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informing message tailoring and
audience segmentation**

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On heatwave risk communication to the public: new evidence informing message tailoring and audience segmentation.

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Abstract

Heatwave risk communication campaigns and warnings cannot be ‘all things to all people’. Conventionally, age (very young and older people) and pre-existing health conditions are used as key vulnerability factors upon which heat-health messages are tailored, targeting segmented audiences. Arguably, these segmentation criteria are too blunt, and are at risk of neglecting acutely vulnerable individuals and households who struggle with multiple, interlaced social vulnerabilities, including: poor quality housing, social isolation, living in ‘hot spot’ suburbs (urban heat islands caused by lack of vegetation), low socio-economic status, and health and mental health problems. Employing qualitative and survey methods, findings suggest that greater attention should be paid to the tailoring of heatwave messages consistent with the ‘lived experience’, values and understandings of vulnerable communities. Doing so which will improve message salience. Moreover, findings suggest that communicated heatwave information was commonly perceived as ‘redundant’ (superfluous and ‘common sense’ information). Carefully tailored messages bearing contextualised adaptation strategies may overcome information redundancy, empowering vulnerable individuals and households to enhance their resilience to heatwaves.

Introduction

Communicating to the lay public about heatwaves and their risk is not an unequivocal activity. In part this is because how information and warnings are received, evaluated and responded to is largely contingent on what people already ‘know’ about the hazard, its risk, and their perceived adaptive capacity and vulnerability (Joffe, 2003). Adding to this

complexity, and in spite of heatwaves claiming many more lives in Australia than any other natural hazard, it would be fair to say that heatwaves are not always viewed as belonging to the same class of natural hazards or associated with the same degree of risk as, say, cyclones, floods, bushfires, tsunamis and earthquakes. Ostensibly, this may be because heatwaves have been experienced by most Australians, who have, over many years, been able to adapt to its health risk. Through these experiences, arguably, heatwaves have been rendered a 'normal' hazard. Indeed, Australians have long conceived long hot summers as a climatic norm and, of course, a facet of our culture, represented and sometimes celebrated in poetry, novels, film, and summer sports.

Compounding these problems of risk and vulnerability perception is the inherent challenge in fashioning compelling, emotive, and evocative 'representations' (systems of images, symbols, discourses, motifs) of heatwaves. Effective risk communication is partially dependent on using collectively shared representations to help people make sense of a hazard, its risk, and potential adaptations (Castoridis, 1975). In this way, meaning is gleaned through risk imagery we see on the news, as part of warnings, and through our language and conversations. Heatwaves, then, are problematic in that their risk can be difficult to communicate in a fashion that drives the need for protective action.

Nevertheless, it is imperative that heatwave risk communication evolves to meet the needs of diverse communities, especially in a context of a rapidly changing climate system that is inducing more extreme and longer lasting heatwaves. Considering the need to enhance community disaster resilience the current study, as part of a larger research programme on heatwave communication, explores the social meanings attributed to heatwaves by the lay public. We propose that by examining lay publics' systems of meanings, discourses, or common sense 'logics', we can thus inform the design of efficacious and salient messaging that can promote protective behaviours in heatwaves.

Method

Semi-structured focus groups and interviews were employed to explore social thinking on heatwaves, their risk, and how heatwave messages are being received and used to inform

behaviour. Focus groups were held in diverse communities across South Australia: Mount Gambier (2), Port Augusta, Onkaparinga, Whyalla, Davoren Park, and Elizabeth. A total of 63 individuals (Female: 31; Male: 26) attended the focus groups, ranging in ages from 18 to 78. Focus groups on average ran for 60-80 minutes.

Seventeen (17) semi-structured interviews were conducted over the phone, recorded, and transcribed verbatim. The interview sample was composed of 10 females and 7 males, ranging in age from 18 to 83, and from rural and metropolitan regions of South Australia. Interviews ran for between 20 and 45 minutes.

Transcripts were analysed using Thematic Analysis (Braun & Clarke, 2006). An iterative process of close-reading and rereading of transcripts generated the initial coding frame. The coded extracts were sorted into overarching thematic categories and subcategories. The aim was not to provide a description of the whole data set; instead, analysis focused on a restricted selection of salient themes that could inform heatwave messaging.

A 27-item survey instrument was designed and informed by a literature review. The survey was composed to explore: a) heatwave risk and vulnerability perceptions; b) perceived message fatigue; c) air-conditioning behaviours and c) heatwave message sources and channels. A total of 422 South Australians completed the survey. The survey sample was broadly representative of the South Australian population.

Findings and Discussion

The themes discussed here are theorized as providing insight into public thinking on heatwaves and, in accord with the interactive approach (Sellnow et al., 2007). These themes are treated as discourses circulating in participants' communities. As such, these discourses can be employed by risk communicators to meaningfully engage in dialogue with communities on heatwave communication, evaluate current messaging, and inform new warnings and preparatory risk communication interventions. The extracts shown here are exemplars drawn from the recurrent themes identified through the analysis.

Adaptation - the contingent role of socio-economic contexts

Heatwave risk communication rarely addresses the contingent role of socioeconomic conditions that people live with, and how these influence individuals' ability to follow recommended actions to ameliorate vulnerability to heatwaves. In the present study, some participants were highly conscious of their vulnerability to heat. Their perceived vulnerability was often associated with an adverse personal experience, and the very real material, socioeconomic conditions they experienced (or still face), which constrained their capacity to take protective action. The following extract is drawn from an interview with a man who had been homeless for a number of years and was living in his car. His experience of living through a heatwave with no access to housing, air-conditioning, running water, social supports, and with a medical condition that made him particularly prone to heat, paints a vivid picture of the socio-economic conditions that circumscribe potential behavioural choices in heatwaves.

Scott: From your recollection did you used to worry a lot about the heat? It sounds like you did when you were homeless.

P: Absolutely, yeah, because if I passed out in the car no-one would know. I would just be there, there'd be no-one around to help. I was concerned, yep. Mainly because you're homeless, if you go into unconsciousness nobody knows. It's not like you've got neighbours here where they all look out for each other or maybe you live with a family or something. There was times when I felt really faint, but I managed to get through it. It makes you feel uneasy just thinking about it, but I want to talk about it, but it makes me feel really uneasy. You go through that – you sort of re-live that feeling. (M, 74, Adelaide).

Although this man's perception of heatwave risk and personal vulnerability in this context was a necessary condition for him to take actions to protect himself, it was patently not sufficient for him to take all the necessary adaptation actions to mitigate his risk. In other words, while he very well understood the grave risk to health that heat posed to him, because of his homelessness and social isolation, he could not, for example, access air-conditioning nor seek the medical support so fundamental to his safety.

Stable and safe housing is a foundational determinant of health and active participation in society. Homelessness, poor quality and badly insulated housing, and living on a low income are often associated. Research (Nichols, McCann, Strengers, & Bosomworth, 2017) shows that vulnerable households will limit the use of their air-conditioning - if they have it - because of affordability concerns. The following extract is drawn from a focus group with young adults, most of whom were living on a low-income in public housing or private rental accommodation. Perception of heatwave risk was interpreted through a lens of their current housing arrangements and access to air-conditioning.

Scott: Would you say you worry about heatwaves?

P: When I was working outside, yeah I did, because it wasn't good. Now I do as well because my house isn't air conditioned so I don't look forward to that.. Yeah, I also worry for my animals as well...I have cats (F, 23, Adelaide).

There is growing evidence that heatwaves discriminate against those who do not have access to, or cannot afford, good quality housing and effective air-conditioning (Nichols et al., 2017). Access to these adaptation resources are fundamental to staying safe in heatwaves, especially when other adaptation behaviours such as leaving the house to find somewhere cool are not safe or practicable. Other vulnerabilities including old age combined with poor health compounds the importance of air-conditioning, as the following extract suggests.

P: If it's hot, it's hot, it's cold it's cold, it doesn't really – we're all right at the moment, trouble is as you get a bit older it's going to affect you a bit more, it's going to slow you down or you're going to suffer, those that don't have air-conditioning or heating depending on the time of the year you're going to suffer. At the moment it doesn't worry me but down the track it may because you've got to sell the house and you've got no air-conditioning, what are you going to do, sleep out in a tent outside? (M, 72, Elizabeth).

These extracts underscore a key limitation of generic, non-targeted heatwave messages: they often fail to reflect the lived experience of vulnerable communities or recognise that promoted actions (e.g., 'use air-conditioning' or 'find a cool place') are not feasible options for people living with poverty or serious socio-economic constraints.

For many people in our community, air-conditioning is a key behavioural strategy in heatwaves. Our survey study found that over 82% of the South Australian sample (n=422) used air-conditioning to stay cool in heatwaves. Yet, as these extracts suggest, there is a need for segmented and targeted messages that address the barriers to using air-conditioning. In this vein, the following extract highlights how heatwaves can be framed as a financial risk:

P1: They warn you a couple of days before. Even today my wife said to me, "It's going to be 35 today and tomorrow and it's going to be 20".

P2: The first thing that comes to my mind is "Ooh, how much is it going to cost for electricity?"

P1: That's right, and that's what I was saying, is that when you hear that is it dollar signs in going "This is going to cost me"? So, there's an added anxiety

A common refrain from our participants was that they limited their use of air-conditioning because of the (perceived) cost of running air-conditioning. It may be fruitful for heatwave communication interventions to address this recurrent concern.

Information redundancy

If heatwave messages are to change behavior, they must be perceived as salient (relevant) to the audience. One factor influencing message salience is how audiences perceive their own degree of knowledge on a given subject. If information on staying safe in a heatwave is construed as 'already known', then new messages will be likely to be treated as 'redundant' and ignored. For example, when we asked our survey participants if 'heatwave information rarely provided new information', over 54% answered in the affirmative (Figure 1). Similarly, when asked if they have 'heard enough about how important it is to stay safe in a heatwave', over 75% answered 'strongly agree', or 'agree' (Figure 2). It is arguable that these findings mean that heatwave messaging is not discerned as salient for many in the community. Indeed, we could postulate that this is because messaging is ostensibly so generic that it fails to resonate with the lived experiences of communities. This may not present a problem for those with access to resilience resources; however, it may be highly

problematic for vulnerable communities that have stopped listening to messaging because it is rarely deemed salient to everyday life.

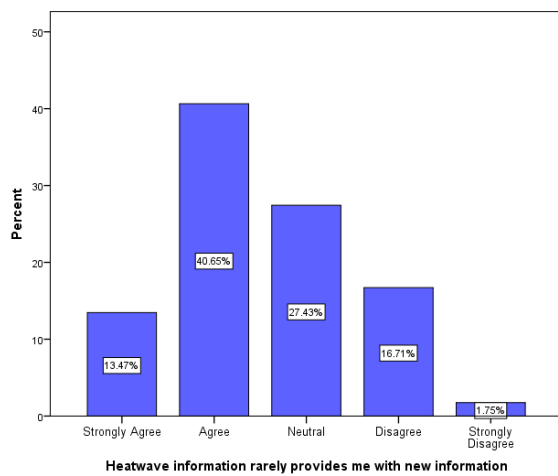


Figure 1.

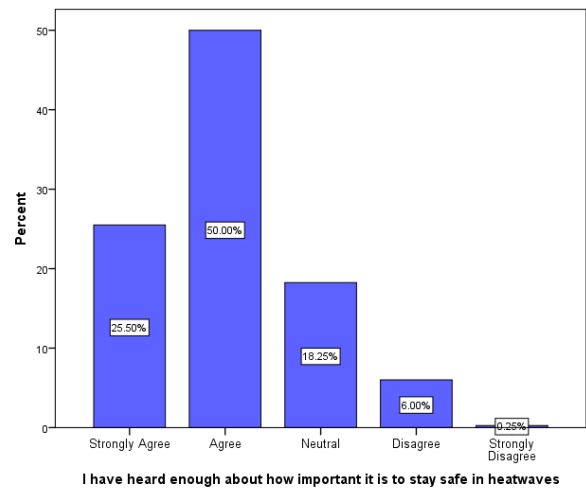


Figure 2.

Conclusion

The upshot from this study is that messaging should be segmented so as to provide advice to those who are most vulnerable because of multiple/interacting health, social, housing, psychological and financial stressors. When reckoning on the most effective use of a scarce communications budget, targeting intervention to the most vulnerable – defined across different vulnerability metrics (not simply age, or pre-existing health problems) – is a worthwhile tack, as those groups may garner the greatest benefit. As some of our participants articulated, those living with low incomes, and in inappropriate or poor-quality housing, need information that provides clear behavioural advice geared to their discrete conditions. Moreover, we know that there is a strong correlation between low SES suburbs and urban ‘hotspots’ (2020, 2018), largely due to lack of tree cover. In short, messaging – combined with socio-economic action - must be cognizant of the growing inequality between social groups when it comes to coping with heatwaves; for we know that there is no equality in disasters.

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