

Five years after water crisis, 1 in 5 Flint residents has PTSD

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Data from the largest mental health survey of the Flint, Michigan community indicate that one in five adults, or roughly 13,600 people, were estimated to have clinical depression, and one in four, or 15,000

people, were estimated to have PTSD five years after the water crisis began.

"The mental health burden of America's largest public-works environmental disaster clearly continues for many adults in Flint," said Aaron Reuben, a postdoctoral scholar at Duke University who led the research, which appears Sept. 20 in *JAMA Network Open*.

On April 25th, 2014, the city of Flint switched its water supply from Lake Huron and the Detroit River to the Flint River and failed to properly treat the water supply to prevent lead and other elements from leaching out of the city's old water pipes. Virtually all Flint residents were consequently exposed to drinking water with unsafe levels of bacteria, disinfection byproducts, and lead, a neurotoxicant.

Flint drinking water was not declared lead-free until January 24, 2017. During the crisis, tens of thousands of children and adults in Flint developed high blood-lead levels, putting them at greater risk for cognitive deficits, [mental health problems](#), and other [health problems](#) later in life.

"We know that large-scale natural or human-caused disasters can trigger or exacerbate depression and PTSD," said Dean Kilpatrick, Ph.D., Distinguished University Professor in the Department of Psychiatry and Behavioral Sciences at Medical University of South Carolina and senior author of the study.

Kilpatrick noted that there was clear evidence of high rates of mental health problems in the Flint community during the first years of the crisis. "What we did not know until now was the extent to which Flint residents continued to have mental health problems at the clinical diagnosis level five years after the crisis began."

According to Kilpatrick, past year rates of depression and PTSD identified in Flint today are three to five times greater than national estimates among US adults overall, and likely result from a combination of higher base rates of mental health problems in Flint before the crisis as well as a significant exacerbation of problems resulting from the crisis.

"The vast majority of our respondents were never offered mental health services," said Reuben, "despite clear indication that the crisis was psychologically traumatic."

Most Flint residents who were offered mental health services went on to use and benefit from them. "Now that pipes are being replaced, the time is right to begin a second phase of recovery from the water crisis—one that focuses on providing additional resources to heal psychological wounds," Reuben said.

Kilpatrick said residents of Flint, a predominantly [low-income](#), Black community, faced many challenges before the [water crisis](#) that can erode mental health, including socioeconomic disadvantage, racism, and high exposure to potentially traumatic events, including prior physical or [sexual assault](#).

Particularly striking was the finding that those with prior physical or sexual assault were more than three times more likely to have depression and more than six times more likely to have PTSD than those without this history. "This highlights the importance of considering the cumulative effects of prior exposure to traumatic events when evaluating the effects of environmental disasters on mental health," Kilpatrick said.

Depression and PTSD are among the most common and impairing of mental disorders, costing well over \$326 billion a year in America due to lost work hours and costs of medical care.

"We study these problems after disasters because they are common outcomes and because they are significantly impairing to individuals and communities," said Sandro Galea, MD, DrPH, Robert A. Knox Professor and Dean at the Boston University School of Public Health and a co-author on the study. "But we also study these problems because we have good treatments that are effective for most people."

Study findings suggest that more should be done to provide mental health treatment for residents of Flint.

"There is a clear unmet need," said Reuben, who is also a postdoctoral scholar at MUSC. "Nearly 100% of surveyed Flint residents reported that they changed their behavior to avoid consuming [contaminated water](#) during the crisis, and the vast majority still worry that the exposures they had may cause future health problems for themselves or their family members."

According to Reuben, uncertainties about exposures and future harms meaningfully contribute to psychological distress after environmental disasters, and the study found that adults who thought exposure to contaminated water had harmed their or a family member's health were significantly more likely to have past year depression and PTSD.

Data were collected on perceived exposure to contaminated water, past year prevalence of depression and PTSD using DSM-5 diagnostic criteria, and potential risk factors for depression and PTSD including prior exposure to potentially [traumatic events](#), prior physical or sexual assault, and low social support. Adults were also if they ever were offered or received [mental health services](#).

More information: Prevalence of Depression and Posttraumatic Stress Disorder in Flint, Michigan, 5 Years After the Onset of the Water Crisis, *JAMA Network Open* (2022). [DOI:](#)

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