



Research Summary

The ongoing psychological health in adults six years after 2014 Hazelwood mine fire

December 2020

Analysis aims

This analysis aimed to investigate whether levels of psychological distress in adult Morwell residents have changed in the three years since the 2016-2017 Adult Survey. The analysis also investigated whether changes in psychological distress were associated with smoke exposure during the event, and examined the role of other risk factors.



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 community 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 HHS involves multiple research streams targeting different health outcomes and different vulnerable groups.



Meet the team

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What we did

We invited a sample of Morwell residents who participated in the 2016-2017 Adult Survey to complete a Mental Health and Wellbeing Follow-up Survey. In both survey rounds, we measured psychological distress experienced specifically in relation to the 2014 Hazelwood mine fire (Impact of Events Scale-Revised: IES-R), and psychological distress experienced more generally (Kessler-10 Scale: K10). We estimated smoke exposure levels for each participant using CSIRO data on the density of fine airborne particles (PM_{2.5}) in the smoke plumes. In total, 713 people participated in the follow-up survey.

A more detailed paper describing the findings from this analysis can be found at

<https://hazelwoodhealthstudy.org.au/study-findings/publications>



What we found

The main finding was that, 6 years after the Hazelwood event, there was a continuing relationship between participants' level of exposure to PM_{2.5} during the 2014 mine fire and the level of ongoing psychological distress they associated with the event, with the most exposed people reporting higher distress levels on the IES-R. In addition, participants' psychological distress (scoring on both the IES-R and K10) increased in the three years between the two survey rounds. Consistent with the earlier Adult Survey analysis, the impact of PM_{2.5} exposure on event-related psychological distress was most severe for younger adults. Furthermore, higher psychological distress remained associated with several other key risk factors, including asthma, chronic obstructive pulmonary disease (COPD), having experienced multiple prior traumatic events, and being unemployed or unable to work.

Considerations

The data collection period for the follow-up survey (December 2019 to March 2020) coincided with the catastrophic bushfire and smoke events that impacted south-eastern Australia during the 2019-2020 summer. These background circumstances likely had an influence on some participants' survey responses, and may be one of the reasons for the increasing distress levels between the two rounds.



Where to from here

This is the first of several analyses planned for the data collected in the follow-up survey. Analyses in 2021 will explore the role of additional factors important to understanding mental health outcomes, including social support, loneliness, resilience, and community wellbeing. A third survey round to further explore long-term mental health outcomes in the Morwell community is planned for 2022.



The HHS is led by Monash University with collaborators from Menzies, Federation University, The University of Adelaide, and CSIRO.

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