Communicating Through the Haze - Health Outcomes of Bushfire Smoke Exposure and Efficacy of Communication Techniques: A Scoping Review

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BACKGROUND

- Bushfire events are global phenomena and they compel health and emergency services to disseminate crucial health information in a timely manner or risk illness, disability, and loss of life [1, 2]. Beyond physical fire damage, the associated smoke that is produced can impact a much larger proportion of the population [3, 4].
- As climate change triggers natural disasters with increasing frequency and intensity [5], we aim to assess the evidence surrounding adverse health effects of bushfire smoke exposure and recommendations regarding optimal public communication strategies in smoke-related disaster scenarios.

METHODS

Database search

Articles identified from three databases:
- PubMed = 515
- ProQuest = 295
- Web of Science = 82

892 total records

Title and abstract screening
- 20 duplicates excluded.
- 852 records screened
- 710 excluded

Full text articles screened
- 142 records assessed.
- 75 excluded.
- 67 records included.

Stratification into communication or health outcomes.
- 3 records fit into both categories.
- 40 records focused on communication strategies.
- 30 focused on health outcomes of bushfire smoke exposure.

RESULTS

Communication during bushfires

10 articles based in Australia
30 articles outside Australia

Articles discussed origin, media form, traditional (television, radio, newspapers, hotlines, meetings, websites) and non-traditional (social media, Twitter, Facebook) sources, media choices. Articles discussed message style, content, limitations. Non-traditional media sources provide real-time and targeted information, tracking of bushfires and warnings.

- Under 40 years old preference for social media, television and newspapers. Over 40 years old preference radio and newspapers.
- Message content included guidance, time frame, specific hazards, updates.
- At-risk populations included elderly, paediatric, culturally and linguistically diverse, pre-existing medical conditions (e.g., cardiorespiratory).
- Content was suggested to be clear, specific, accurate and consistent to increase public participation and uptake.
- Clear branding by official organisations are suggested. Multiple forms of message content distribution are recommended.
- Limitations identified: deaf and hard of hearing populations, visually impaired populations, sensationalism of events, the rise of misinformation in social media.

Bushfire smoke health outcomes

10 articles based in Australia
20 articles outside Australia

Articles discussed adverse health outcomes, health seeking behaviour during smoke events, and morbidity/mortality data. Others discussed at-risk populations.

- Increased emergency department visits and hospitalisations during bushfire events for asthma, COPD, and cardiovascular causes.
- Increased respiratory morbidity, but unclear cardiovascular morbidity and mortality due to bushfire smoke exposure.
- Increased all-cause mortality associated with bushfire smoke events.
- Mild psychological distress associated with bushfires, and psychiatric illness experienced up to 5 years post-event.
- At-risk populations included paediatric, elderly, females, low socioeconomic, First Nations people, those with pre-existing health conditions.

DISCUSSION

- Cannot overstate value of sustained health messaging before bushfire season [6, 7].
- Despite increased social media use, reliance of traditional sources continues [8]
- Continuing use of TV, newspapers and radio ensures at risk groups such as the elderly are reached
- More improvement on targeting at risk groups such as culturally and linguistically diverse, audio/visually impaired must occur [9, 10]
- Most presentations to hospital involved the emergency department only, suggesting most health outcomes are adequately managed in an acute setting [11]
- Heterogenous reporting on how bushfire smoke-induced morbidity and mortality manifests
- Common respiratory morbidity included exacerbations of asthma, COPD, and respiratory tract infections [10]
- In hyperacute settings, associated cardiac mortality included out of hospital cardiac arrests in adult males [12]
- Smoke-induced psychological distress is difficult to specify [13]
- Possible causes include isolation, and disruption to normal activities [13]

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