# Do Current Emergency Warning Messages Encourage Readiness to Act?

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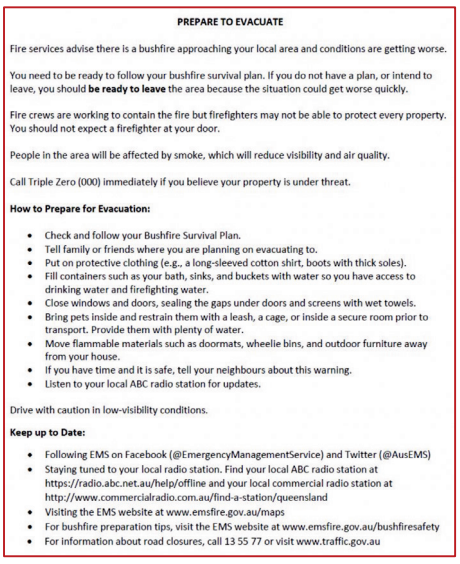
**Natural hazards provoke considerable uncertainty but community members often 'under-react' when confronted with messages warning them of imminent hazards. How well do current emergency warning messages encourage community members' readiness to act on emergency instructions?**

Since the release of the *National Review of Warnings and Information* (EMV, 2014), emergency service agencies across Australia have increasingly adopted emergent evidence-based practice in the construction of emergency warning messages.

In this research, we aim to investigate the extent to which current emergency warning messages (which have been optimised to match current evidence-based practice) encourage community members' readiness to act on emergency instructions.

We draw on a socio-psychological precautionary adaption model (Grothmann & Reusswig, 2006) that is underpinned by Protective Motivation Theory (Prentice-Dunn & Rogers, 1997).



**PREPARE TO EVACUATE**

Fire services advise there is a bushfire approaching your local area and conditions are getting worse.

You need to be ready to follow your bushfire survival plan. If you do not have a plan, or intend to leave, you should **be ready to leave** the area because the situation could get worse quickly.

Fire crews are working to contain the fire but firefighters may not be able to protect every property. You should not expect a firefighter at your door.

People in the area will be affected by smoke, which will reduce visibility and air quality.

Call Triple Zero (000) immediately if you believe your property is under threat.

**How to Prepare for Evacuation:**

- Check and follow your Bushfire Survival Plan.
- Tell family or friends where you are planning on evacuating to.
- Put on protective clothing (e.g., a long-sleeved cotton shirt, boots with thick soles).
- Fill containers such as your bath, sinks, and buckets with water so you have access to drinking water and firefighting water.
- Close windows and doors, sealing the gaps under doors and screens with wet towels.
- Bring pets inside and restrain them with a leash, a cage, or inside a secure room prior to transport. Provide them with plenty of water.
- Move flammable materials such as doormats, wheelie bins, and outdoor furniture away from your house.
- If you have time and it is safe, tell your neighbours about this warning.
- Listen to your local ABC radio station for updates.

Drive with caution in low-visibility conditions.

**Keep up to Date:**

- Following EMS on Facebook (@EmergencyManagementService) and Twitter (@AusEMS)
- Staying tuned to your local radio station. Find your local ABC radio station at https://radio.abc.net.au/help/offline and your local commercial radio station at http://www.commercialradio.com.au/find-a-station/queensland
- Visiting the EMS website at www.emsfire.gov.au/maps
- For bushfire preparation tips, visit the EMS website at www.emsfire.gov.au/bushfiresafety
- For information about road closures, call 13 55 77 or visit www.traffic.gov.au

Figure 1. Mock emergency warning (1 of 4)

## METHOD

A total of 1,595 Australians across all states/territories participated in a survey. Participants read one of four mock emergency warnings (see Figure 1) about either a bushfire or a riverine flood and were then asked a series of questions relating to demographic characteristics, message comprehension and effectiveness, threat appraisal, coping appraisal, protection motivation and maladaptive coping behaviour. Riskiness of colour was also assessed (see Figure 2). Data were analysed using ANOVA and multiple regression.

## FINDINGS

Overall, results show that optimised warning messages perform well. Optimised warning messages:

- are highly comprehensible and effective;
- provoke a moderate and appropriate threat appraisal (perceived probability and severity of hazard, and fear); and
- contain instructions that participants perceived (i) they could execute well (perceived self efficacy), (ii) would be highly protective (protective response efficacy) and (iii) were low cost (response cost).

Together, risk probability, risk severity, fear, perceived self efficacy, protective response efficacy, and protective response costs accounted for nearly 60% of the variation in protection motivation.

| Colour (rated on Likert scale from 1 to 7) | Fire | | | Flood | | |
|---|---|---|---|---|---|---|
| | n | Mean | SD | n | Mean | SD |
| Green | 109 | 2.12 | 1.458 | 119 | 2.15 | 1.516 |
| Blue | 112 | 2.41 | 1.305 | 117 | 2.56 | 1.561 |
| Yellow | 113 | 4.06 | 1.128 | 113 | 4.15 | 1.381 |
| Orange | 116 | 4.48 | 1.115 | 112 | 4.29 | 1.128 |
| Red with black hatch | 116 | 6.01 | 1.099 | 114 | 5.89 | 1.181 |
| Red with white hatch | 117 | 6.16 | 1.050 | 110 | 6.07 | 1.047 |
| Red | 114 | 6.5 | .844 | 113 | 6.52 | .846 |

Figure 2: Perceived riskiness by colour

### What about maladaptive responses?

Optimised warning messages also generate maladaptive responses. Together, risk probability, risk severity, fear, perceived self efficacy, protective response efficacy, and protective response costs accounted for just over 20% of the variation in fatalism, 34% of the variation in denial, and 15.7% of the variation in wishful thinking.

After controlling for the effects of the other variables, response cost has the strongest association with all three maladaptive coping responses, uniquely explaining 8.5% of the variation in fatalism scores, 11% of the variation in denial scores, and 5.1% of the variation in wishful thinking scores.

Reducing perceived response costs may reduce potential maladaptive responses.

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