Oklahoma, September 2005. *Prehospital and Disaster Medicine, 21*(6), 390-395. https://doi.org/10.1017/S1049023X0000409X

Abstract

Introduction: On 04 September 2005, 1,589 Hurricane Katrina evacuees from the New Orleans area arrived in Oklahoma. The Oklahoma State Department of Health conducted a rapid needs assessment of the evacuees housed at a National Guard training facility to determine the medical and social needs of the population in order to allocate resources appropriately.
Methods: A standardized questionnaire that focused on individual and household evacuee characteristics was developed. Households from each shelter building were targeted for surveying, and a convenience sample was used.
Results: Data were collected on 197 households and 373 persons. When com-pared with the population of Orleans Parish, Louisiana, the evacuees sampled were more likely to be male, black, and 45–64 years of age. They also were less likely to report receiving a high school education and being employed pre-hurricane. Of those households of <1 persons, 63% had at least one missing household member. Fifty-six percent of adults and 21% of children reported having at least one chronic disease. Adult women and non-black persons were more likely to report a pre-existing mental health condition. Fourteen percent of adult evacuees reported a mental illness that required medication pre-hurricane, and eight adults indicated that they either had been physically or sexually assaulted after the hurricane. Approximately half of adults reported that they had witnessed someone being severely injured or dead, and 10% of persons reported that someone close to them (family or friend) had died since the hurricane. Of the adults answering questions related to acute stress disorder, 50% indicated that they suffered at least one symptom of the disorder.
Conclusions: The results from this needs assessment highlight that the evacuees surveyed predominantly were black, of lower socio-economic status, and had substantial, pre-existing medical and mental health concerns. The evacuees experienced multiple emotional traumas, including witnessing grotesque scenes and the disruption of social systems, and had pre-existing psychopathologies that predisposed this population to post-traumatic stress dis-order (Post-traumatic Stress Disorder). When disaster populations are displaced, mental health and social service providers should be available immediately upon the arrival of the evacuees, and should be integrally coordinated with the relief response. Because the displaced population is at high risk for disaster-related mental health problems, it should be monitored closely for persons with PTSD. This displaced population will likely require a substantial re-establishment of financial, medical, and educational resources in new communities or upon their return to Louisiana.

Citation

Rubin, C. B. (2009). Long term recovery from disasters—The neglected component of emergency management. *Journal of Homeland Security and Emergency Management, 6*(1) 46. https://doi.org/10.2202/1547-7355.1616

Abstract

This paper stems from my presentation on long-term recovery given at the 2009 All-Hazards Higher Education

Conference, sponsored by the Department of Homeland Security at its Emergency Management Institute, June 2-4, 2009.

Citation

Rubin, C. B., & Popkin, R. (1991). Disaster recovery from Hurricane Hugo in South Carolina. (Working Paper No. 69). The Natural Hazards Research and Applications Information Center. https://hazards.colorado.edu/uploads/workingpaper/wp69.pdf

Abstract

N/A

Citation

Ruggles, S., Adolph, K., Chen, R., Entwisle, B., Gornick, J., & Gutmann, M. (2016). Public access to NSF-funded research data for the social, behavioral, and economic sciences workshop report. National Science Foundation. https://www.nsf.gov/sbe/reports/Public_Access_NSF_Workshop_Report_Final_Briefs.pdf

Abstract

N/A

Citation

Sapat, A., Mitsova-Boneva, D., & Esnard, A.M. (2020, May 20). RAPID: Health, housing, and hazards: COVID-19, subjective resilience, vulnerabilities, and policy evolution in hurricane prone counties. National Science Foundation. https://www.nsf.gov/awardsearch/showAward?AWD_ID=2028968&HistoricalAwards=false

Abstract

N/A

Citation

Schaefer, L. A. (2011). MacArthur competence assessment tools. In J. S. Kreutzer, J. DeLuca, & B. Caplan (Eds.), *Encyclopedia of Clinical Neuropsychology* (pp. 1502-1505). Springer.

Abstract

N/A

Citation

Schnall, A. H., Roth, J. J., Ekpo, L. L., Guendel, I., Davis, M., & Ellis, E. M. (2019). Disaster-related surveillance among US Virgin Islands (USVI) shelters during the Hurricanes Irma and Maria response. *Disaster Medicine and Public Health Preparedness, 13*(1), 38-43. https://doi.org/10.1017/dmp.2018.146

Abstract

Objectives: Two Category 5 storms, Hurricane Irma and Hurricane Maria, hit the U.S. Virgin Islands (USVI) within 13 days of each other in September 2017. These storms caused catastrophic damage across the territory, including widespread loss of power, destruction of homes, and devastation of critical infrastructure. During large scale disasters such as Hurricanes Irma and Maria, public health surveillance is an important tool to track emerging illnesses and injuries, identify at-risk populations, and assess the effectiveness of response efforts. The USVI Department of Health (DoH) partnered with shelter staff volunteers to monitor the health of the sheltered population and help guide response efforts.
Methods: Shelter volunteers collect data on the American Red Cross Aggregate Morbidity Report form that tallies the number of client visits at a shelter's health services every 24 hours. Morbidity data were collected at all 5 shelters on St. Thomas and St. Croix between September and October 2017. This article describes the health surveillance data collected in response to Hurricanes Irma and Maria.
Results: Following Hurricanes Irma and Maria, 1130 health-related client visits were reported, accounting for 1655 reasons for the visits (each client may have more than 1 reason for a single visit). Only 1 shelter reported data daily. Over half of visits (51.2%) were for health care management; 17.7% for acute illnesses, which include respiratory conditions, gastrointestinal symptoms, and pain; 14.6% for exacerbation of chronic disease; 9.8% for mental health; and 6.7% for injury. Shelter volunteers treated many clients within the shelters; however, reporting of the disposition (eg, referred to physician, pharmacist) was often missed (78.1%).
Conclusion: Shelter surveillance is an efficient means of quickly identifying and characterizing health issues and concerns in sheltered populations following disasters, allowing for the development of evidence-based strategies to address identified needs. When incorporated into broader surveillance strategies using multiple data sources, shelter data can enable disaster epidemiologists to paint a more comprehensive picture of community health, thereby planning and responding to health issues both within and outside of shelters. The findings from this report illustrated that managing chronic conditions presented a more notable resource demand than acute injuries and illnesses. Although there remains room for improvement because reporting was inconsistent throughout the response, the capacity of shelter staff to address the health needs of shelter residents and the ability to monitor the health needs in the sheltered population were critical resources for the USVI DoH overwhelmed by the disaster.

Citation

Scott, M. A., Olszowy, K. M., Dancause, K. N., Roome, A., Chan, C., Taylor, H. K., Marañon-Laguna, A., Montoya, E., Garcia, A., Mares, C., Tosiro, B., & Tarivonda, L. (2023). Challenges and opportunities in rapid disaster research: Lessons from the field in New Mexico and Vanuatu. *Frontiers in Sociology*, *8*, 983972.

Abstract

Rapid research is essential to assess impacts in communities affected by disasters, particularly those communities made "hard-to-reach" due to their active marginalization across history and in contemporary practices. In this article, we describe two rapid research projects developed to assess needs for and experiences of communities hard-hit by disasters. The first is a project on the COVID-19 pandemic in southern New Mexico (USA) that was developed to provide information to local agencies that are deploying programs to rebuild and revitalize marginalized communities. The second is a project on population displacement due to a volcanic eruption in Vanuatu, a lower-middle income country in the South Pacific, with mental and physical

health outcomes data shared with the Vanuatu Ministry of Health. We describe the similar and unique challenges that arose doing rapid research in these two different contexts, the potential broader impacts of the research, and a synthesis of lessons learned. We discuss the challenges of rapidly changing rules and regulations, lack of baseline data, lack of survey instruments validated for specific populations and in local languages, limited availability of community partners, finding funding for rapid deployment of projects, rapidly training and working with research assistants, health and safety concerns of researchers and participants, and communicating with local and international partners. We also specifically discuss how we addressed our own personal challenges while also conducting time-intensive rapid research. In both studies, researchers shared results with governmental and non-governmental partners who may use the data to inform the design of their own relief programs. While different in context, type of disaster, and research strategy, our discussion of these projects provides insights into common lessons learned for working with communities at elevated risk for the worst outcomes during disasters, such as the need for flexibility, compromise, and good working relationships with community partners.

Citation

Shapiro, S. (2013). The Paperwork Reduction Act: Benefits, costs, and directions for reform. *Government Information Quarterly, 30*(2), 204-210. https://doi.org/10.1016/j.giq.2012.09.002

Abstract

Congress passed the Paperwork Reduction Act (PRA) in 1980. Intended to ensure that the federal government carefully managed information and to reduce the burden of information collection on the American public, it has arguably failed to do either. This article uses a simple analysis of the benefits and costs of the Act to evaluate possible directions for reform. The implementation of the PRA has resulted in the misallocation of government resources. Far too much time is spent at the Office of Management and Budget and at agencies reviewing collections and soliciting input on thousands of information collections that are routine and unchanging. If this time was cut back, both OMB and agencies could devote more time to new information collections that have methodological issues and significant policy impacts. Agencies and OMB could also devote more time to tying information collection to information management as the authors of the PRA initially intended. The Paperwork Reduction Act (PRA) has not resulted in a reduction in burden. The PRA could be much more effective if it was better targeted. Information resource management is a neglected function of the PRA. Cost–benefit analysis should be used to evaluate regulatory reforms like the PRA.

Citation

Singh, J. P. (1997.) Contributions of earthquake reconnaissance to improved understanding of ground motions. In L. Kempner, & C. B. Brown (Eds.), *Building to last: Proceedings of Structures Congress XV, Portland, Oregon* (pp. 1600-1604). American Society of Civil Engineers.

Abstract

N/A

Citation

Stallings, R. A. (2007). Methodological issues. In H. Rodriguez, E. L. Quarantelli, & R. Dynes (Eds.), *Handbook of disaster research* (1st ed., pp. 55–82). Springer.

Abstract

N/A

Citation

Taylor, H. A. (2016). Review and conduct of human subjects research after a natural or man–made disaster: Findings from a pilot study. *Narrative Inquiry in Bioethics, 6*(3), 211-222. https://doi.org/10.1353/nib.2016.0061

Abstract

The conduct of human subjects research in the wake of natural and man-made disasters is essential in order to further our understanding of the mental and behavioral health effects of such events on individuals and communities. The results of post-disaster research can better prepare public health systems to consider and address individual and community mental and behavioral health needs. In-depth interviews (n = 17) explored the ethical concerns and challenges encountered by investigators and IRBs in their review and conduct of post-disaster research. A variety of review mechanisms are described as well as the concerns of investigators and IRBs about the vulnerability of subjects and the challenges of conducting research in a community affected by disaster.

Citation

Vugia, D. J., Goodman, R. A., Hadler, J. L., & Eaton, D. E. (2018, December 13). Initiating operations. Centers for Disease Control and Prevention. https://www.cdc.gov/eis/field-epi-manual/chapters/Initiating-Operations.html

Abstract

N/A

Citation

Wanat, M., Borek, A. J., Pilbeam, C., Anthierens, S., & Tonkin-Crine, S. (2022). Conducting rapid qualitative interview research during the COVID-19 pandemic—Reflections on methodological choices. *Frontiers in Sociology*, *7*, 953872. https://doi.org/10.3389/fsoc.2022.953872

Abstract

As the COVID-19 pandemic has shown, setting up studies in time to gather relevant, real-world data enables researchers to capture current views and experiences, focus on practicalities on the ground, and deliver

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actionable results. Delivering high quality rapid studies in healthcare poses several challenges even in non-emergency situations. There is an expanding literature discussing benefits and challenges of conducting rapid research, yet there are relatively few examples related to methodological dilemmas and decisions that researchers may face when conducting rapid studies. In rapidly-changing emergency contexts, some of these challenges may be more easily overcome, while others may be unique to the emergency, magnified, or emerge in different ways. In this manuscript, we discuss our reflections and lessons learnt across the research process when conducting rapid qualitative interview studies in the context of a healthcare emergency, focusing on methodological issues. By this we mean the challenging considerations and pragmatic choices we made, and their downstream impacts, that shaped our studies. We draw on our extensive combined experience of delivering several projects during the COVID-19 pandemic in both single and multi-country settings, where we implemented rapid studies, or rapidly adapted an existing study. In the context of these studies, we discuss two main considerations, with a particular focus on the complexities, multiple facets, and trade-offs involved in: (i) team-based approaches to qualitative studies; and (ii) timely and rapid data collection, analysis and dissemination. We contribute a transparent discussion of these issues, describing them, what helped us to deal with them, and which issues have been difficult to overcome. We situate our discussion of arising issues in relation to existing literature, to offer broader recommendations while also identifying gaps in current understandings of how to deal with these methodological challenges. We thus identify key considerations, lessons, and possibilities for researchers implementing rapid studies in healthcare emergencies and beyond. We aim to promote transparency in reporting, assist other researchers in making informed choices, and consequently contribute to the development of the rapid qualitative research.

Citation

Wartman, J., Berman, J. W., Bostrom, A., Miles, S., Olsen, M., Gurley, K., Irish, J., Lowes, L., Tanner, T., Dafni, J., Grilliot, M., Lyda, A., & Peltier, J. (2020). Research needs, challenges, and strategic approaches for natural hazards and disaster reconnaissance. *Frontiers in Built Environment, 6*, 182. https://doi.org/10.3389/fbuil.2020.573068

Abstract

Natural hazards and disaster reconnaissance investigations have provided many lessons for the research and practice communities and have greatly improved our scientific understanding of extreme events. Yet, many challenges remain for these communities, including improving our ability to model hazards, make decisions in the face of uncertainty, enhance community resilience, and mitigate risk. State-of-the-art instrumentation and mobile data collection applications have significantly advanced the ability of field investigation teams to capture quickly perishable data in post-disaster settings. The NHERI RAPID Facility convened a community workshop of experts in the professional, government, and academic sectors to determine reconnaissance data needs and opportunities, and to identify the broader challenges facing the reconnaissance community that hinder data collection and use. Participants highlighted that field teams face many practical and operational challenges before and during reconnaissance investigations, including logistics concerns, safety issues, emotional trauma, and after-returning, issues with data processing and analysis. Field teams have executed many effective missions. Among the factors contributing to successful reconnaissance are having local contacts, effective teamwork, and pre-event training. Continued progress in natural hazard reconnaissance requires adaptation of new, strategic approaches that acquire and integrate data over a range of temporal, spatial, and social scales across disciplines.

Citation

Yeum, C. M., Dyke, S. J., Benes, B., Hacker, T., Ramirez, J., Lund, A., & Pujol, S. (2019). Postevent reconnaissance image documentation using automated classification. *Journal of Performance of Constructed Facilities, 33*(1), 4018103. https://doi.org/10.1061/(ASCE)CF.1943-5509.0001253

Abstract

Reconnaissance teams are charged with collecting perishable data after a natural disaster. In the field, these engineers typically record their observations through images. Each team takes many views of both exterior and interior buildings and frequently collects associated metadata that reflect information represented in images, such as global positioning system (GPS) devices, structural drawings, timestamp, and measurements. Large quantities of images with a wide variety of contents are collected. The window of opportunity is short, and engineers need to provide accurate and rich descriptions of such images before the details are forgotten. In this paper, an automated approach is developed to organize and document such scientific information in an efficient and rapid manner. Deep convolutional neural network algorithms were successfully implemented to extract robust features of key visual contents in the images. A schema is designed based on the realistic needs of field teams examining buildings. A significant number of images collected from past earthquakes were used to train robust classifiers to automatically classify the images. The classifiers and associated schema were used to automatically generate individual reports for buildings.

Citation

Youssef, N. F. G., Bonowitz, D., & Gross, J. L. (1995). A survey of steel moment resisting frame buildings affected by the I994 Northridge earthquake. (Report No. NlSTlR 5625). National Institute of Standards and Technology, United States Department of Commerce Technology Administration.

Abstract

The January 1994 Northridge earthquake caused unexpected widespread damage to steel moment-resisting frame (MRF) buildings throughout greater Los Angles. The report presents results of a survey of MRF's inspected for connection damage since the earthquake. The survey is intended to provide an overall view of the greater Los Angeles steel frame population, as well as a single-source building-specific record of observed conditions. A computerized database was developed to track submittals, compile basic survey data, and generate summary tables. Principal
conclusions from the survey data support the observation that MRF connection damage is not well correlated to any single structural characteristic. On the contrary, the survey data show that connection performance may be best understood in probabilistic, not deterministic, terms with emphasis on construction and inspection quality.

Citation

Zane, D. F., Bayleyegn, T. M., Haywood, T. L., Wiltz-Beckham, D., Guidry, H., Sanchez, C., & Wolkin, A. F. (2010). Community Assessment for Public Health Emergency Response following Hurricane Ike—Texas, 25-30 September 2008. *Prehospital and Disaster Medicine, 25*(6), 503-510. https://doi.org/10.1017/s1049023x00008670

Abstract

Introduction: On 13 September 2008, Hurricane Ike made landfall near Galveston, Texas, resulting in an estimated 74 deaths statewide and extensive damage in many counties. The Texas Department of State Health Services, US Public Health Service, and the Centers for Disease Control and Prevention conducted assessments beginning 12 days following hurricane landfall to identify the public health needs of three affected communities. The results of the assessment are presented, and an example of a type of public health epidemiological response to a disaster due to a natural hazard is provided.
Methods: A one-page questionnaire that focused on household public health characteristics was developed. Using a two-stage cluster sampling methodology, 30 census blocks were selected randomly in three communities (Galveston, Liberty, and Manvel, Texas). Seven households were selected randomly from each block to interview.
Results: The assessments were conducted on 25, 26, and 30 September 2008. At the time of the interview, 45% percent of the households in Galveston had no electricity, and 26% had no regular garbage collection. Forty-six percent reported feeling that their residence was unsafe to inhabit due to mold, roof, and/or structural damage, and lack of electricity. Sixteen percent of households reported at least one member of the household had an injury since the hurricane. In Liberty, only 7% of the household members interviewed had no access to food, 4% had no working toilet, 2% had no running water, and 2% had no electricity. In Manvel, only 5% of the households did not have access to food, 3% had no running water, 2% had no regular garbage collection, and 3% had no electricity.
Conclusions: Post-Ike household-level surveys conducted identified the immediate needs and associated risks of the affected communities. Despite the response efforts, a high proportion of households in Galveston still were reportedly lacking electricity and regular garbage pickup 17 days post-storm. The proportion of households with self-reported injury in Galveston suggested the need to enhance public education on how to prevent injuries during hurricane cleanup. Galveston public health officials used the assessment to educate local emergency and elected officials of the health hazards related to lack of basic utilities and medical care in the community. This resulted in the provision of an extensive public health outreach education program throughout the island. The Liberty and Manvel assessment findings suggest that most households in both communities were receiving the basic utilities and that the residents felt "safe". The assessments reassured local health officials that there were no substantial acute public health needs and provided objective information that services were being restored.

If you have questions about or updates to this bibliography, please contact us at converge@colorado.edu.

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