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Qualitative data collection one year post disaster provided insight into unique concerns of affected community residents during long-term recovery – Illinois, July 2022

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Introduction

In July 2022, in partnership with local health agencies, the Agency for Toxic Substances and Disease Registry (ATSDR)¹ conducted an Assessment of Chemical Exposures (ACE)² investigation in Winnebago County, IL, to assess the health and wellbeing of a community one year after a major manufacturing facility fire in June 2021. The Fire was a major disaster in the community, burning for 4 days, destroying the entire facility, and prompting both a 1-mile evacuation order and 3-mile masking advisory.^{3,4} To assess the progress of long-term community recovery in 2022, ATSDR conducted one of the first follow-up ACE investigations with a qualitative component; a semi-structured interview was developed to collect data from a convenience sample of residents most impacted by the Fire. Because qualitative data illuminate the true needs and sentiments of a community following a disaster,⁵⁻⁷ our goal was to identify common themes or topics within the affected community, which could then be used by local authorities to guide continued recovery efforts.

Methods

We designed a semi-structured interview intended to elicit responses related to mental health and individual perceptions about the previous year's Fire response (Table 1). We purposively recruited interviewees using an online survey (Qualtrics.XM©, July 2022 version, 2023) and door-to-door recruitment of residents living on a street adjacent to the Fire site. Interviews were offered either in-person or over the phone and notes were taken by two project staff during the interview. Participants were made aware that all responses would be kept anonymous before providing their consent to being interviewed. The application Dedoose (Los Angeles, CA: SocioCultural Research Consultants, LLC. 2021) was used to conduct

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a qualitative assessment of these interview notes. Interview notes were structurally coded by an author with training in qualitative analyses and were then categorized into major themes/subthemes using the constant comparative method and an inductive process.⁸ In this letter, we highlight quotes that were representative of overall themes and subthemes; quotes are attributed to individual participants using letters. This activity was reviewed by the Centers for Disease Control and Prevention (CDC) and determined to be exempt from Human Research Protection Office review; work was conducted consistent within applicable federal law and CDC policy.[§]

Results

A total of 24 residents completed an interview, 15 by telephone and 9 in-person. Most interviewees were white, female, and >30 years old. We identified two themes that were shared with local authorities for insight into how public health action and recovery efforts could be improved.

First, most respondents shared a poor impression of the Fire-related communications and information available to the community since the disaster (n = 18, 75.0%). Respondents expressed doubt, confusion, and uncertainty associated with Fire-related communications.

“There’s so much cover-up and lying going on”

(A)

“No one knows what’s truth, what’s not, what’s hearsay ... I think that’s that hardest part.”

(B)

Respondents also frequently noted that they felt the community lacked any information from authorities at the regional, state, or national level (n = 14, 58.3%).

“I would like a report about what is happening [with the cleanup].”

(C)

“If you don’t know you don’t know. Just be transparent.”

(D)

“[There’s] been a lack of information in a timely way”

(E)

When information reports were made available by local authorities, respondents found the language overly technical and filled with jargon. This information was inaccessible in its ability to be understood.

“[I want] something put in English people can understand ... something that someone without a chemical degree can understand”

(F)

[§]See e.g., 45 C.F.R. part 46; 42 U.S.C. §241(d); 5 U.S.C. §552a; 44 U.S.C. §3501 et seq.

Second, respondents highlighted physical aspects of the community that they associated with “normalcy”. For example, respondent fears and concerns were frequently discussed in the context of personal gardens or hobby gardening. Eight respondents (47.1%) noted their fear of unknown environmental contamination in their gardens leading them to wonder whether it would be safe to garden soon, or ever again.

“For years, we had a vegetable garden. We plowed it under [and are] not using it right now.”

(E)

“I had to get rid of all my vegetable garden which was just planted. Now do you have to get rid of soil?”

(G)

“People used to be outside in their gardens and yards at night around here ... now they don’t do that anymore... you just don’t see that anymore”

(H)

Additionally, several respondents pointed to the still-standing ruins of the former manufacturing facility as a physical source of stress. Respondents were unclear as to why the facility had not been totally removed from their community and this concerned them; uncertainties associated with the reason for its persistence and the effect it may have had on the environment in the meantime were noted.

“I think they should have knocked [the facility] down earlier ... it’s been almost a year and it’s still up. A personal ... house fire would have been knocked down immediately. Why is the [facility] still standing?”

(I)

“They should’ve been cleaning up immediately after – that facility should’ve been taken down. Instead, it’s been 13 months and it [has] rained and snowed in the meantime. The facility should have been cleaned up as soon as it had cooled down.”

(J)

Discussion

In the year after the Fire, interviewees were seeking more disaster-related information, but also more interpretable information. Research suggests that effective communication can help mitigate mental health distress following a disaster,⁹⁻¹¹ yet public health messaging is only as effective as its ability to be understood. Our ACE investigation results reinforced the local health department’s ongoing efforts to communicate with the public in a more understandable and succinct manner (including in social media posts, press briefings, and decision-making tools). Federal resources also exist to assist public health authorities in crafting effective messaging, including broader standards, like the CDC’s Clear Communication Index,¹² or specific guides, like the ATSDR-affiliated Environmental Health Social Media Toolkit.¹³

This qualitative component of the ACE investigation also provided insight into topics or concerns that local authorities could use to engage the community meaningfully. For instance, interviews revealed a common concern over backyard gardening. With this awareness, effort could be made to host gardening-specific townhall meetings or mail flyers with information on soil sampling data or raised garden bed advice for those who prefer to use new soil. Ultimately, one's ability to return to former hobbies and interests has been shown to be just as important as addressing health or financial impacts in returning to normalcy post disaster.⁹

Overall, our results support the utility of qualitative data post-disaster, specifically through its ability to offer a recovering community the chance to express sentiments, desires, and concerns in their own words—leading to opportunities to develop more tailored, actionable steps for public health officials during long-term recovery.

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Table 1:

Semi-structured survey questions

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| 1. What do you remember most about the explosion and fire last year at [the manufacturing facility]? |
| 2. How did you first hear about the explosion and fire at [the manufacturing facility]? |
| 3. Based on your experiences and observations, how has [the fire] situation been handled so far? Please explain both successes and failures if you can think of them. |
| 4. What should public health, county leadership, municipal leaders, [manufacturing facility] owners, and other decision makers know about your experience since the fire last year? This could be related to anything—perhaps your physical, mental, or financial wellbeing. |
| 5. Is there anything else you would like to let community leaders know? |
| 6. From whom would you trust new information about the fire? |
| 7. Is there anything else you would like to tell us today? |