Insider community participation in recovery from natural disaster, 2009 to 2021: scoping the evidence

Abstract

Much of the policy and literature in disaster studies extoll the virtues of communities participating in self recovery. The empirical evidence, however, is often thin and self-referential. In an Australian context, there exists a need to ascertain 'what is known' about how affected community members can best participate after disasters and what, if anything, can be applied to communities and for policy makers. To address this, a scoping review was conducted of 34 papers published between 2009 and 2021 that detailed studies into how different affected or 'insider' communities responded to 'natural' disasters using geographic, governmental and disaster contexts. While there is a dearth of empirical research on insider community participation (particularly in Australia) and significant problems with current hierarchies of participation, there is evidence that, when harnessed appropriately, insider participation has significant potential to improve recovery outcomes.

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Introduction

The United Nations Development Programme (UNDP 2020) and, closer to home, Emergency Management Victoria's (EMV) Resilient recovery strategy (EMV 2019) stress the importance of community participation in the relief and recovery phases of disasters. Indeed, the latter emphasises the need for government agencies to 'bring communities into the planning process before, during and after an emergency and enable community involvement, so recovery activities better reflect community strengths, needs and values' (EMV 2019, p.10). Within Australia, the virtues of community recovery have been extolled for decades, with one study following the Ash Wednesday bushfires noting that 'communities recover best when they manage their own recovery' (Hill, Hill & Gray 1987, p.11).

Much of the literature also supports the push for greater community participation in recovery, whether due to a neoliberal, democratising ideology (Pyles 2011), the catharsis and empowerment that it may provide (Chamlee-Wright & Storr 2011, Meheux *et al.* 2010), notions of cost-effectiveness and 'sustainability' (Lawther 2009) or the virtues of 'local knowledge' (Allen 2006). The empirical evidence however, is often thin and 'self-referential' (Mulligan 2013, p.281), with notions of 'community' and 'participation' often vague or ambiguous (Davidson *et al.* 2017). As Vallance (2015, p.1289) notes, 'there are relatively few examples of empirical research evaluating different types of public participation in decision-making during disaster recovery'. Therefore, while support for community participation remains strong among literature and policy circles, its empirical foundation is shaky. Moreover, recent Australian evaluations have pointed to a tendency for government agencies responding to disasters to adopt a 'one-size-fits-all' approach to working with communities (Taylor & Goodman 2015). The unique characteristics and contexts of local communities can be overlooked, leading to feelings of being 'managed' rather than being supported (Young, Jones & Cormick 2021). Clearly, there is a need to understand what is meant by 'community participation'.

This scoping review aims to address this by mapping the current 'state of the field' to:

- summarise existing empirical knowledge within current studies of disaster-impacted community participation in their own post-disaster recovery
- identify gaps in current research.

The impetus for this review was a 10-week university placement. During the project, a need to ascertain what information existed regarding community participation in post-disaster contexts emerged in order to determine 'best practice' guidelines for government agencies. The explicit purpose was to see what EMV could take away from the evidence for community-led recovery by those directly affected by disaster; the 'insiders', living and working within disaster-affected communities to maximise recovery outcomes. It is acknowledged that there is extensive literature in the areas of preparation, risk, assessment, inclusion and volunteering after disasters (see McLennan *et al.* 2021), however, this literature was outside of the scope of this study.

Method

A scoping-review method (Peters *et al.* 2015) was used to identify evidence and knowledge gaps in the published literature between 2009 and 2021. This timeframe was selected due to the increase in research in Australian following the 2009 Victorian Black Saturday bushfires. This timeframe also reflects the Australian policy contexts of disaster recovery and resilience at the national, state and territory levels. Similarly, while the terminology of 'natural' disasters is increasingly contentious in the era of anthropogenic climate change, it is useful as a practical distinction to identify relevant inclusion criteria for the review. The Centre for Research on the Epidemiology of Disasters (Below *et al.* 2009) typology of 'natural disasters' is used as they encompass geophysical, meteorological, hydrological and climatological events. A conscious choice was made to exclude 'biological' disasters from inclusion due to the desire to avoid making claims about 'best practice' health guidelines developed in a pre-pandemic world and its intuitive and cultural separation from 'natural disasters' in Australian policy where the language of 'natural disasters' is still useful in distinguishing these events (EMV 2019).

A scoping review method involves 5 stages:

- identifying the research question
- identifying relevant studies
- study selection
- charting the data
- collating, summarising and reporting results (Arksey & O'Malley 2005).

This review method enabled responses to the research questions:

- What is the nature and extent of current empirical studies (2009-21) of insider community participation in recovery from 'natural' disaster?

- What recommendations can be made for future research and/or policy based on the current state of the field?

Search strategy

Searches were conducted using the Web of Science, ProQuest and Taylor & Francis databases for literature published between January 2009 and June 2021 to identify relevant studies of community participation in recovery.

Inclusion criteria for the search were:

- key words:
  - 'community' and/or 'citizen'
  - 'participation' or 'involvement' or 'collaboration'
  - community-led'
  - 'natural disaster' or 'disaster'
- describes a study using any methods or methodology
- was published between 1 January 2009 and 30 June 2021.

Exclusion criteria were:

- non-'natural' disaster (COVID, war, terrorism, internally displaced people)
- scoping or other systematic review
- included government participation
- included non-local/'outsider' participation
- a think piece/opinion/'notes from the field'.

Given the focus on community participation in disaster-affected communities, studies that investigated communities that were not directly affected by the event were excluded. For this reason, groups such as 'outsider' volunteers (McLennan *et al.* 2021) were excluded. The objective was to map existing empirical evidence to inform future policy within agencies looking to understand best practice. Thus, from a research perspective, this meant that existing policy documents and other grey literature were excluded.

Articles were imported into the Covidence software package and underwent screening for title and abstract. From this sample, 46 articles progressed to a full-text screening, 28 of which were deemed relevant for this review (Figure 1).Three additional articles were identified from reference list scans and another 8 from searches conducted with new keywords emerging from the full-text screening. Of those additional papers, 6 were assessed as relevant, yielding a total of 34 articles for the scoping review (asterisked in the references section).

Findings

Features of the studies

The papers were geographically widely distributed (Table 1) with a cluster in New Zealand (n=10) and the United States of America (n=10). The New Zealand publications occurred following the Christchurch and Canterbury earthquakes of 2010 and 2011. In the USA, publications in New Orleans and the Gulf Coast after Hurricane Katrina (n=4), New York after Hurricane Sandy (n=3), Texas following Hurricane Harvey (n=2) and Texas following
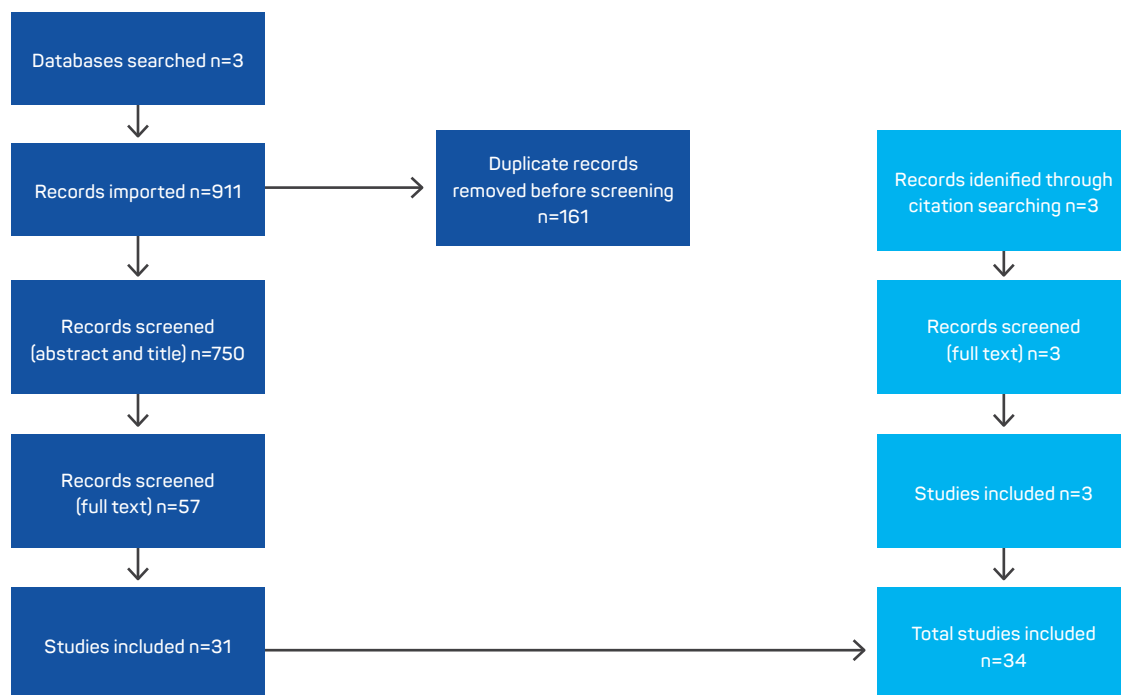
Figure 1: The search approach.

Hurricane Ike (n=1). The Australian studies (n=2) examined community participation following Tropical Cyclone Yasi and the Black Saturday bushfires. Overall, 23 of the studies (68%) were within urban settings while the Australian studies occurred in a more regional context.

Table 1: Studies by country.

Country	Number of studies
USA	10
New Zealand	10
Australia	2
Fiji	2
Philippines	2
Haiti	1
Maldives	1
Bangladesh	1
Nepal	1
Sri Lanka	1
China	1
India	1
South Korea	1
Pakistan	1
Italy	1
Turkey	1

The studies selected presented diverse types of disaster events with 2 significant clusters (Table 2). The high number of studies about community responses to earthquake and hurricane reflect the New Zealand studies (n=10) and, likewise, the US studies (n=10) related to hurricanes.

Table 2: Studies by disaster type event.

Type of disaster	Number of studies
Earthquake	16
Hurricane	10
Tropical Cyclone	4
Tsunami	3
Landslide	1
Bushfire	1
Flood	1
Typhoon	1

While there was an even distribution of disaster events across the last 20 years (Figure 2), studies of community participation following Hurricane Katrina and the Canterbury earthquakes featured 14 times.

Methodologically, qualitative methods dominated the published studies (Figure 3), with interviews used by more than half of the sample (n=26).
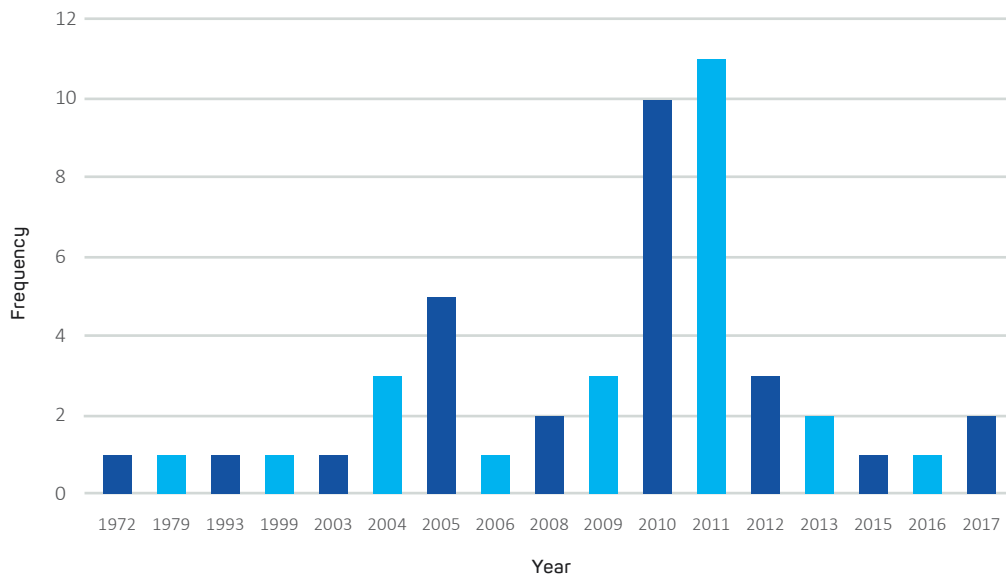
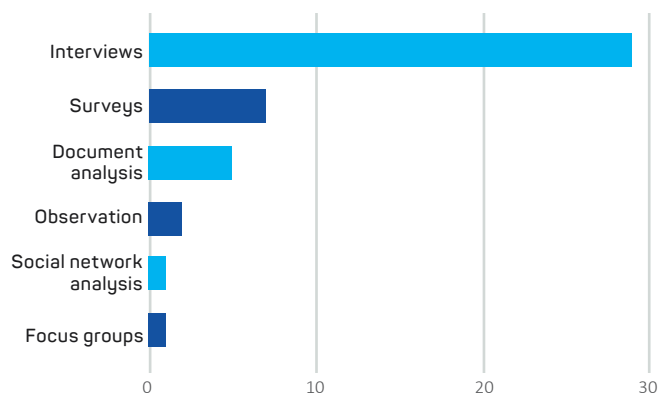Figure 2: Years of disaster events in studies, by frequency.

Figure 3: Methods employed by the studies, by frequency.

Thematic findings

Seventeen of the articles (50%) did not report findings regarding the effect of community participation on recovery outcomes. Their analysis focused on reporting 'what happened' or 'how it happened'. Nonetheless, our analysis highlights that, together with the remaining papers, these studies portrayed distinctive understandings of what is meant by (1) community and (2) participation.

On 'community'

The studies differed in their definitions of 'community' (a common issue within the literature (Fois & Forino 2014)), though some distinctions between the type of communities identified can be drawn (Figure 4). In almost half the sample (n=15), the 'community' in question was simply the residents of an affected town or city. Specific town and neighbourhood organisations were the focus of 5 articles. In this respect, geographic understandings of community were by far the

most prevalent. Smaller or more specific communities, such as school communities (n=3), families or individuals experiencing homelessness (n=3), digital communities (n=3), religious communities (n=3), First Nations communities (n=2), CALD communities (n=1), gendered communities (n=1) and artistic communities (n=1) completed the sample (noting some studies identified more than one community).

To examine the types of communities identified, the Disaster Research Council's fourfold typology of groups involved in disaster response was used (Dynes 1970). Two types of groups were present in the studies:

· emergent groups - established ad hoc after disaster, responding to specific tasks and issues
· extending groups - pre-existing groups such as neighbourhood or school organisations whose mandates changed in response to disaster.

Emergent groups were identified in 9 of the studies and extending groups in 16 studies. In 12 studies, groups were not specified or not present. In 2 studies, both emergent and extending groups were identified.

The studies drew out several characteristics that enabled extending groups to participate effectively during post-disaster recovery when compared to emergent groups:

· pre-existing governance structures
· pre-existing authority and social trust
· known places and persons of contact
· access to bridging and linking capital
· potential for ongoing financial support.

In 4 studies (Kenney *et al.* 2015a, Kenney *et al.* 2015b, Love & Vallance 2013, Leadbeater 2013), emergent groups established themselves as deliberative, long-term bodies. While further study is required to understand why these examples differed from
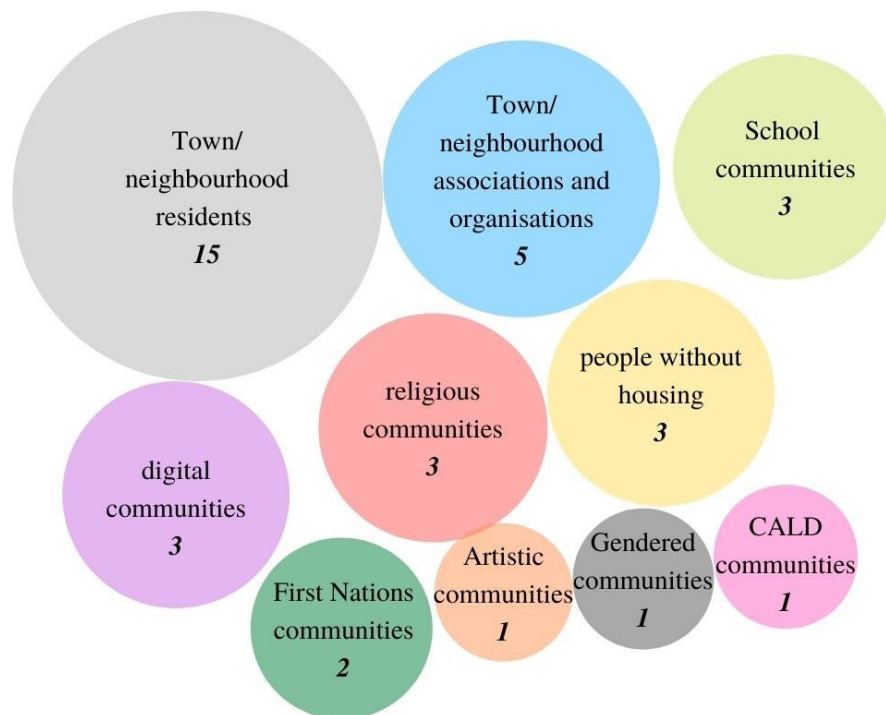
Figure 4: Groupings of communities.

emergent communities (which disband shortly after completing their tasks), each included at least 2 of these characteristics of effective extending groups where other emergent groups did not.

Three studies focused on the use of social media following a disaster. In examining the effect of different social media platforms in studies from Texas (n=2) and South Korea (n=1), increased social media use had a measurable and positive effect for physical recovery outcomes, information-sharing between communities and government and emotional and psychological wellbeing (Page-Tan 2021, Chu & Yang 2017, Song *et al.* 2015). Interestingly, the social media platforms reflect the dichotomy between emergent and extending groups. In each of the studies, communities were drawn to pre-existing WeChat, Neighborhood, Facebook and Twitter groups/pages to share resources and stories after the event, rather than creating new, disaster-specific groups. This phenomenon of extending digital groups reflects the experience following severe storms and floods in June 2021. Victorian State Control Centre personnel noted that community members used pre-existing, local Facebook Buy/Swap/Sell pages to locate and share equipment during an extended period of blackout.

The capacity for communities to possess 'local knowledge' is unclear. Leadbeater (2013) noted that 'While local knowledge is vital in recovery, comprehensive local knowledge does not exist for an event that is outside the community's history or lived experience' (p.45). Although the community in question had general experience of bushfires, the sheer magnitude of Black Saturday left them feeling that their knowledge was irrelevant. Conversely, a study of a similar organisation in Canterbury, New Zealand found that the group was able to effectively participate

alongside government agencies after the 2011 earthquakes due to their recent experience during the 2010 earthquakes (Cretney 2016).

On 'participation'

'Participation' was not well defined within the studies. However, by using a typology of participation offered by Vallance (2015), the examples of participation presented in the studies were categorised as either 'active' (the 'sweat work' of physical recovery efforts, n=16), 'procedural' (deliberative/organisational efforts, n=9) or both (n=8). In one study, the type of participation was not specified.

The majority of papers referred to Arnstein's (1969) 'ladder of citizen participation', or a derivative thereof, as a tool for categorising or comparing qualities of participation. The ladder features a hierarchy of participation prioritising community 'control' over more tokenistic involvement. But despite widespread use, many studies showed that greater community 'control' over recovery did not correlate with improved outcomes or higher community satisfaction. Instead, greater control was associated with perceived or actual lack of governmental support. In a study of an isolated community in the Philippines responding to a landslide, Loebach and Stewart (2015) found that a local Catholic high school became the central point of emergency accommodation, distribution of material aid and psychospiritual support following the complete collapse of local government and the inability of other government entities to access remote communities. As an extending religious group, the school community leveraged existing authority and linking capital to take control of recovery efforts. Schmeltz *et al.* (2013)

and Rivera and Nickels (2014) similarly found that local extending groups (a neighbourhood association in New York and a church in New Orleans) took control after hurricanes due to an absence of government involvement. While these studies do not detail the effect of such control on overall recovery outcomes compared to those where government support is forthcoming, each noted the negative consequences for trust in government.

Love and Vallance (2013) and Vallance (2015) highlighted the discomfort felt by one neighbourhood organisation when faced with taking control of recovery activities following the Canterbury earthquakes: '[They] wanted to have the ability to influence planning processes, and its outcomes, but did not want decision-making authority' (Love & Vallance 2013, p.7).

Two studies (Storr & Haeffele-Balch 2012, Fois & Forino 2014) detailed separate community-controlled recovery initiatives operating in direct opposition to government plans. Following Hurricane Katrina in New Orleans and the L'Aquila earthquake in Italy, government plans for recovery were seen by local communities as inadequate and this resulted in neighbourhood associations creating and implementing their own, ultimately successful, counterplans.

In these studies, community control because of government absence, government delegation (i.e. 'buck-passing') and perceived government inadequacy fostered distrust in government authority. While falling trust in government warrants more study, it represents an area of concern for future resilience efforts. Opdyke *et al.* (2019) found that for a government-run housing reconstruction project following a typhoon in the Philippines, consumer control over house design was not an important correlate of satisfaction. In keeping with Love and Vallance's (2013) findings, influence during the planning stage of the project was a far more important variable. While control over the physical rebuilding of houses did correlate with high satisfaction, it was marked by a high opportunity cost for those involved, as found by Vallance (2015). These findings promote collaboration as a higher priority than control when working with communities.

Discussion

These findings have implications for future research and policy. Although many of the published papers did not define 'community' or 'participation', several themes were drawn from them for application within disaster-affected communities. The Disaster Research Council typology identified 2 main types of groups engaged in insider community participation (emergent and extending). While several key attributes of extending groups that enhanced community participatory capacity could be drawn from the sample, there was no empirical evidence within the papers to suggest that they have an inherent advantage over emergent groups. The literature's focus on insider communities that emerge or extend in response to an extreme event may also explain the absence of other communities that have unique experiences of disaster. While Australian literature has investigated, for example, LGBTQI+ communities experiences (Dominey-Howes *et al.* 2018), the studies reviewed in this sample

did not explore the experiences of specific communities that were not emergent or extending, that is, those that did not pivot their raison d'etre in the face of disaster. It is beyond the scope of this paper to analyse the reasons for this gap, though similar gaps have been shown to exist in a Victorian recovery program that showed a lack of awareness of diverse community cohorts (Young, Jones & Cormick 2021). There is a need to ascertain why research on 'community' participation chooses to explore the experiences of certain typologies of community over others.

What was clear is that while much of the literature makes use of Arnstein's ladder (1969) in its characterisations of community participation, this construction is, at best an unnuanced way to understand the hierarchy of participatory processes and, at worst, a tool that promotes a style of participation that can negatively affect community outcomes.

Although the number of studies of community social media use as a form of participation was small, we nonetheless conclude that the evidence for its efficacy is strong. The limited contexts of those studies shows a pressing need for similar analyses of social media's potential as a participatory mechanism, particularly in Australia.

Limitations

This review identified 34 studies across diverse geography and disaster events. Its findings are limited by the clustering of those studies around earthquakes in New Zealand and hurricanes in the USA. Although the 2009–21 inclusion criteria for this study is justified on the grounds of its Australian perspective, it is possible that studies of older disaster events may counterbalance this clustering. Similarly, while biological events were excluded from understandings of 'natural' disaster, insights into how communities effectively participate in disasters more broadly may well be drawn from COVID-19 pandemic responses. While we attempted a broad sweep to collect relevant studies of 'community' participation, the lack of clarity of the term within the literature meant relevant studies may have been missed if they used alternative labels for 'community'.

Future research

From an Australian perspective, the most pressing implication for future research relates to the severe lack of applicability of existing empirical evidence in the area of 'insider' community participation. Only 2 of the 34 papers reviewed examined Australian communities. While many others took place in the comparable policy area of New Zealand, their focus on earthquake events limits their applicability to an Australian context. The urban setting of more than two-thirds of the sample reduced the applicability of their findings to communities in regional or remote Australia. There is a strong case to be made, therefore, for research examining how rural and remote communities affected by extreme events participate in their own recovery efforts.

Despite the relatively small number of studies examining social media, their 'harder', measurable findings make them impossible to overlook. Their limited settings, however, mean

that while social media has the capacity to drastically improve a community's capacity to participate in recovery as well as its outcomes, its potential in broader contexts such as Australia remains unclear. Future research could examine how Australian communities use social media and how, in the context of connection 'blackout' zones, existing digital infrastructure affects community participation and recovery.

While there is a clear dichotomy between the types of emergent and extending groups engaged in community participation efforts, this phenomenon remains under-researched. While the studies suggest that extending groups have inherent advantages that allow them to prepare and respond better, as well as work alongside government and non-government agencies, further research is required to unpack this. We found no studies of extending groups engaged in community participation within Australia. However, given the plethora of research on similar groups in New Zealand, it can be assumed that extending groups such as schools, churches, CALD organisations, First Nations groups and neighbourhood associations are already actively involved in recovery. The gap between studies of insider community participation and knowledge on the experience of broader communities such as the LGBTQI+ community also deserves attention, with a need for bridging these fields of knowledge.

The findings regarding the notion of community or citizen 'control' over recovery activities also carry significant implications for future research. While Arnstein's (1969) ladder remains influential in the literature, this review shows that the hierarchy that prioritises control requires updating. Across different countries, disasters and communities, 'control' over recovery planning was shown to be damaging to local trust in government; a result of government absence or perceived inadequacy and not desired by communities. Instead, as highlighted by Opdyke *et al.* (2019), Vallance (2015) and Vallance and Love (2013), a more nuanced hierarchy of community participation favours collaboration over control. In this model, a co-creation of planning projects and knowledge, where community groups maintain the capacity to influence and inform government action, may serve as a better guide to characterise 'ideal' community participation. Two studies, Cretney (2018) and McDonnell *et al.* (2019), highlighted the success that comes from such a model when implemented by governments in New Zealand and the USA.

Future policy

These findings highlight that policy may be better placed to emphasise collaboration instead of control when working with disaster-affected communities. While community-led recovery remains a strong guiding light within policy and literature, this review highlighted its problems when considered synonymous with community control over recovery. Instead, the notion of community-influenced recovery may better reflect the desires and capabilities of communities in the aftermath of disasters. This echoes Ireton, Ahmed and Charlesworth (2014) regarding the role of government in 'holding the space'; supporting communities to consider their priorities and potential beyond the immediate pressures of rebuilding. The Victorian resilient recovery strategy is well-placed to deliver this while living up to its mandate of '[bringing] communities into the planning process before, during and after an emergency and [enabling] community involvement' (EMV 2019, p.10).

This study provides insight for guiding future policy and mapping community resilience and capacity to participate effectively in recovery. In highlighting the dichotomy between emergent and extending groups, this review suggests that extending groups carry existing strengths for responding to events. Government may be better suited to identifying and strengthening these localised groups during disaster planning and preparedness. By identifying a diverse range of extending groups from neighbourhood associations to school groups and religious institutions and locating and supporting these groups governments and emergency management planners could improve community resilience.

Conclusion

While much of the policy and literature idealises the notion of community participation in recovery, the exact nature of community and participation is frequently vague. The empirical evidence to support such idealisation is often thin or self-referential. This scoping review has sought to chart the existing knowledge of how communities directly affected by disasters have participated in their own recovery through examining 34 studies published between 2009 and 2021. As the findings highlighted, there is a clear need for further research, particularly of Australian communities and remote and regional communities more broadly. There is also significant work required to create a nuanced understanding of 'ideal' community participation that stresses the value of collaboration and co-creation over the widely prized standard of community control. The studies demonstrate, however, that when communities are able to contribute to their recovery in a way that is meaningful to them, there is significant potential for improved outcomes.

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