Older people as assets in disaster preparedness, response and recovery: lessons from regional Australia

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ABSTRACT

This article reports on findings from a qualitative research study on natural disaster preparedness in 'at risk' population groups in regional Australia, and in particular on findings highlighting the key, and often unrecognised, role played by many older people in developing and maintaining local informal networks, activated repeatedly before, during and after natural disasters. The article outlines major themes in recent literature on community resilience and social capital in disaster preparedness, response and recovery, the design and implementation of the current study in which, 17 focus groups were held with 'at risk' groups across three communities and findings in relation to the role of older people. The implications from these findings are discussed in the context of community-based disaster preparedness strategies. Findings point to older people as critical, community assets in local neighbourhoods, contributing both their experience and relationship-building capacity to prepare themselves for natural disasters. In addition, there was clear evidence of older people sharing resources and experience in support of others of all ages in responding to and recovering from natural disasters. Older people in the research were found both to generate and mobilise social capital at a local level in disaster preparedness, response and recovery.

KEY WORDS – older people, natural disasters, social capital, community resilience, neighbourhoods, networks, disaster preparedness, response and recovery.

Introduction

The impact of natural disasters caused by extreme-weather events is gaining increased attention worldwide with the most significant impact often experienced by groups already experiencing social and economic hardship (Anh Tuan *et al.* 2014; Drolet *et al.* 2012; Elliott and Pais 2010; Zhou *et al.* 2013; Martin 2010). The interplay of social factors in communities in the

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preparation for, response to and recovery from extreme weather events, and accompanying natural disasters is a developing area of research (Alston 2013; Gardoni and Murphy 2010; Gibbs *et al.* 2013; Neumayer and Plümper 2007). In this article, we report on a research study in regional Australia which found the role of older people in preparing for, responding to and recovering from natural disasters was under-recognised but of great value at a neighbourhood level. Factors such as risk and vulnerability as well as preparedness and resilience are being examined and critiqued (Fekete and Sakdapolrak 2014) in relation to both broad community responses to disasters (Hawkins and Maurer 2010) and to specific population groups including older people (Tuohy and Stephens 2015).

Extreme weather events and natural disasters are regularly experienced in Australia. Recent large-scale disasters have had a devastating cost to individuals, households and communities. In 2003, a firestorm in Canberra destroyed 488 homes and took the lives of four people (Australian Capital Territory (ACT) Government 2003; Winkworth *et al.* 2009). Six years later, the state of Victoria experienced unprecedented losses in the Black Saturday fires, which killed 173 people and destroyed 2,900 homes, as well as infrastructure such as schools, kindergartens and businesses (Martin 2010; Victorian Royal Commission 2010). The following year, 78 per cent of Queensland was declared a disaster zone as floods inundated 29,000 homes and businesses, affecting two and a half million people and taking 33 lives. Three people remain missing (Queensland Floods Commission of Inquiry 2012).

After each of these events, a number of reports and studies have included strategies for better responses and recovery from natural disasters in the present and future (Queensland Floods Commission of Inquiry 2012; Victorian Royal Commission 2010). In addition, recommendations include the critical role of long-term preparedness for natural disasters, particularly preparedness which attends to the range of different population groups, experiences, needs and skills in existence across any community. Here, informal as well as formal processes, relationships and responses have been identified as a promising focus for future practice and research (Aldrich 2010; Australian Red Cross 2013; Deloitte Access Economics 2013; Mora *et al.* 2014).

Social capital and natural disasters

There is a growing awareness of the critical role played by social capital in building community resilience to extreme weather events and natural disasters (Hawkins and Maurer 2010; Mathbor 2007). Social capital as theorised

by Putman (2000) is generated and supported through formal and informal networks and connections in societies. These connections, if active, can result in generalised reciprocity in which individuals are prepared to act for the collective good. Social capital is recognised in a number of recent reports and studies as being integral in preparing for, responding to and recovering from disasters (Akama and Chaplin 2013; Aldrich 2010; Australian Red Cross 2013; Deloitte Access Economics 2013; Winkworth *et al.* 2009). The Australian government has followed international approaches in addressing the growing issues in relation to extreme weather events by adopting a resilience approach to disaster management (United Nations 2005). This approach, outlined in the *National Strategy for Disaster Resilience* (Commonwealth of Australia 2011), emphasises the importance of prevention and preparedness, and acknowledges the role of social networks in achieving this. The Australian Red Cross have incorporated social capital into their community education tool, devoting one-quarter of this (named the REDiPlan preparedness strategy) to building connections with neighbours and the broader community (Australian Red Cross 2013). A recent study in Tasmania demonstrated the use of social networks in communities to prepare for and respond to bushfires. This study found community members often regarded as vulnerable were shown to have increased resilience due to bridging and linking networks (Akama and Chaplin 2013).

Research undertaken with survivors of large-scale bushfires in Canberra, Australia in 2003 (ACT Government 2003) included consideration of social capital in examining community recovery post-disaster. The study analysed the ways different types of social capital were evident in recovery. Bonding networks of family and close friends were found to be fundamental in helping survivors immediately post-crisis. Bridging social capital was evident in aiding recovery. Intra-community bridging occurred through building networks within communities. These networks were particularly helpful to those vulnerable community members who either lacked close family or friends or whose family and friends were unable to provide the support they needed. Activities that survivors rated highly in building this bridging social capital included events organised by local streets and neighbourhoods, as well as commemorative events. Linking social capital, which involves the development of networks that have access to powerful institutions and agencies (Woolcock and Narayan 2000) was also recognised as important in the recovery phase. The research found the formation of residents associations played an important role in aiding recovery through building a sense of connectedness amongst community members (Winkworth *et al.* 2009).

Social capital and older people

A number of studies have been undertaken worldwide investigating the role of social capital in relation to older persons' wellbeing (Bojorquez-Chapela *et al.* 2012; Collom 2008; Cramm, van Dijk and Nieboer 2012; Forsman *et al.* 2012; Heenan 2010; Newman and Hutton-Yeo 2008; Norstrand and Xu 2011; Nyqvist and Nygård 2013; Watt *et al.* 2014; Yuasa *et al.* 2014). Research in locations as diverse as Mexico (Bojorquez-Chapela *et al.* 2012), Japan (Yuasa *et al.* 2014), Sweden (Nyqvist and Nygård 2013) and Finland (Forsman *et al.* 2012) described social capital as a protective factor for older people experiencing depression. Research also links local relationships and social capital amongst older people with better support and health Cramm, van Dijk and Nieboer (2012). Cramm and Nieboer (2013) studied the relationship between frailty, neighbourhood cohesion and sense of belonging in Rotterdam, concluding that both social cohesion and a sense of belonging were important factors in supporting frail older people at a neighbourhood level. Social capital was found to be a key predictor of wellbeing in older Dutch people in this study. Watt *et al.* (2014) found clear associations between social relationships and health outcomes amongst older Americans in their extensive quantitative study. Although Putnam's (2000) conceptualisation of social capital is most commonly adopted by researchers examining its role with older people, a number of studies challenge Putnam's argument that membership of formal groups and associations is the major conduit for social capital generation and measurement. Heenan (2010) found that social capital in farming communities in Northern Ireland was not dependent on participation in formal organisations or networks but on long-term local relationships with friends, neighbours and family. Older people in this study reported high levels of social capital while also having low levels of participation in formal community activities. Similarly, Forsman *et al.* (2013) found, amongst Finnish older people, that informal relationships and networks including with family members and life-long friends were more significant than participation in formal community groups in generating and maintaining social capital. Gray (2009), too, found in Britain, through analysing data from the British Household Panel Survey, that informal networks and connections were more important than formal participation in groups for social support.

The role played by older people as contributors to as well as recipients of social capital is less researched, although work in this area has been growing. Collom (2008) undertook research on time banking and older people, finding that older people played an important role in voluntary activity and were active contributors to local networks. This quantitative analysis

of a time-banking network revealed that although older people were under-represented in the network compared with the overall population, their frequency of contribution was equal to others in the network. Interestingly, older people were largely connected to and reciprocating with younger people. Collom (2008) argues that this generation of bridging social capital is beneficial as older people engage as recipients and contributors, confirming earlier research which found older people preferred support where relationships were reciprocal rather than those where they were only recipients.

Davis *et al.* (2012) found older people in rural Australia were actively involved as contributors in community life but identified barriers including health and opportunities as issues for ongoing attention. Hodgkin (2011) found a high level of engagement and participation in civic and community activities by older people in regional and rural communities in Australia. This research highlighted the role of older people, not just as recipients of social capital, but also as active participants in civic life through volunteering, involvement in service clubs, church activities and other community groups. Gallagher, in a study of community connectedness amongst Irish older people, found that they actively participated in local relationships outside the family, calling them 'place-based relationships' (2012: 84), and that these relationships contributed both to the participants' wellbeing and to their wider role in community life.

In relation to disaster preparedness, a recent study by Tuohy and Stephens (2015) explored the intersections between both disaster preparedness and more generalised independence amongst older people, finding that the ways in which meanings of preparedness are developed and understood were linked with broader self-management of health and community resources in the context of ageing.

Yotsui, Campbell and Honma (2015), in their study after the 2011 Japanese earthquake, found groups of older people actively engaged in supporting other older people who had lost everything. They argue that social participation by older people post-earthquake was beneficial for both volunteers, those they supported and the community overall. Of particular note is the finding in this study of the generation of bridging social capital, which improved both individual and collective agency within the community. This study is particularly relevant for the current research.

Engaging older people in local community life

A further point to note from recent research is the importance of support and encouragement if older people are to benefit from, and contribute

to, social capital and community wellbeing. Findings from a number of studies identified structural challenges, such as transport (Winterton and Warburton 2011), social disadvantage (Gray 2009; Leonard and Johanson 2008; Watt *et al.* 2014) and social isolation (Winterton and Warburton 2011), as significant barriers to the participation of older people in neighbourhood and community life. The importance of listening to, and making space and structure for, older people to have their voices heard and their knowledge valued was also identified as a key strategy for improved participation of older people as contributors (Andonian and MacRae 2011; Firman 2012; Leonard and Johanson 2008).

Natural disaster impact and 'at risk' or vulnerable populations

While extreme weather events can appear random, the impacts are often disproportionally borne by those already experiencing social exclusion (Martin 2010). Of particular concern are population groups identified as vulnerable in natural disasters. One such population group is older people. Factors that place older people at risk can include physical and mental wellbeing, disability, social isolation, financial circumstances, lack of access to resources, communication difficulties and inability to use modern technologies (Bennett, Capon and McMichael 2011; Martin 2010; Zakour and Harrell 2003). As Australia's population ages, alongside that of many countries, there is a growing number of older people in communities exposed to the risks of extreme weather events (Hughes and Heycox 2010).

Current Australian disaster policy emphasises individuals and communities taking an active role in disaster preparation. This is outlined clearly in recent policy documents: 'Communities, individuals and households need to take greater responsibility for their own safety and to act on advice and other cues given to them before and on the day of a bushfire' (Commonwealth of Australia 2011; Victorian Royal Commission 2010).

The Australian *National Strategy for Disaster Resilience* (Commonwealth of Australia 2011) calls for shared responsibility in risk management and preparation for disasters between government, business, communities and individuals. While older people have been identified as being particularly vulnerable in disasters, there has been little work done to include older people as agents of change in building disaster preparedness within communities. It is in this context that findings from this research study, undertaken in coastal and hinterland communities on the eastern seaboard of Australia, are of interest (Howard, Blakemore and Bevis 2014).

Methodology

The research study on which this article reports was conducted as part of a regional disaster preparedness project. Geo-spatial data were analysed and mapped by researchers in another component of the project in order to identify key localities most vulnerable to flooding, bushfire and extreme heat. A number of vulnerable populations were then identified using demographic and health data and a social research study was designed to investigate the level and characteristics of natural disaster preparedness amongst these groups. Population groups included in the research were people in low-income households, children under the age of five, older populations (65–74 years and 75 and over), people with disabilities, and culturally and linguistically diverse communities. The research sought to understand the following four areas for each of these population groups: how each group perceived their risk regarding natural disasters, the level of preparedness and capacity to respond to a disaster, and the communication channels used by these groups to prepare for and respond to natural disasters.

A qualitative research methodology comprising focus groups (N = 17) was developed as the purpose of the research was to investigate the perceptions, narratives and reflections of people in each of the nominated groups in the three local government areas participating in the project.

Ethics approval was obtained from the University of Newcastle Human Ethics Committee in April 2014, which operates in accordance with the 2007 Australian National Statement on Ethical Conduct in Human Research.

Potential participants for the project were then recruited in each of the groups identified within the three local areas where the intersection of natural disaster risk and vulnerable populations was most prominent. Participants were recruited through the communication pathways of key inter-agency networks, service providers and community organisations in the area. Invitations to participate were distributed, asking interested community members to contact the researchers to participate in a focus group in their area. Written informed consent was obtained from research participants. All participation in the research project was voluntary.

In total, 17 focus group discussions, lasting between one and two hours each, were conducted. A total of 111 people participated in the focus groups. Groups were evenly distributed across the three local government areas. Each local government area where participants reside comprises a number of small coastal and rural communities plus three larger regional centres. Overall the population size for the areas where participants were recruited was 550,000 (Australian Bureau of Statistics 2012). This population was quite dispersed, covering a geographic area of over 2,500 square

kilometres (Department of Planning NSW 2008; Hunter and Central Coast Regional Environmental Management Strategy 2014).

Discussions centred on a set of key focus questions designed to explore participants' awareness, understanding and perceived impact of a natural disaster, as well as their capacity and plans for preparation and recovery. Focus group discussions were audio recorded and then transcribed for textual analysis.

A total of 41 participants in the focus groups were aged between 65 and 74. One-third of this group also came from low-income households. Six focus groups were held specifically for older people, with four groups comprising those aged 65–74 years. A further two groups comprised both those aged 65–74 years and those aged 75 years plus. In addition to analysing transcripts, researchers listened to audio recordings of the focus groups and used field notes to identify the voices of participants aged 65–74 years in the focus groups where both groups of older people participated.

Focus group data were thematically analysed and coded for major and minor themes. A detailed analysis was undertaken of transcriptions with themes identified, consolidated and linked with specific words, concepts and ideas. Transcript data were analysed to the point of saturation, that is, until no new themes emerged and existing themes were repeated consistently across focus groups. In addition to themes across focus groups, differences between groups were analysed. A further layer of analysis was undertaken to identify themes from each of the specific population groups included in the research. Data focused on older research participants, aged between 65 and 74 years, is reported in this article.

Results

The research found a number of key factors highlighting the importance of including older people in disaster preparedness, response and recovery. Research findings from older research participants and other research participants who spoke about their connections with older people identify three key areas where older research participants are actively engaged in neighbourhood disaster planning, and where that role could be better recognised: (a) willingness to participate, time and organisation; (b) networks, reciprocity and experience; and (c) participation in local decision making and planning.

Willingness to participate, time and organisation

Older participants (N = 41) were keen to be involved in the research and were quickly able to organise or join a focus group. A number of participants

came with neighbours or friends from their local area. Some older participants came prepared for the research with newspaper clips, council reports and past organisational examples. Throughout the discussions in the focus groups these participants were particularly motivated to contribute to practical, local solutions that could be implemented from the study. The discussions revealed a willingness to engage with the subject of disaster preparedness and to reflect on the practical issues at a personal and community-wide level. For example, one participant observed:

So what I think and the reason I've come today is what you're trying to do is perhaps replacing what used to happen automatically with the people themselves in a semi-organised way. (Male, over 75)

Another encouraged further discussion:

It does seem to me that there's a role for someone to go around, things like the Arthritis Foundation where there is a lot of elderly people, if they went to a meeting and just told them what was available in the area. (Female, over 75)

The community orientation of many older research participants was a key feature of discussions across focus groups, as was using time to participate in discussions and activities. Overall, older research participants reported willingness and an availability to plan for, respond to and recover from natural disasters much more often than other groups.

Networks, reciprocity and experience

Older people in the study reported a strong interest in and awareness of their local community. Many had long histories in the community and were able to share from their extended experience about the environmental and social aspects impacting on future disaster preparation and management. In contrast, some participants had retired to the area and did not have this history. Many of this group, however, spoke about their proactive attempts to get involved locally. Participants reported a sense of personal responsibility to do this as well as the realisation of their vulnerability, living in a new area without local knowledge and connections. Involvement in groups through community centres and volunteering in their local area with organisations were all discussed. As one participant observed:

We are the same because we're fairly new. We've got friends that we know through – if it wasn't through the community centre, we would hardly know anybody. (Male, over 65)

Walking around the immediate local neighbourhood was also a common practice for older research participants. In the discussions, people spoke about being aware of their neighbours, especially those who they were concerned about, such as frail older people:

If you walk down your street you'd sort of think there's an elderly lady who lives in there on her own and you sort of think. Then a few days – I walk quite a bit – and if I don't see her, I start thinking I hope she's all right. Because that's what you think. Like, I'm in an area now and I'm getting older myself, I didn't even think about it before but now you sort of think well they're on their own and they're elderly. You know as you're walking, you sort of see – and if I don't see them I start thinking I'll have another look tomorrow. Then you see them of course and everything is all right. (Female, over 65)

In this quote, the role older people were playing in looking after those older or frailer than them (which was also a common theme in focus group discussions), is very clearly described. While other parts of the community often described this group as vulnerable and in need of support, many older research participants were actively involved in supporting others regularly, whether through formal volunteering or informal monitoring, as is described above.

Older research participants reported a strong sense of inter-dependence and engagement in reciprocal local relationships. At every focus group, older participants described stories of past natural disasters or crises in which inter-connectedness with neighbours featured. For these participants, local relationships, built on reciprocity, were always linked to broad community wellbeing. Most participants saw this as an expected part of community life. Indeed, for many the sense of reciprocity was a moral or ethical imperative, as the quote below illustrates:

Also, the people opposite, they were – I mean we were able to help them because the floods went through their house, not dramatically but enough to be very greatly inconvenienced. But that's all you can do and I think it's a natural thing to want to help and when you don't you feel as if you're letting everybody down around you. That has an effect on your own wellbeing. (Female, over 65)

Linked closely with this, older participants reported being well prepared for natural disasters and very willing to share resources with neighbours. Discussions revealed that most older participants in the 65–74 age range, were well supplied with resources which could be used in emergencies, such as torches, batteries, spare food, alternative cooking sources, battery-operated radios and emergency contact lists (often on a fridge magnet). This was the case consistently for both women and men. A willingness to share resources with neighbours who may be less prepared or more impacted by a particular disaster was a feature of discussion amongst participants. One person summarised this well as he shared his experience during a flood:

We had neighbours coming in because we had gas. No electricity but we had gas luckily so we could give them hot water and make cups of tea and so forth. (Male, over 65)

For another, accommodation was needed by a neighbour, and provided without hesitation:

It's the neighbours that we were worried about. She was a single mum with two girls. We took them in. The girls came around and lived with us for a while. (Female, over 65)

The level at which older participants planned for natural disasters and actively shared resources with neighbours during past crises was noticeably higher than for other participants overall.

Past experience of a natural disaster was linked across all focus groups with better preparedness and planning for future disasters. For older people, the range and depth of experience was greater, and most research participants in this age group could clearly articulate the lessons learned and changes to their behaviour as a result. This experience was reported as significant to them and was also utilised in assisting others. In many cases, older people were more likely to have an experience of natural disaster even if it had been in a different locality. Older research participants regularly shared knowledge of past strategies and solutions for preventing loss and responding to natural disasters at an individual and community level. For some, experience from professional life was utilised:

I guess you do learn things. I was on the last train home when the bushfire closed up here, closed the [freeway] … It was the last train to go through. That brought me to the realisation that had we been in a car we could have got caught because it's pretty easy to and I always carry water in the car now. Always carry water because what struck me most was how much water they were giving to the people in the cars. (Female, over 65)

For others, local knowledge and involvement in past organising initiatives were key contributors to individual and group natural disaster preparation:

…because the floods would be different at each time. It'd depend at the time whether the tides were high or low or the river was high or low, but each house that had the potential to flood was documented and those families were allocated to groups. It might have been Apex, Lions or Rotary, other volunteers, so that when we were told that that, you went to that house on allocated trucks that would go and pick them up and they were allocated spots to take people's furniture. So it was very well documented in advance, so that there was ample warning, and unless people were away or – so, even then, there was access to documents where the keys were that you needed to get in. It was very well organised, is the point I'm making. (Male, over 65)

Older participants also reported drawing on past experiences of disasters to understand and manage their own vulnerability, either at that time, or as a result of getting older. Two quotes below reflect this:

The only thing that we have, and had in the past – I'm going back to 1981 – there was a big storm that year and we have a culvert alongside us underground. But

apparently it split from the force of water and we copped it all through the back of the house. It's the only time it's ever happened and it's been rectified. But it makes you think it can happen anywhere and anytime. Just water and there's no stopping it. (Male, over 65)

They were all part of it [the Rural Fire Service]. She's older than me. I said something to her, when the fires were on this year, I said what are you doing Nan and she said I have to say I've handed in my boots and I've handed in my yellow jacket … we're too old, we'd only be a hindrance, we're going as soon as it comes. (Female, over 65)

Participation in local decision making and planning

A consistently expressed desire to organise systems, networks and community-level responses was a striking feature of discussions with older people during the focus groups. No other population group participating in the research reflected this desire in the same way. Older participants asked questions during the groups about how other people could be involved in similar discussions, how they could distribute information to raise awareness of disaster preparedness and how communities could be better prepared. One women proposed:

I was thinking perhaps what would work would be if in each street somebody took responsibility for being in charge of that street. They organise other people to go to a house and tell – everybody sort of takes on somebody as a protégé or whatever and it gets out that way. I don't know how else you'd do it. (Female, over 65)

For another, blending professional experience and organising from past natural disasters were utilised in planning for future events:

One of the things that I felt was very valuable that came out of those bushfires was that the police actually – and it was a suggestion that came out of feedback – set up an at-risk register. So all the main groups, like Homecare, Community Options, and so on, we were all involved and notified our clients and their carers – because remembering that some of the clients have got dementia, some have got intellectual disabilities, and so on. (Female, over 65)

In this context, older research participants consistently reported frustration with a perceived mismatch between their motivation, skills, time and engagement, and opportunities to enact their ideas. Older research participants reported feeling disempowered about their access to decision making, and excluded from formal, natural disaster planning processes. Many reported feeling bureaucracy and prescriptive systems were denying them permission to carry out practical preventative measures. For this group, a sense of alienation from decision-making processes in the community left them feeling frustrated and powerless to contribute where they felt they could. While frustrations were often described alongside an

understanding that safety, risk and transparency were also important, the question of how to best mobilise the resources of this group is of critical importance in developing disaster preparedness at a community level. The two comments below reflect the frustration amongst this group.

Now the first thing that happens is you can't get anyone to do it unless occupational health and safety allows it. Secondly, you can't do it unless council allows it. By the time you get permission you're too old to do it. (Male, over 65)

Being a lifetime member of Apex, the things that we used to do are now no longer needed. You get a grant. (Male, over 75)

Discussion

The findings from this study challenge the framing of older people as purely vulnerable and 'at risk' in relation to natural disaster preparedness. While it is critical not to minimise the risks and vulnerabilities of all groups in the face of natural disasters, the findings from this study highlight the importance of viewing older people as much more than passive recipients of support when it comes to natural disaster preparedness. The responses of older research participants were consistent with findings from earlier studies in which older people were found to be active community participants and contributors (Collom 2008; Davis *et al.* 2012; Gallagher 2012). Our research demonstrates similar findings, specifically in relation to disaster preparedness, response and recovery.

Social capital, local networks and relationships were reported by research participants as infused through their experience of community life, and enacted effectively in preparation for, response to and recovery from natural disasters. Participants reported belonging to both formal and informal networks, but it was the informal relationships at a neighbourhood level, where resources were shared, trust was built and connections were made, which were perceived as particularly important. These informal relationships were also seen as key to disaster preparedness, response and recovery. For older research participants, it was these relationships, and the sharing of resources and experiences over time, which contributed to their sense of purpose and belonging. Heenan (2010) and Forsman *et al.* (2013) also reported on the importance of informal networks and relationships as key conduits for generating social capital amongst older populations in Ireland and Finland. The informal character of these networks has meant they have often been either ignored or taken for granted in formal disaster planning, despite their ongoing and practical currency for community members in daily conversation and planning. Davis *et al.* (2012) found that older people in rural Australia could clearly identify natural disasters

such as bushfires as occasions for social capital to be mobilised and for natural community leaders to emerge. This latent resource has until recently, however, been under utilised in the planning and preparation for natural disasters (Australian Red Cross 2009, 2013; Wellington Region Emergency Management 2014). Like the older people in a number of recent studies (Andonian and MacRae 2011; Davis *et al.* 2012; Gallagher 2012), research participants in the current study were actively seeking opportunities to make a contribution, but often struggled to find a valuable and meaningful place to do this outside the unsung, but critical, informal work they were doing with neighbours and friends. This points to a need for further attention to, and valuing of, this significant contribution, currently under-noticed and under-utilised in natural disaster planning. Both Collom (2008) and Forsman *et al.* (2013) found that engagement in meaningful and valued activities was strongly linked to mental wellbeing for older people. In addition, Collom found older people often acted as key generators of bridging as well as bonding social capital across generations. This study highlights a population of older people who report wanting to be involved in this kind of activity and who are already engaged at a neighbourhood level in generating bridging social capital in relation to natural disaster preparedness.

As well as the informality of the networks and relationships reported by research participants, their local knowledge is also worth consideration in relation to natural disaster planning. Descriptions of past natural disaster responses by participants were all focused within either one street or perhaps a small group of houses. Participants prepared for, and engaged with others in, response to a natural disaster within a very small geographical area and network. Forsman *et al.* (2013) highlighted the importance of very local neighbourhoods as the context in which social relationships for older people impacted on wellbeing and in which social capital was generated and maintained. Gallagher (2012) also identified local places and relationships as key factors in participation and meaningful activity for older people. For anyone involved in natural disaster planning, response and recovery, this place-based and informal relationship-driven context, in which older participants in the current research are already engaged, should be considered as a field for further attention. A danger here, of course, is for formal planning processes to smother or alienate this kind of informal and fluid system. An alternative suggestion is for formal planning structures to broaden their focus to include longer-term community development activities to support and encourage the informal networks already operating. This has begun in Australia (Australian Red Cross 2013; Deloitte Access Economics 2013; Winkworth *et al.* 2009), but considerable work is still to come in understanding how such informal networks operate, and in developing strategies for effective support of these. Local government community development

workers, neighbourhood/community centres and larger non-governmental organisations such as the Red Cross all have crucial roles to play in designing and enacting this kind of community capacity-building work, as do small community, cultural and religious groups. Older participants in the current research made a number of suggestions to improve current processes. These included the provision of clear, simple information, a process for local people to participate in planning and decision making for natural disasters, and to be actively involved prior to as well as after a disaster event, valuing and encouraging a reciprocal and inter-connected culture at a neighbourhood and broader level in relation to disaster preparedness, and engaging with community members as partners in planning rather than as recipients of decisions. These are all starting points for future research and action. The current and potential contribution of older community members in generating and maintaining social capital, which they can and do mobilise in times of crisis, is a major finding of the current research. Older people in the regional Australian communities, where this study was conducted, were far from being only 'at risk'. This study has found they were also actively involved in mitigating risks for themselves and their neighbours before, during and after a natural disaster.

One important note in relation to the findings on older people is that for those aged 75 and older, who participated in the research, physical challenges, social isolation and safety risks were identified and discussed. Interestingly, it was the younger group of older participants (those aged 65–74) again who were largely acting as social and practical support for those aged 75 and over, and/or those older people with significant health or frailty challenges. In terms of future research, both the relationships between these two groups and more detailed information from a larger group across both age ranges provides an important focus in better understanding how older people can and do contribute to disaster preparedness, response and recovery.

Limitations of the research

Three important limitations of the current research are acknowledged. Firstly, a number of groups were not included in this study but should be included in future research in this area. Aboriginal and Torres Strait Islander communities were not explicitly identified as a research participant group. While some individual research participants identified as Aboriginal, the perspective of the Aboriginal communities in the research localities is not explicitly included in this paper.

Secondly, Culturally and Linguistically Diverse community members who did not speak English were included but due to time and resource

constraints only a small number of participants were part of this sub-group. Further research with a larger number of older people in these groups is recommended in order to understand how they prepare and respond to natural disasters.

Thirdly, recruitment for this research was focused on existing services, organisations and networks; there was a bias towards participation by those already engaged in community activities. We did not seek older people who were not living independently as their 'at risk' status was seen to be lessened by the formal care services available in nursing homes and low-care accommodation, although we did have participants from retirement or supported accommodation. Further research planned will focus on accessing a wider range of participants who may not be connected with existing local networks. In this context, the current research has highlighted the largely invisible nature of many existing networks of older people. Supporting these networks to assist in connecting with socially isolated groups also warrants further attention.

Conclusion

A key finding from the research was the high level of preparedness, neighbourhood knowledge, and capacity to develop and mobilise informal networks in preparation for and in response to natural disasters, amongst older people. The research suggests that this group of older people represent an under-utilised resource in disaster preparedness, response and recovery. Thus, their role as generators and enactors of neighbourhood social capital goes unrecognised and is overlooked in planning strategies. Further research with this group is recommended to better understand, support and enact their potential as important contributors to local disaster planning.

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