Enhancing Community Resilience for Disaster Preparedness

Narrator: Over the last decade we have been hearing a lot about environmental disasters in the news – wildfires, hurricanes, earthquakes, oil spills, and nuclear powerplant breaches.

Regardless of what form the disaster takes, these events are usually unexpected and can cause lasting physical, economic, and psychological damage to individuals and communities.

Dr. Brian Mayer is an associate professor and sociologist at the University of Arizona. He has been working with a team of researchers to study communities impacted by the 2010 Deepwater Horizon oil spill in the Gulf Coast region. This work is part of the Healthy Gulf, Healthy Communities program, which is funded by the National Institute of Environmental Health Sciences, or NIEHS.

Dr. Mayer and his team have been studying community resilience, a broad term he says is used to describe how communities bounce back after a disaster or other challenging events. He says that community resilience is often influenced by the type of disaster – in other words, whether it is natural or man-made.

Mayer: In a natural disaster, we most often see something called a "therapeutic community" emerge. Anytime you turn on the news and see people building a sandbag wall to stem off a flood, or building new homes after a tornado, that's the idea of a therapeutic community.

Narrator: In contrast, he says that man-made disasters tend to bring out very different responses in communities.

Mayer: There are often questions of blame and fault and uncertainty about what's going to happen. We think about these things like an oil spill or the discovery of toxic contamination like in a Superfund site. Uncertainty leads to fear and that can create conflict. So we call those a "corrosive community" because instead of seeing people come together, we see people pull apart.

Narrator: In fact, Dr. Mayer says they witnessed many "corrosive communities" arise after the Deepwater Horizon oil spill. Gulf coast communities were worried about whether oil would wash up on the shore, or if seafood would be safe to eat. They were concerned about their livelihoods, including local tourism. Mayer's team noticed that many people isolated themselves from each other as they dealt with the psychological stress and unanswered questions. But they also saw cases where "therapeutic communities" came together after the spill.

Mayer: In some places, things have returned to normal for sure, and many affected communities from the spill are doing quite well today, even setting record years for levels of tourism. But there are still others today that are struggling with those economic, social, and environmental changes that the spill caused.

Narrator: Findings from the Deepwater Horizon oil spill led Dr. Mayer and his team to explore why some communities in the United States may be more resilient than others. Their research shows that community resilience is strongly correlated with social vulnerability, or how able communities are to withstand negative impacts from various stressors.

Dr. Mayer says that communities with greater social vulnerability tend to have fewer economic resources, less access to services, and may be more exposed to environmental conditions that could harm their health.

Dr. Mayer's team also found interesting geographic differences. Some places in the United Sates have high social vulnerability but also show signs of resilience to harm. So while social vulnerability and resilience are linked, the story is much more complex. Dr. Mayer says, resilience can also be influenced by social networks.

Mayer: Social networks play a very important role for resilience, especially at the community level. We generally need to know two things about a community. One, are they prepared in terms of their economic resources? Do they have sufficient equipment, the right types of infrastructure? That's one thing, the economic side of it.

But at the same time, we also need to know whether or not a community can mobilize those resources to who needs it the most after a disaster. It's not enough to just stockpile resources. There have to be sufficient social networks that allow those resources to be mobilized properly.

Narrator: Another important factor in community resilience is the idea of personal, or individual, resilience. Dr. Mayer says that individual resilience includes coping skills and a positive world view.

In recent years, Dr. Mayer and his colleague Dr. Lynn Grattan at the University of Maryland, studied how individual resilience and social networks impact community resilience. They were interested in seeing if resilient individuals who lacked strong social networks were as successful at bouncing back after disasters as less resilient individuals who had strong social networks.

What they found in their studies was interesting. They determined that an individual's perception of belonging to a social network influences his or her level of resiliency, and the likelihood of adapting to challenging situations.

Mayer: We tried to overlap our social network analysis with her analysis of a perceived measure of mattering. What's more important, for you to be able to identify who's a member of your social network and what they can do for you? Or does it matter more if you think you belong to this network, that you think that you matter?

What we're finding is that mattering matters. I think that's a really interesting finding, that individual resilience, having that mindset, is important.

Narrator: Dr. Mayer also emphasizes that resilient individuals are important building blocks for resilient communities.

Mayer: It scales up from individuals. If you have individuals that have a positive mindset that we can recover, we can adapt, I will be OK, they're more likely to build networked communities. They're more likely to build social communities and contribute to the institutions and the norms and the collective practices that also build community resilience.

Narrator: Dr. Mayer says this type of research can help us understand how communities recover from disasters. But Dr. Mayer prefers to think of true resilience not as just returning to normal, but as a process where communities build adaptive capacity to grow in a way that will help them be better prepared to face future disasters and challenges.

According to Dr. Mayer, researchers can use community-engaged approaches to improve community resilience and enhance their adaptive capacity for the future.

Mayer: If we're thinking about resilience, being able to enhance the local capacity to recover and adapt is very important, and research plays an important part of that. But if research is being conducted by outsiders for the limited benefits of the academic community, then we're not actually building or growing resilience. [00:21:11] We're missing an important opportunity to enhance those capacities at the ground level in the communities that we actually work with.

I would rather partner with a local nonprofit to conduct those surveys and train them to help collect the data for our project in a way that builds their capacity to carry out this research in the future so that they can become more self-sufficient in using their own evidence to improve their own community resilience. I think it's important that we ground ourselves with this approach to community-based research so we're also enhancing local capacity.

It's about understanding local strengths and traditional practices and figuring out how to enhance them. That should be our starting point if we want to truly build resilient and healthy communities.

Narrator: According to Dr. Mayer, training and building capacity for communities to be self-sufficient is an key attribute that contributes to community resilience.

So what can <u>you</u> do be more resilient in the face of a disaster? We learned that individual resilience, including having a more optimistic attitude and increased ability to cope with hardships, plays an important role. According to Dr. Mayer, you can also take steps to strengthen your social network.

Mayer: In the case of most disasters, your neighbors are always going to be your first responders. Long before any emergency service personnel can reach you and after they're long gone, it's up to the people around you to work together to rebuild.

If you want to become more resilient, enhance your social networks. Don't be limited by your social media accounts, the people that think or look like you, because it's not just those people who can help you in a disaster. If you want to be more prepared and adaptable to the unknown, expand and especially diversify those social networks. That's what it's going to take to be truly resilient.

Narrator: You can learn more about Dr. Mayer's research in the Gulf Coast, and how researchers are helping to build stronger, more resilient communities on our website at niehs.nih.gov/podcasts.

Thanks to today's guest, Dr. Brian Mayer for joining us! You've been listening to Environmental Health Chat. Our podcast is brought to you by the Division of Extramural Research and Training at NIEHS, part of the National Institutes of Health, and agency for the U.S. Department of Health and Human Services.