

## Research Summary

### Psychological health of adults 8.5 years after the 2014 Hazelwood mine fire

September 2024



## Background

The fire in the Morwell open cut brown coal mine adjacent to the Hazelwood Power Station blanketed the town of Morwell and the surrounding area in smoke and ash for six weeks in February and March 2014. The smoke event was recognised as one of the most significant air quality incidents in Victoria's history. It caused considerable concern within Morwell and the broader community. In response to these concerns, and following extensive community consultation, the Hazelwood Health Study was established to examine the impacts of the mine fire. The Hazelwood Health Study involves multiple research streams targeting different health outcomes and different vulnerable groups.



## What we did

Morwell residents who had previously participated in both the 2016-2017 Adult Survey and the 2019-2020 Mental Health and Wellbeing Follow-up Survey were invited to participate in a third survey round in 2022. In all three survey rounds, we measured current posttraumatic stress resulting from exposure to the 2014 mine fire using the Impact of Events Scale-Revised (IES-R), and current psychological distress using the Kessler General Distress (K10) scale. In this latest survey round, we also measured growth associated with exposure to the mine fire with the Posttraumatic Growth Inventory: Short Form (PTGI-SF), along with other important personal and social circumstances such as social support, education, employment, and experiences of other stressful life-events. In total, 524 people participated in the third survey round.

### Analysis aims

This analysis investigated whether smoke exposure during the event, sociodemographic circumstances, personal health, other adverse experiences, and social connectedness were associated with mine fire-related posttraumatic stress, general psychological distress, and mine fire-related posttraumatic growth in Morwell residents 8.5 years after the mine fire.



## What we found

On average, mine fire-related posttraumatic stress had largely dissipated by the time of the third survey round, 8.5 years after the event. Notably, this was different to the findings at the second survey round, where posttraumatic stress levels had increased overall, likely because the Black Summer bushfires that were occurring at the time triggered sensitivities arising from the earlier mine fire.

In contrast to the posttraumatic stress results, we found that the average level of general psychological distress in Morwell had been steadily increasing across the survey rounds, reaching moderate levels across the cohort. Higher general psychological distress levels at the third survey round were associated with being younger, physical health symptoms, concerns in relation to the COVID-19 pandemic, recent stressful life events, lower household income, less social support, and loneliness. Exposure to mine fire smoke in 2014 was not associated with levels of general psychological distress 8.5 years later.

In addition, we found that there was some evidence of posttraumatic growth, such as greater appreciation of life and taking on new priorities since the mine fire, among those participants who had reported the most mine fire-related posttraumatic stress in the first survey round.

A detailed report describing the findings from this analysis can be found at <https://hazelwoodhealthstudy.org.au/study-findings/study-reports>



## Considerations

The experiences reported by the 524 participants in the latest survey round may not necessarily reflect the breadth of experiences across the entire community. Older people, for example, were less likely to participate in the third survey round and, therefore, their experiences may not be accurately represented.



## Where to from here?

Our findings will be shared with local, state and international audiences to ensure that the Study leads to meaningful change in health service provision and how future environmental disasters are responded to.

### Meet the team

Matthew Carroll  
Timothy Campbell  
Catherine Smith  
Caroline Gao  
Darryl Maybery  
Emily Berger  
David Brown  
Shantelle Allgood  
David Poland  
Jillian Ikin  
Susan Yell

The Hazelwood Health Study is led by Monash University with collaborators from Menzies Institute for Medical Research, Federation University, The University of Adelaide, and CSIRO.

The research was funded by the Department of Health.