THE IMPACTS OF EXTREME WEATHER ON THE HEALTH AND WELL-BEING OF PEOPLE WHO ARE HOMELESS: VIEWS FROM VICTORIAN SERVICE PROVIDERS

CATHERINE PENDREY
MARION CAREY
JANET STANLEY

MONASH University
Monash Sustainability Institute
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SUMMARY

Extreme weather events, such as bushfires, floods, and heat waves, have major impacts on health and wellbeing and are expected to increase in frequency and intensity due to climate change. Homeless people are more vulnerable to these events due to greater environmental exposure, reduced adaptive capacity and high prevalence of mental and physical health problems.

This semi-qualitative study investigated the impacts of extreme weather events on homeless persons in the state of Victoria, Australia, as reported by service providers to this population. Semi-structured interviews were conducted with seventeen health and welfare service providers to the homeless, from both urban and rural Victoria.

Service providers reported a range of adverse impacts on homeless clients from extreme weather, including exacerbation of physical and mental health problems. Despite recognition that extreme weather affected the capacity of the organisations to care for clients, some participants indicated that climate change was yet to be incorporated into long-term organisational planning.

This study provides evidence that extreme weather is already adversely affecting the health and well-being of homeless people in Victoria, and is likely to further challenge provision of services to this population into the future.
INTRODUCTION

EXTREME WEATHER EVENTS AND CLIMATE CHANGE
Climate change, in addition to natural climate variability, is predicted to accentuate changes in the frequency and intensity of extreme weather in Australia and globally [1,2,3].

Extreme weather events such as floods, bushfires, drought, severe storms and extreme heat are expected to have an increasing impact on the health and wellbeing of populations [3,4]. The severity of these impacts depends on the level of people's exposure and vulnerability to these extremes. Vulnerability is a function of sensitivity, such as age and state of health, and adaptive capacity, i.e. having the resources or ability to respond [2].

Those who have been identified as having increased vulnerability to climate change include the very young, the elderly, those with chronic illness, those on low incomes and those in isolated situations [3,4]. In Australia and other developed nations, people who are homeless are amongst the most disadvantaged citizens, and struggle to maintain good health. With greater exposure, higher rates of illness and poorer ability to protect themselves, they are likely to be amongst the most vulnerable to climate change [5,6,7]. Greater exposure can arise from a lack of access to basic shelter, as well as a tendency for impoverished and marginalised groups to be housed in more climatically hazardous locations, which may also have poorer access to services [8].

There is clearly a need to better investigate the health outcomes and determinants for vulnerable groups in relation to climate change [7,9]. Yet the intersection of climate change, health and homelessness is an emerging area of research with little to date in the literature.

EXTREME WEATHER AND THE HOMELESS POPULATION
Research in Waterloo Canada, undertaken directly with homeless individuals, found exposure to weather often exacerbated existing physical and mental illnesses including depression, respiratory disease and cardiovascular disease [10]. In Phoenix Arizona, a relatively high proportion of reported deaths occurring during 2000 to 2005 from extreme heat were associated with being homeless [11].

In Australia, there has been anecdotal evidence of homeless individuals suffering in extreme heat, being moved on from air-conditioned shelter, and services struggling with increased demand during periods of extreme heat. However formal documentation of these issues has been minimal [12,13]. A study confined to inner city Adelaide interviewed homeless people and related service providers to identify extreme weather related health needs of this group. It found that extremes of both heat and cold had relevance to the health of the homeless and posed challenges for service providers [14].

The state of Victoria has recorded a range of extreme weather events in recent years. In early 2009, south-eastern Australia experienced exceptional extreme heat events
culminating in the Black Saturday Bushfires. During this heat wave, an estimated 374 excess deaths, a 25% increase in metropolitan ambulance emergency cases and 12% increase in emergency department presentations were reported [15]. The bushfires resulted in 173 deaths and destruction of over 2000 homes, leaving thousands displaced [16].

2013 in Australia began with a record-breaking heat wave with new record high mean temperatures [17]. A relatively small change in the average temperature can significantly increase the frequency of extreme heat events, and the probability of extreme heat has now increased [2,17] almost five-fold compared with 50 years ago [18]. From late 2010 to early 2011, around one-third of Victoria was affected by flooding or storm damage, with several communities experiencing flooding multiple times. Over 3000 residential properties were damaged and isolated, and there were major disruptions to infrastructure, transport and essential services [19].

In Australia over 100,000 people are homeless on any given night, with over 20,000 of these in Victoria. To be homeless is defined as staying in accommodation that is without security of tenure or below the minimum accepted standard and can be further categorised:

- Primary: living without conventional accommodation (e.g. on the streets, in deserted buildings, improvised dwellings, etc.).
- Secondary: moving between various temporary shelters including homes of friends and relatives, emergency accommodation, youth refuges, hostels and boarding houses.
- Tertiary: living in single rooms in private boarding houses without one's own bathroom or kitchen and security of tenure.
- Marginal residents of caravan parks: people renting a caravan, at their usual address, with no-one in the dwelling having full-time work [20].

Services to the homeless population face a number of challenges including competing priorities and inadequate resourcing to meet demand. Subpopulations such as the homeless are often poorly represented in disaster planning and public health messaging [7,13,21].

Heat wave planning is one example. A recent evaluation of the Victorian Heat Wave Plan identified a need for improved strategies to support non-government and community service organisations [22,23]. The key public health messages in Victoria in anticipation of a heat wave are "Look after yourself and keep in touch with others, drink plenty of water, keep cool and stay out of the sun" [22]. Health promotion and prevention assumes the resources to take adaptive measures, such as access to water, shelter, social support and transport [7]. Likewise planning for bushfires and floods may neglect the particular impacts on homeless persons and fail to examine if additional strategies are required.
STUDY AIMS

The study aimed to investigate the impacts of extreme weather on the health and wellbeing of homeless persons in Victoria, as reported by health and welfare service providers, and the potential implications for this population in a changing climate. The conceptual framework being tested is shown in Figure 1.

Figure 1. Conceptual framework

<table>
<thead>
<tr>
<th>Climate change</th>
<th>High exposure</th>
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<tbody>
<tr>
<td>↑ Extreme weather</td>
<td>Poor health</td>
</tr>
<tr>
<td>Homeless persons</td>
<td>Sensitivity</td>
</tr>
<tr>
<td>Vulnerability</td>
<td>Low adaptive capacity</td>
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</table>

| Climate variability |

STUDY DESIGN

We conducted a semi-qualitative study during 2011 using semi-structured interviews with staff in organisations that provide health and welfare services to homeless persons in Victoria. Homelessness was defined broadly using all categories as previously described. Sites were selected on the basis of high rates of homelessness and recent experience of extreme weather, and included Melbourne CBD and three rural sites.

Ethics approval for the study was obtained from the Monash University Human Research Ethics Committee.

A stratified sampling frame was constructed that included government and non-government workers; organisational and direct care roles; and welfare and health sectors. Sampling continued until at least one participant was recruited in each category of the sampling frame. A database of potential interview participants was generated through snowballing recruitment. Individuals were predominantly contacted through primary care and regional homelessness networks and the Australia Housing and Urban Research Institute homelessness research network.

Twenty-seven service providers to people who are homeless were recruited. All individuals involved in the study were de-identified, as were their organisations for privacy and ethical reasons.
Twenty interview participants were then selected from the database to maximise representation across different categories of the sampling frame and study sites. A greater number of participants were selected from Melbourne to reflect the larger population of homeless persons and service providers compared to rural areas. Selected informants were sent explanatory statements and written consent forms. Signed consent forms were collected at the interviews. Three selected participants initially agreed to participate but subsequently did not. One was unable to attend a scheduled interview, whilst the other two did not respond to attempts to organise an interview time. The remaining seventeen participated in an interview.

Participants were interviewed in person using a standardised questionnaire. Questions addressed participants’ views of the following themes: the direct and indirect impacts of extreme weather events on the health and wellbeing of people who are homeless; factors contributing to the homeless population’s vulnerability to extreme weather events, responses of people who are homeless to extreme weather events, effects of extreme weather on services supporting homeless persons, the adequacy of emergency systems servicing homeless persons, and views and planning in relation to climate change.

Data were collected through audio-recording interviews and supplementary notes taken at the time of the interview. Interviews were transcribed with participants provided the opportunity to check transcriptions for accuracy. The same project officer undertook all interviews, transcriptions and data analysis.

A content analysis was performed on transcriptions. Data from each informant was indexed according to the interview themes. Charts for each theme were created, then interpreted by searching for patterns, deviations and associations to address study aims [24].

The limitations of this study were the small size and the fact this was not a representative sample of service providers. Organisations were not formally surveyed through their management structures so that participant views may not reflect the wider views or strategies within each organisation.

However, our sample included a diverse range of roles and experience from within the homelessness and related sectors. The fact that the respondents and organisations were not identifiable allowed participants to be frank in their views. Interviewing providers with access to large numbers of homeless clients also provided a perspective which would not have been possible from interviewing individual clients directly. Nevertheless further research in this area should include people experiencing homelessness.

**INTERVIEW ANALYSIS**

Seventeen service providers (from fifteen different organisations) across Victoria participated, with nine from metropolitan Melbourne, and eight from rural Victoria. Gender of participants was evenly spread with eight males and nine females. There were nine participants aged 20-39 years, seven aged 40-59 years and one in the 60-69 year
age group. The professional roles of staff interviewed varied widely across the health and welfare sector, for example, homelessness support worker, primary health service manager, hospital medical officer, outreach and youth workers, family services director, housing intake assessment worker, and community health worker.

**STUDY RESULTS**

**REPORTED IMPACTS OF EXTREME WEATHER ON HOMELESS CLIENTS’ HEALTH**

All interviewees reported that at least one extreme weather event had affected their clients’ health. Sixteen reported that clients’ health had been affected by floods, fourteen by extreme heat, thirteen by bushfires and eleven reported impacts from storms (Table 1). Extreme heat and flooding were the most commonly reported stressors on health in urban areas, with bushfire and flooding being the most mentioned in rural areas.

<table>
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<tr>
<td><strong>Number of respondents reporting extreme weather events that affected homeless clients’ health, by type of extreme weather and location</strong></td>
</tr>
<tr>
<td>Participants</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>Melbourne</td>
</tr>
<tr>
<td>Rural</td>
</tr>
<tr>
<td>Total</td>
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Nine participants answered they believed extreme weather events had caused the hospitalisation or death of homeless clients, eleven reported extreme weather events had led to increased consumption of drugs and alcohol amongst clients and sixteen reported that extreme weather events had affected clients’ mental health. Specific health impacts reported to have been caused by various extreme weather events are listed in Table 2.

<table>
<thead>
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<td><strong>Specific health effects of extreme weather reported by participants</strong></td>
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<tr>
<td>Extreme weather event</td>
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<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Extreme heat</td>
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<tr>
<td>Bushfire</td>
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<td>Floods and heavy precipitation events</td>
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EXTREME HEAT EVENTS
Impacts associated with extreme heat were predominantly reported by urban participants who indicated that it acted as an additional risk factor for illness in clients experiencing homelessness, with cases of potentially severe dehydration, and exacerbations of pre-existing health problems. Rooming house residents and people sleeping rough were reported to be particularly vulnerable. Clients sleeping rough were reported to experience heat exhaustion and syncope, as well as “extreme sunburn” and insect bites.

“Summer is always a hard one because we have clients using, drinking alcohol, not eating correctly, not drinking water, which was a main one. So we had a lot of people with heat exhaustion and because clients’ health is so dilapidated because of their situation, sleeping rough etc...that can be very risky (N15).”

BUSHFIRES
Rural participants reported that as a result of bushfire exposure, homeless clients experienced burns, respiratory illness associated with smoke inhalation, and death. Being cut off by bushfires from accessing medical care was highlighted as an important health risk for sick clients requiring regular follow up.

FLOODS
Participants explained that storm events were often associated with cold temperatures and flooding, which together had adverse effects on health. Clients were reported to frequently become wet, together with their possessions, and once they did “...they can’t get dry so they sleep in their wet clothes...(N12)” which was reported to have “huge health implications (N9).” Clients were also reported to experience more frequent insect bites and subsequent skin infections following heavy rain and floods.

Particular reference was made to a group of marginal residents of a caravan park that was completely flooded who were all “older men with a range of health issues” such that “the effects of the floods impacted on their general physical health and wellbeing (N8).”

MENTAL HEALTH AND SUBSTANCE ABUSE
Multiple rural participants described bushfires and floods leading to deterioration in mental health as well as exacerbation of drug and alcohol problems. Some people who are homeless or made homeless by these events responded by “withdrawing from community, isolation, depression...we certainly would have made emergency calls to area mental health for people who were suicidal”(N11).

“(The floods have) had a compounding effect for people who already had fragile mental health. It has an impact on pre-existing anxiety, depression and the likelihood that people might return to behaviors that previously they had dealt with successfully, such as use of drugs and alcohol (N8).”
Cumulative impacts were noted. Repeated exposure to extreme weather events was reported to exacerbate mental health problems in rural areas affected by drought, flood and fire in the recent years.

Several urban participants described that extreme heat conditions exacerbated mental health and substance abuse problems. Risks were reported to be particularly high for those who are alone.

“In rooming houses in particular substance abuse is a serious problem and people who (are) drinking heavily aren’t necessarily synced-in to how hot they are and are much more likely to become dehydrated. And that we believe is the cause of many of those deaths... (N10)”

Given the complexity of health and welfare problems experienced by people experiencing homelessness, separating out extreme weather impacts may be problematic. However a common theme was of extreme weather having a “magnifying effect”, exacerbating already highly prevalent health problems.

DETERMINANTS OF HEALTH

Participants were asked about a range of determinants of health, including food, water and shelter. Sixteen participants answered that extreme weather events had affected their clients’ ability to meet their basic needs of food, water and shelter. Inability to access safe accommodation was a major concern, with extreme weather increasing the scarcity of already limited housing. Recent bushfires and floods destroyed a large number of homes resulting in increased demand for a reduced supply of housing. In some cases the inability to find secure housing became prolonged, with clients remaining in temporary and insecure housing over two years after the Black Saturday fires. People who lacked insurance, financial and social resources or who were already in marginal housing were reported to face an elevated risk of prolonged homelessness.

“After Black Saturday everybody was homeless...It was so devastating there was no accommodation left in pockets. There was not a single public building, nor a shelter or boarding house...If people don’t have a good back up plan, or money or family or connections to community then that’s just the natural progression into the services sector (N11).”

“They have no means to move on from that situation... they’re in what is becoming now a chronic homelessness (N9).”

“Some people living in caravan parks had invested all of their savings in a caravan or a car and insurance would not pay for that...Some people have returned to rough sleeping...so at the local caravan park people actually lost their caravan, lost their cars, so lost everything...”
Diversion of public and temporary housing to accommodate those made homeless by these events added substantial delays of up to twelve months for those on existing waiting lists for housing.

“Our housing stock, whether it’s public housing or private, it’s marginal anyway, so any reduction is huge, it’s going to have an impact. (N8)”

In urban areas, participants reported that extreme weather events, such as heat waves, create hazardous conditions for those on the street and staying in rooming houses. They highlighted a severe lack of a cool and sheltered space accessible by homeless persons, who were described as highly “visible” and frequently moved on from these spaces, such as shopping centers.

“It is too hot during the day during a heat wave and then the only other option is day centers, which mostly only stay open until 2pm... so (during) the most hot part of the day there is no place to go, there is no shelter, (N13)”

Participants reported air-conditioning was commonly not installed in both rooming houses and public housing, although it was available in public housing for those who qualified. Rooming houses were described as “really hot places” with additional concerns that “a high level of violence or intimidation (N9)” may prevent people opening up living spaces for ventilation.

Transportation was an important issue affecting clients’ ability to access food, water and shelter, particularly in rural areas, where people were vulnerable to being cut off by floods or bushfires and lacked personal transport and the resources to stock up on essentials. Extreme heat and rain made it more difficult to be mobile, with many clients reliant on walking as their only means of transport [25]. Some urban participants also noted clients had difficulty accessing drinking water.

**Vulnerability to Extreme Weather Impacts**

Despite also reporting “resilience” and “resourcefulness”, participants described homeless clients as highly vulnerable to health impacts following exposure to extreme weather events. This was largely attributed to the high prevalence of individuals with multiple risk factors including high rates of physical and mental illness, poor access to and engagement with health care and other services and increased environmental exposure to extreme weather. Additional factors reported to increase vulnerability included advanced age, youth, substance use, poor cognitive or life skills, impaired mobility as well as lack of access to accommodation meeting the minimum standard, social supports, transport and heating and cooling facilities.

“...Underlying risk factors that put you at high risk in those situations anyway, those things tend to be higher in a population of people who are homeless. If you have multiple of those risk factors and you are homeless you are at extremely high risk (N9).”
Advanced age was an important factor contributing to increased vulnerability. Mental illness contributed to poor coping strategies, such as walking all day during extreme heat, without necessarily being aware of hydration, or inappropriate clothing for weather conditions. Inappropriate dress was also reported to occur because of the need for homeless individuals to safeguard clothing by wearing it.

People experiencing homelessness were reported to face additional barriers to coping with extreme heat such as discrimination and a lack of disposable income to access cool refuges.

“How do you go swimming if you don’t have bathers or money?...How do you go to the pictures like other people if you don’t have money to get in? (Major city centre) is air-conditioned as a shopping centre, but there is a sense that you are not welcome if you don’t have money in your pocket to spend (N17).”

**IMPACTS OF EXTREME WEATHER ON CAPACITY FOR SERVICE PROVISION**

The majority of participants (thirteen) reported that extreme weather events had impacted upon the ability of their organisation to provide services to homeless clients at least moderately. Of the four who answered that it had not impacted a great deal, three indicated their organisations had not been directly affected by a major event, while one indicated a high level of organisational preparedness.

Sixteen participants reported increased demand for services during extreme weather events and an increased workload. Additional tasks included ensuring clients are bushfire ready and providing additional outreach services during heat waves to distribute water, fans and targeted health messages.

“We get pretty inundated during summer because they (homeless clients) just need respite from the heat (N14).”

Some participants reported that homelessness support organisations diverted significant resources following the Black Saturday and the 2010/2011 floods to assist the large group of people newly made homeless and that this compromised the ability to support existing clients.

“When there are more people accessing agencies like ourselves, our attention gets directed away from them (existing clients) (N2).”

Participants reported in some cases that the effects of bushfires, floods and extreme heat on services’ buildings and infrastructure had restricted operations. Staff from locally based organisations might be individually affected by extreme events and this might further reduce the capacity of services to respond. For some, the need to protect staff safety during extreme weather events further restricted service capacity, whilst others reported minimal impact on capacity:
“Having to balance OHS of staff with our duty of care means that we do have to make compromises about the level of services that we would like to provide and feel that we ought to be providing. And it comes at a time when it would be even more critical for our clients to be able to access the services (N10).”

**CLIMATE CHANGE AND THE HOMELESSNESS SECTOR**
Almost all (sixteen) participants responded that climate change was relevant for the homelessness sector. They noted high levels of vulnerability amongst the homeless due to exposure to weather, increased extreme weather events potentially decreasing housing stocks, rising costs of living and rising temperatures hazardous to health. In contrast, less than half (seven) indicated that climate change had been incorporated into the planning of their organisation.

**EMERGENCY RESPONSE, RECOVERY AND COMMUNICATION**
A range of issues were identified as important in determining the adequacy of emergency support for the homeless population. Insufficient supply of housing and accommodation and the absence of cool and sheltered spaces in inner Melbourne were consistently highlighted as important deficiencies. Emergency planning and co-ordination with other local services were important determinants of the ability to implement an effective response. Many commented on the need to improve the day-to-day capacity of the homelessness services sector in order to increase surge capacity:

“A lot of it is about how do you build that stuff into communities before these things happen...(N9)”

Other factors identified as important determinants included enforcing housing standards, access to low cost insurance, funding, human resources, material aid, targeted communication for homeless populations, flexibility of service delivery with outreach services and increased opening hours and provision of healthcare services and transport options.

**DISCUSSION**
This study provides preliminary evidence that extreme weather is impacting adversely on the health and welfare of homeless people in Victoria, and is likely to continue to challenge effective service provision to this highly vulnerable group. Extreme weather events, such as extreme heat, bushfire and flood, were described as having a "magnifying effect" on highly prevalent existing physical and mental health problems among the homeless population. Important determinants of health, such as the ability to access safe housing, shelter, water and transport are also adversely affected. Extreme weather events were reported to increase the demand for homelessness support services, whilst also creating additional barriers to the delivery of services.

Study participants described a range of issues with emergency response, recovery and communication in relation to the needs of the homeless population arising from extreme
weather. Funding, housing, cool and sheltered places and outreach capacity were consistently described as important areas of deficiency, whilst emergency preparedness and coordinated planning with other local agencies were variable across services and geographic locations. Inadequate support during the recovery period was reported to lead more people to enter a longer-term state of homelessness.

While risk factors in the wider population for morbidity and mortality from extreme weather, particularly heat, have been described, the strong alignment of these risk factors with the characteristics of homeless populations has not always been recognised. Chronic disease prevalence and severity, such as cardiovascular and respiratory disease and mental illness tend to be greater in homeless populations and these issues combined with elevated rates of substance abuse and lack of financial resources, social support and adequate shelter greatly accentuate the risk of adverse impacts from extreme weather. In addition, residence in inner urban areas, where a large proportion of the homeless population live, further intensifies risk as a result of increased air pollution and urban heat island effects [5,26].

Extreme heat exacerbating chronic disease and mental illness has been well described. Having a psychiatric illness may triple the risk of death from extreme heat [26]. The health risks associated with the consumption of alcohol and illicit drugs, particularly heavy consumption, are known to increase during extreme heat events [27]. High rates of respiratory illness may increase the risk of respiratory morbidity associated with exposure to bushfire smoke amongst the homeless population [28]. An increased incidence of common infections may occur following floods, including respiratory and dermatological problems [29,30]. Bushfire and flood events have been associated with increased mental illness, including depression and anxiety as well as post-traumatic stress and substance use disorders [29,30,31]. Flooding can disproportionately affect the homeless as they occupy more marginal areas (such as caravan parks) and may have reduced opportunities for transport away from affected sites [29]. During Hurricane Katrina in the USA, for example, poor and marginalised people were most affected, and following this event, the homeless population of New Orleans nearly doubled [5].

Our findings are consistent with evidence showing extreme weather events contribute to poor health by triggering or prolonging homelessness and exacerbating poverty, mental health problems and the effects of physical injuries and chronic disease [5,26,29,32,33]. Living in precarious housing has previously been found to have a negative impact on health [9,32] and the housing shortage in Australia is expected to steadily increase [34]. The elderly are particularly vulnerable to the health stressors associated with homelessness as well as extreme weather events, with the strongest evidence relating to the impact of extreme heat [2,4,7,11]. The increasing ageing population, housing shortage and effects of climate change on extreme weather mean that the vulnerability of the elderly homeless to weather extremes is likely to become increasingly pertinent.

The specific needs of the homeless population may be ignored in climate change adaptation and disaster planning. There is some evidence of a siloed approach regarding
homeless populations in disaster response planning, with climate change a neglected area in national and state homelessness agendas [13,23,35].

This study identified that public facilities and services in the areas of transport, water and shelter, may be insufficient to meet the needs of the most vulnerable during extreme weather events. Ensuring access to cool spaces has been established as an effective strategy to reduce the health impacts of extreme heat [26]. However, there remains a lack of cool spaces in the city accessible to the homeless population. Greater access to sheltered spaces would also help people experiencing homelessness to avoid health impacts associated with extremely wet and cold conditions [10]. Mobility and access to transport also affect health outcomes associated with extreme weather [7,10,26,36].

A study of primary homelessness and extreme weather in Adelaide found that a major problem was client’s inability to get dry, as was also reflected in our study. There were similar findings to ours in terms of the impacts of extreme heat on health, and barriers to adaptation such as poor access to drinking water and security and police moving people on when trying to access cool spaces [14]. There are many documented cases of substandard conditions in city boarding houses [37], which often prevent residents from reducing their risk from extreme heat.

Proactive and targeted communication and outreach services have been identified as important strategies to ensure the safety of marginalised populations, including the homeless, during extreme weather events [21,38]. Many participants reported a need to increase outreach services, but also identified barriers to doing so, including a lack of funding and staff, and hazards associated with extreme weather. Surge capacity of homelessness services to meet increasing needs of clients may increasingly be a problem under climate change. Early intervention to assist people who are newly homeless to exit homelessness has been established to be cost-effective, whilst those who remain homeless for prolonged periods often require greater assistance over extended periods at much greater expense [20].

Although most staff members interviewed thought climate change was relevant to their sector, only a minority indicated that climate change had been incorporated into organisational service planning. This may indicate a lack of awareness, capacity or merely the understandable need to focus on short-term imperatives.

**CONCLUSIONS**

Extreme weather can both increase the rate of homelessness and worsen the plight of those already experiencing homelessness. This study provides some evidence that extreme weather is currently impacting adversely on the health and welfare of homeless persons in Victoria and is likely to further challenge the provision of services to this population. The capacity of relevant services to cope with the escalating risk of extreme weather under climate change, and increasing service demands, require further evaluation. Climate change needs to be integrated in housing and homelessness research.
and policy agendas, and the needs of the homeless population must be addressed in climate change adaptation and emergency planning. As we transition to a more extreme climate, it is vital that services are sufficiently resourced to respond to the needs of people experiencing homelessness who are amongst the most vulnerable in our society.
REFERENCES


