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To cite this article: Keri K. Stephens (2019): Jumping in and Out of the Dirty Water... Learning from Stories while Doing Social Science, Health Communication, DOI: [10.1080/10410236.2019.1580995](https://doi.org/10.1080/10410236.2019.1580995)

To link to this article: <https://doi.org/10.1080/10410236.2019.1580995>



Published online: 18 Feb 2019.



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DEFINING MOMENTS



Jumping in and Out of the Dirty Water... Learning from Stories while Doing Social Science

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ABSTRACT

The pursuit of knowledge surrounding health-related issues during disasters, emergencies, and crises, can be delicate and challenging. Social scientists use a host of research methods to design and execute studies with the goal of making intellectual contributions. During extended field work following Hurricane Harvey in the Greater Houston area, our team collected data – interviews, observations, and private social media – from citizens, emergency responders, and volunteer rescuers. Yet sometimes the data collected, analyzed, and reported in published findings is only part of the research story. The researchers' experiences, both in the field as well as their past, can serve as personal-sensemaking devices. Integrating these stories can help scientists build trust and collect meaningful data, well beyond what is anticipated. In this essay, I share such examples, related to dirty water: temporarily health-compromised individuals, and responders doing double duty. Below the surface, there are many more opportunities for health communication to make an impact in times of crisis.

I was sitting across from a middle-aged professional single mother preparing to interview her when she said, “Will the Federal Government have access to your data? It says here that your project is funded by the National Science Foundation.” I was a bit stunned because my colleagues told me that having NSF-funded research would open doors, and now I found it creating a challenge before I even began the interview. I carefully explained how we de-identified our data, and the care we took in storing and analyzing it. She was satisfied with my response, but she reminded me that some people I would interview were likely in the U.S. on temporary work visas, and the political climate in December of 2017 was unsettling for most of them. She was herself Chinese, and she never told me if that applied to her situation or not, just that I should be aware. Then, she set the informed consent down and said, “Why do you do this research? Our community has been devastated by the flooding, and what do you hope to learn?”

I vividly remember I started questioning myself in that moment. Why had I put my life, and my family's life, on hold to frantically write an NSF grant proposal all because I saw the Hurricane Harvey disaster unfolding two hours away from me? Within a few seconds, “because I'm also a flood survivor,” came out of my mouth. This was a defining moment in my academic career: It was through interactions with others that I reflected and attached meaning to my previous life experiences as I engaged sensemaking (Maitlis & Christianson, 2014; Weick, 1995). Over the next three months, as I traveled from Austin to the Greater Houston, Texas area to collect data, I began understanding why I desperately wanted to do this work – and why I cried on my drive back home to Austin.

Surviving a flood

When I was in the third grade, my parents received an official phone call telling them that there would be almost five feet of water in our house within a week. The officials explained that the water would come from upriver, but that made little sense to us on an August day with a temperature close to 100 degrees Fahrenheit. I remember us all walking outside, looking up at the sky, and remarking that there was no rain in our forecast. We lived on 10 acres of family land located half-a-mile from the Clearfork of the Brazos River in Texas. For multiple generations no one had seen water on our land.

Several days went by, we had no rain, and we received another call. The water was coming, and we were required to evacuate. I remember walking across the highway to a side road that sometimes flooded, but it was almost twenty feet lower than our house. There was water on that road, and I was very careful to not get around it. I knew that if I touched the dirty flood water I would have to get a tetanus shot, and I hated shots. Friends from our church and school showed up at our house to remove a few items – like our piano – but because most of the conversations centered on disbelief, very few personal items were removed. Instead, my father decided to stay behind so he could move furniture and treasured items up to our attic if needed.

When the water reached the two-foot level in our house, one of the flood officials came by on a boat and told my father he could not stay because the risk of fire was too great. That part of Texas is oil county, and the water was moving so quickly it had knocked over many of the holding tanks: there was a film of oil coating the surface of most

flooded areas. My father left our house for what would be almost two weeks.

When they let me back into the house, I still remember walking into my bedroom. All my furniture was still there, but it was coated with mud and oil. My carpet was an orange shag and as I looked down at it carefully there were dead frogs, part of insects, and mud literally everywhere. One little frog was still trying to hop, but he was coated in oil and could barely move.

I must have looked traumatized because a delightful young woman from the American Red Cross put her hand on my shoulder and told me to come with her. “We are going to do some shopping” she said. We walked down the road to the community church and as we entered she asked me what kind of furniture I’d always wanted to have. I said, “White, with flowers.” She took me into a room where there was the bedroom set of my dreams and she told me I could have that set delivered when we got the mud cleaned up in our home.

I grew up with that bedroom set. Donated, and exactly what I wanted. Most of our household furniture came from the American Red Cross, and friends and family. We had no flood insurance because, at that time, our house was not located on a flood plain. After this flood, the status of our property changed to being on a 100-year flood plain. Fortunately, it has not flooded since, but it has come within five feet.

Bringing personal experiences into research

As the respondents in my NSF-funded study asked me why I chose this research topic, all my memories of dirty water and being a flood survivor returned. Both of my parents were public school teachers, and after the flood my dad had to work three jobs in the summers to try to make payments on *two* mortgages. When the flood hit, my family had only been in the house for six months. This was my parents dream home and they had leveraged every penny they had (and a lot they did not have) to build this home on family land. Now we found ourselves paying on that original house, as well as the completely re-built and re-furnished home after the flood. I grew up knowing that I would need to pay for my own college education because, while education was highly valued, it was unlikely that my parents would have the money to send me.

I knew what these families were facing after the floods of Hurricane Harvey, and I felt compelled to help in a way that others might not be able to: I could research the role of communication and technology in helping people get rescued from the floods. As a social scientist, I have spent my academic career exploring how people communicate using technology. I am especially interested in how the use of information and communication technology (ICT), functions in processes of organizing and around organizational contexts. Studying people, organizing, and ICTs has led me to focus in contexts where these issues are especially challenging and evolving, namely workplaces, crises, emergencies, and health settings. In these contexts, one of the biggest changes in the past 15 years has been the rapid expansion in the use of mobile devices (like cell phones) and the use of social media (Stephens, 2018). Extending my research agenda into this particular disaster was a natural fit because it interlaced my research expertise and context interests perfectly.

Research findings on evacuations and dirty water

This project, *The Changing Nature of “Calls” for Help with Hurricane Harvey: 9–1–1 and Social Media* (National Science Foundation award # 1760453), has already yielded some insightful findings (O’Neal et al., 2018; Smith, Stephens, Robertson, Li, & Murthy, 2018; Stephens, Li, Robertson, Smith, & Murthy, 2018), especially concerning organizing and using social media to get rescued. But there are two health-related topics that are especially relevant to health communication theory and practice: unexpected health needs, and the impact on health workers when they have to do double duty. Let me frame these relevant issues with a bit of background on what we know about health and disasters.

Prior research on emergencies and disasters has shown that people with chronic health conditions, like diabetes, and many older adults, need special consideration when planning and executing an evacuation (Aldrich & Benson, 2008; Bethel, Foreman, & Burke, 2011). In our data, we interviewed a woman who had diabetes and successfully evacuated herself and her 80-year-old father with the help of volunteer rescuers. Prior researchers also have found that people with health chronic conditions often have trouble getting their medications following disasters (Ochi, Hodgson, Landeg, Mayner, & Murray, 2014), and our research unearthed these concerns as well.

However, through our fieldwork, we encountered people with a different type of health condition that we had not seen discussed in prior academic literature. We identify these people as “temporarily health-compromised individuals” and they include people who have had a recent surgery, or are recovering from an illness. These are people who are normally quite healthy, for example members of a running club, but the timing of their surgery raises serious health concerns if they have to walk, or touch “dirty water.” Emily described her convoluted evacuation with “six people, two dogs, and a snake that my college student brought home with him.” They did not simply get in a boat that took them to safety. She showed me four different Facebook live videos as she described her rescue:

We had four different legs. The first leg was a boat. It took us to the bayou bridge. Then

we had to walk across the bridge to another boat...Then we got into a Jeep that drove us

to a Hummer that took us to a [safe place].

Emily said she appreciated all the help from the volunteers “because I had just had surgery, so I still had an open incision. My incision was here [pointing to a spot on the table], and the water was like two inches away from that. So that was scary.” Not only did she have a complex evacuation, but she did that while trying to keep her incision clean. Using the rest of her interview data for inference, I can safely assume that this ultra marathoner was not about to act like she needed help. Most likely she kept her struggle to keep her incision clean to herself.

The closest concept to a temporarily health-compromised individual found in prior disaster evacuation research concerns the needs of pregnant women (e.g., Callaghan et al., 2007). We also had an interviewee who was pregnant, but only three months along so she was not showing her pregnancy. When she informed an official that she needed some help, he

responded in a doubting tone. She was frustrated and interpreted his response to mean that she was not in *poor-enough health* to warrant needing help. She carried her 1-year-old daughter while trying to avoid tripping as she made her way through waist-high water that was so dirty she could not see her feet.

In a flood, the rising water often begins by being fairly clean, but as wastewater treatment facilities become flooded, and the rising water rushes through manufacturing facilities, oil refineries, and people's homes, stormwater runoff cannot go anywhere and the waters become contaminated. Furthermore, the entire area smells like rotting sewage; thus, my research team calls this "dirty water" (Stephens et al., 2018). When people are at risk for infection, like they are in a post-operative situation, they have to avoid any situations that can compromise their recovery, and their evacuation can become even more complex than someone with a chronic health condition. Furthermore, healthy people who have these surgeries expect to recover quickly, so they do not necessarily tell their neighbors about these events. When the floods hit these neighborhoods in the Greater Houston, Texas area, the temporarily health-compromised individuals were not on the radar of their neighbors.

As my team heard stories from our healthy respondents who experienced these temporarily health-compromised situations, it brought me back to my childhood fear of "dirty water." Despite my best efforts to stay out of the flood waters, the doctor still gave me a tetanus shot because I had handled objects in my home that had been contaminated during our flood. But I had access to doctors, a pharmacy, and I even went back to school almost immediately, because only one part of our community was impacted by the flood. During Hurricane Harvey, the scope of the flooding meant that entire community systems were compromised. Our respondents shared that type of data with my team as well.

Doing double duty with health-related jobs

The healthcare workers and emergency responders who live and work in affected communities often do double duty during a disaster. They experience personal loss or fear of loss, while having to help others who have been injured or hurt. Some emergency responders receive training on how to function during and cope after a disaster, and there are journals like *Disaster Medicine and Public Health Preparedness* that address these topics, but the vast majority of this research focuses on post-disaster recovery and illnesses like PTSD. It is worthwhile to consider what happens *during* a disaster and how communication scholars might be able to help.

Diana, a nurse assistant in her early 40's, and a mom with four young children, fought back tears as she told of her father's rescue while she was asked to report to work. "It was a rough week. I actually never got to go home for a week," she explained. "We got [to sleep on] air mattresses, whatever they could find...I was exhausted, but it was well worth it." She explained the emotions she felt working at the hospital around the clock:

In the beginning it was more depression, because you're seeing all this devastation and destruction. And then after the water receded

you begin to see the light at the end of the tunnel, and it's difficult... It's gonna take probably about a year or so before everything actually goes back to normal. And by then, this is Texas, we're gonna have something else come along.

Alfred, a police officer in his early thirties, lived with his pregnant wife in a suburb about 35 miles, and over an hour commute each way, from the police station where he worked. His own community was expecting extensive flooding when his supervisor told him to report to work and plan on not returning home until after the disaster was under control. He explained, "I packed up everything I needed and then I took off back out to the station." During the first few days, the officers were feed Meals Ready to Eat (MREs), and he did not want to eat them because they "were nasty. I was eating Skittles. I was eating all the candy. We were like trading: 'I'll trade you my Snickers for your Skittles.'" The officers were working 12 to 24 hour shifts and resting in a hotel near their station. During his multiple days on duty, he missed his wife's first doctor's appointment to see how the pregnancy was going. "Yeah, I missed the ultrasound. 'That was for the heartbeat, right?' Alfred asked his wife. She replied, 'Yes, I was so upset. But luckily my neighbor went with me.' I was like, 'Is there any way you can come home to see this?' He was like, 'No, I can't come home.'" "So I missed that. I missed the first one," Alfred said with remorse.

But I'm a social scientist

I was originally trained as a biochemist and I worked in a laboratory and in the analytical chemistry industry for almost a decade. Then, I returned to graduate school and became a social scientist. For most of my research projects, I have kept my feelings out of my science because that is how I was trained: be objective. That is *proper* science. Yet I made the switch to social science because I wanted new tools to help me view research projects from multiple lenses. I love saying that I am a researcher who really does ask a research question first, and figures out the proper method to use to answer that question second. The qualitative portion of this NSF-funded research project pushed me to more fully understand the power of social science.

I entered the field with only a vague understanding of the disaster that had happened. I had to figure out how to find people to interview and how to get them to trust me and my team. Not only were we asking them to tell their rescue stories, but the goals of our project required us to ask for copies of the private images and messages they used during this disaster. We were in the field while our potential interviewees were trying to rebuild their homes and their lives, and we heard countless stories of how contractors were taking advantage of them. This is when I realized the true power of stories; the meaningful ones they shared with my team, and my own story as way to connect and build trust. This research project has taught me the power of being vulnerable, honest, and intuitive, even while doing *proper* science.

Theoretical implications and opportunities

As health communication scholars, we have many opportunities to build on our prior work (e.g., Adame & Miller, 2015; Paek, Hilyard, Freimuth, Barge, & Mindlin, 2010; Sutton, League, Sellnow, & Sellnow, 2015) and contribute to a growing global conversation about the changing nature of disasters. The stories I have shared invite us to (a) rethink disaster preparedness. There are likely other types of people who fall into the temporarily health-compromised individual category, and it is important to persuasively communicate with them when a disaster is pending. They may be even harder to convince to evacuate because they are not accustomed to being vulnerable. Several theories designed to heighten risk perceptions and motivate behavior – e.g., Health Belief Model and Theory of Planned Behavior (see Ejeta, Ardalan, & Paton, 2015; Paek et al., 2010 for reviews of behavioral theories in these contexts) – could be used to further enhance our understanding of disaster preparedness. Furthermore, communication technologies, like social media, create opportunities for friends and loved ones to influence disaster decisions even when people are not co-located.

Neither Alfred the police officer nor Emily the nurse assistant had been trained to work 24-hour shifts, sleeping where they could, and eating what they found. But in major disasters, we need more people to step up and help than those who have been formally trained. We cannot forget that our emergency responders and volunteers – regardless of level of training – are people with lives that still go on, even when they are expected to hit the pause button to give selflessly and help others. These stories compel us to (b) reconceptualize who counts as an emergency responder, and thus what we need to do to help them communicate and cope when disaster strikes. Health communication research on emotion labor, burnout, and stress and coping could be used to create training materials for agencies like Federal Emergency Management Association (FEMA), as well as volunteer groups like Community Emergency Response Training (CERT).

A final important lesson we need to take from these stories is that communication can make a difference. As social scientists and humanities scholars, we need to advocate for more funding that will help us do the nuanced research and create the training materials necessary to be more prepared and more resilient in times of crisis. This funding also helps us fairly compensate and train the next generation of researchers – students – who can continue to investigate meaningful questions. In times of crisis it is communication between people, and the information and communication technologies they use for that communication that can save lives.

Acknowledgments

I thank the rescuees, volunteer rescuers, and emergency responders of the Hurricane Harvey flooding for participating in this research. I would also like to thank Larry Browning for teaching me the power of narrative, my parents—Eddie and Leslie Keilberg—for being strong in the face of disaster, and Lynn Harter for helping to shape this work. Finally, I would like to thank the team of researchers, Brett W. Robertson, Roth Smith, Jing Li, and Dhiraj Murthy, who collaborated with me on this project.

Funding

This work was supported by a grant from the National Science Foundation [award #1760453] RAPID/The Changing Nature of “Calls” for Help with Hurricane Harvey: 9-1-1 and Social Media. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

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