

Air Quality and Mental Health

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The BRIDGES Society is a non-profit mental health support and promotion agency in Hinton. BRIDGES' mission is to cultivate mental wellness through a variety of programs in a safe environment for everyone. Our five programs are Outreach and Referrals, Peer Support, Community Meal Program and Social Arts & Social Recreation programs. We serve everyone regardless of demographic, diagnosis or ability. The foundational goals of our programs are to connect our clients to services, to each other and to other people in the community for support, physical and social activity, mental health education, and a sense of connectedness and belonging that enriches their lives. That said, we are not psychologists, counsellors or experts. But I have been invited to speak about air quality and mental health, and I have some information from an amazing article at VeryWellMind.com, (<https://www.verywellmind.com/mental-health-effects-of-wildfire-smoke-5198018>) and some local perspectives to share with you today.

I think we can all agree on common understanding that poor air quality due to pollution and wildfire smoke negatively impacts health. A comprehensive study in 2019 showed that exposure to particulate matter in the air was associated with anxiety, depression, and even suicide¹. [Isobel Braithwaite, MBBS, MPH](#), first author of the study, discussed the danger of short-term, low-quality air, citing a rise in the rate of suicide, in the days immediately following a peak in air pollution. This is just one finding; there are several studies that show similar findings suggesting a link between wildfires, poor air quality and increased emergency room visits for depression and suicide. A more illustrative 2017 study found that those exposed to more airborne particulate matter had significantly higher levels of stress hormones in their blood serum, illustrating that wildfire airborne particulate is not only psychologically stressful, but also affects normal hormone function. Sarah Rahal, MD, a pediatric neurologist and expert on environmental medicine explains that the particulates cause inflammation and trigger the immune cells in the brain to cause a stress response. Additionally, direct toxicity of these particles to certain neurons in the nervous system can result in *neurotoxic affects*

¹ Braithwaite I, Zhang S, Kirkbride JB, Osborn DPJ, Hayes JF. [Air pollution \(particulate matter\) exposure and associations with depression, anxiety, bipolar, psychosis and suicide risk: a systematic review and meta-analysis](#). Environ Health Perspect. 2019;127(12):126002.

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*which could cause changes in brain structure and lead to neurological issues, especially in children.*²

More recently, in *Psychology Today* (June 2023) a meta-analysis of the many studies on wildfire affect on mental health concluded significant associations were found between wildfire exposure and [anger](#) issues, posttraumatic [stress](#) disorder, specific [phobia](#), severe psychological distress, and heavy drinking (Gao et al., 2023).³

These effects are long-term. One study even found that 10 years after the occurrence of a wildfire, 22 percent of the surrounding region had a higher risk of mental-health problems and an increased risk for heavy drinking (Gao et al., 2023).

A paper from *Frontiers in Psychiatry* reported results from over 9000 surveyed adolescents ages 11 to 19 who lived in the region near the 2016 Fort Murray Wildfire, where all symptoms related to measures of mental illness increased from 2017 to 2019, including measures for posttraumatic stress disorder, [depression](#), [anxiety](#), drug use, quality of life, [self-esteem](#), and [resilience](#) (Brown et al., 2021⁴). Only scores of resilience remained unchanged over the 3.5-year follow-up. These results failed to support the hypothesis of the researchers who believed that mental-health measures would improve in years after the occurrence of wildfires.

Another perspective I'd like to highlight today is that of vulnerable peoples such as low-income, disabled, and unhoused persons, and those living with addiction. As an agency that serves these folks, I can say that last year's experience with wildfire evacuations in our region and the perceived potential that Hinton could be at risk highlighted the gaps in access to accurate and up-to-date information. Alpha Lachance, Activity Coordinator for the BRIDGES Society said that during the wildfire season and evacuation periods in this region, she spent a lot of time with nervous clients, providing reassurance and repeating the latest information from the Town of Hinton, and helping them understand what was posted, where to go for help, and if necessary, transportation. Many were

² Calderón-Garcidueñas L, Engle R, Mora-Tiscareño A, et al. [Exposure to severe urban air pollution influences cognitive outcomes, brain volume and systemic inflammation in clinically healthy children](#). *Brain Cogn*. 2011;77(3):345-355. doi:10.1016/j.bandc.2011.09.006

³ Gao, Y., Huang, W., Yu, P., Xu, R., Yang, Z., Gasevic, D., ... & Li, S. (2023). Long-term impacts of non-occupational wildfire exposure on human health: A systematic review. *Environmental Pollution*, 121041.

⁴ Brown, M. R., Pazderka, H., Agyapong, V. I., Greenshaw, A. J., Cribben, I., Brett-MacLean, P., ... & Silverstone, P. H. (2021). Mental health symptoms unexpectedly increased in students aged 11–19 years during the 3.5 years after the 2016 Fort McMurray wildfire: Findings from 9,376 survey responses. *Frontiers in Psychiatry*, 12, 676256.

afraid they'd be left behind in an evacuation because they didn't have transportation sorted.

The Town of Hinton was diligent in updating, but I don't think many people know there's an email subscription service to get notices. Additionally, our most vulnerable folks may not have cell data, internet, or even devices to get this information. And though several organizations share this info through our social media outlets, not everyone uses those outlets. And furthermore, when they do find information through these contact points, it might not be accessible for their literacy level. Another thing Alpha noted was how air quality prevents clients from leaving their homes to come for social programming. Access to free public transit during times of very poor air quality would help folks maintain some of the activities they usually rely on to maintain their mental well-being.

Kate Willis is the Manager of the Hinton Food Bank. Last year during the Edson Evacuations she also worked at OPTIONS HIV West Yellowhead, which is a non-profit in Hinton which addresses harm reduction. She shared this with me:

-During the Edson evacuations, 2 young women were evacuated here to Hinton. They were left in Hinton. One of those individuals died of an Opioid Poisoning in October. I worry for the folks we serve, if they would be evacuated then left behind. Homes are more than houses; homes are also communities, services, friends, family. When folks are displaced, everything becomes so much more difficult. Who will be checking in to make sure all our community members make it home?

-Many of the folks we serve do not have a phone, connection to the internet or even electricity. How will they be informed if it is an emergency situation? Will there be transportation? Will warming/cooling centres be set up? Many of our folks do not have a shelter. What if when sheltered they are experiencing mental health issues and it disrupts others (talking to themselves, can't regulate their emotions)? What if they are caught using drugs? That happened during the Edson evac in Hinton and the 2 young ladies I mentioned above were "kicked" out to the street.

This is a stressful situation for all. Folks with a disability might have an even more difficult time navigating it and looking for accurate information on the internet. Some folks with FASD seemed to struggle to find the important info and make sense of it last year. There was a lot of misleading info to sift through. We need to make it at different literacy levels and easily accessible and have supports in place to help the best we can and ease uncertainty.

Marj Luger, Executive Director of the Yellowhead Emergency Shelter for Women shared this:

We have central air conditioners and notice a huge improvement in the inside air quality when it is very smoky outside. We do have to change our filters more often when the air quality is bad.

For us at the shelter we have noticed that clients do not leave the house as much. Many do not go out, or attend other community agency programming, or even go out to socialize with their own support networks. Walking to find employment or to attend work is difficult, as their eyes, nose, throat and lungs hurt when outside. Staying inside with the windows closed and no access to fresh, clean air can lead to boredom and depression. When the sky is grey with smoke there is apprehension about their own personal safety and wonder how close the fires are to Hinton.

Staff often have to deal with questions and try to calm families down, while worrying about their own personal apprehensions, their homes and personal families' safety when fires are close.

Last year when the Edson fire was approaching Hinton and the threat of an extended power outage, made the shelter implement our safety plan to get families to other shelters before an evaluation notice. Grande Canche shelter offered to house our clients if need be. Fortunately, we did not need to transport our in-house families. The shelter has since purchased a power generator in case of power outages.

Among Hinton's service providers, I believe there is a consensus that community mental health declines with poor air quality and with threat of wildfire, and that there are few resources to address this. We would benefit from a unified communication strategy and a solid plan to help the most vulnerable deal with evacuations and returns, as well as more information about the health risks associated with poor air quality. I believe that there is still a prevalent but erroneous belief that only the very young, seniors and those with respiratory or other chronic health conditions are at risk. Thank you for inviting me to share this with you.