Geoforum xxx (xxxx) xxx

Contents lists available at ScienceDirect

Geoforum

journal homepage: www.elsevier.com/locate/geoforum

Primed for harm: Inaccessible housing as a vulnerabilising assemblage

Ilan Wiesel [a,*], Emma R. Power [b]

[a] School of Geography, Earth and Atmospheric Sciences, University of Melbourne, 221 Bouverie St, Carlton, VIC 3052, Australia
[b] School of Social Sciences, Western Sydney University, Australia

ARTICLE INFO

Keywords:
Vulnerability
Disability
Housing
Accessibility
Assemblage

ABSTRACT

In this paper we propose the concept of 'vulnerabilising' to mark an explicit shift in the focus of analysis and intervention away from those individuals and groups labelled vulnerable, towards the processes that generate and reproduce vulnerability. To that end, we develop a framework that conceptualises how 'vulnerabilising assemblages' operate. We mobilise assemblage thinking and engage with theoretical debates on the nature of vulnerability as a universal, albeit unequal, human condition. Addressing inaccessible housing as a case study, we identify three mechanisms through which it vulnerabilises people with physical disabilities: through exposure to harm; through erosion of defenses against harm; and by legitimising or motivating harm. We propose that such mechanisms can be investigated in different contexts, and call on researchers, policymakers and grassroot activists to shift their attention from vulnerable bodies to vulnerabilising assemblages.

1. Introduction

Vulnerability analysis highlights how inequalities, which can sometimes go unnoticed within everyday routine, manifest as harm in particular moments or events, from pandemics (Ghandeharian and FitzGerald, 2022; Martino et al., 2022) and natural hazards (Smith, 2006) to economic downturns or restructuring (Beer et al., 2016). With such attention to spatial and temporal context, vulnerability analysis turns away from understanding disadvantage as an all-encompassing experience of certain social groups. Rather, it asks about the vulnerability of whom, to what, where, when and why (Meerow and Newell, 2016).

Some vulnerability analysts emphasise that their focus is on the structural and historical conditions that generate vulnerability (Davoudi et al., 2012). And yet this contrasts with wider policy and public applications of the term 'vulnerable' as an essentialised trait of individuals and groups connected with passivity, weakness and victimhood, in need of special protection from the state or charitable sectors (Misztal, 2011; Butler, 2014; Mitchell, 2020; Snipstad, 2021). For this reason, many groups – such as people with disabilities – reject their labelling as 'vulnerable' (Mustaniemi-Laakso et al., 2022).

Responding to such critiques of 'vulnerability', and yet recognising its theoretical and political merits, in this paper we propose the concept of 'vulnerabilising'. This shift from adjective to verb is not merely semantic; it marks a shift in the focus of analysis and intervention away from those individuals and groups labelled vulnerable, towards the assemblages that generate and reproduce vulnerability. Our framework brings together two theoretical approaches. First, following Amoako and Frimpong (2020) who conceptualise vulnerability to flooding in Accra, Ghana, as a process of becoming, we also draw on assemblage thinking to explain how multiple relations come together in ways that vulnerabilise specific people in specific contexts. Second, we engage with theoretical debates on the nature of vulnerability as a universal – albeit unequal – human condition, drawing particularly on feminist literature. At the heart of our conceptual framework lie the following propositions, on which we elaborate through theoretical and empirical engagement:

- Vulnerabilising assemblages do not necessarily cause immediate and direct harm (although they might do that too); rather they increase people's susceptibility to future harm;
- Vulnerabilising assemblages increase people's susceptibility to harm through mechanisms such as *exposing* them to harm, *motivating or legitimising* harm, and *removing their defenses* against harm.
- Vulnerabilising is not necessarily intentional;
- Vulnerabilising assemblages can generate susceptibility to some harms, but not others;
- Vulnerabilising assemblage effects are often cumulative and self-reinforcing, however are not permanent;
- Vulnerabilising assemblages can also be spaces of resistance and repair;

* Corresponding author.
E-mail address: ilan.wiesel@unimelb.edu.au (I. Wiesel).

https://doi.org/10.1016/j.geoforum.2023.103826
Received 1 August 2022; Received in revised form 10 July 2023; Accepted 15 July 2023

Moving beyond theoretical conceptualisation, we explore how a vulnerabilising assemblage operates in practice through empirical investigation of inaccessible housing and its effects on people with physical disabilities. Accessibility is one aspect of housing quality (Imrie, 2005), which concerns residents' and visitors' easy entry and exit, navigation and functionality in and around the home. Accessibility also concerns the potential for straightforward and cost-effective adaptation as occupants' needs change over time (Fänge and Iwarsson, 2003; LHA, 2017). Inaccessibility occurs due to mismatches between a person's body, the activity they wish to perform, and the environment in which that activity is pursued (Fänge and Iwarsson, 2003). We consider housing inaccessibility as a vulnerabilinsg assemblage via an Australian case study. In 2018 there were approximately 2.9 million Australians with a mobility-related disability, and their number is projected to nearly double over the next 40 years, due to population growth and ageing (CIE, 2020). However, there is a severe shortage in supply of accessible homes to meet current and future demand. Less than 5% of newly built homes in Australia are accessibile for people with mobility restrictions (ANUHD and RI Australia, 2015). The lack of accessible housing is common in many other national contexts (Plouin et al., 2021). While there is a growing body of literature addressing the harms of inaccessible housing (Aplin et al., 2015; Lau et al., 2018; Goodwin et al., 2022), in this study we consider not only direct harm, but also vulnerablising effects associated with inaccessible homes, which expose people with (and without) disabilities to future harms in ways that have not yet been documented and theorised in the literature.

2. From 'vulnerable' to 'vulnerabilising'

Vulnerability, Misztal (2011, p1) reminds, "is derived from the Latin word for 'wound': vulnus." Although emerging from diverse political and ontological foundations, vulnerability discourse in research and public policy tends to align around this notion of harm, reflecting dictionary definitions that "stress that vulnerability refers to human liability to being wounded, susceptibility to wounds or external injuries or to being mistreated, exploited or taken advantage of." (Misztal, 2011, p1).

Vulnerability research is organized around two broad traditions. The first sees vulnerability as a characteristic of certain groups of people. Some feminist traditions mobilise ideas of women's innate vulnerability in seeking greater protections for women, including from the state or international courts (Butler, 2014). Vulnerability has also been a feature of political organising and public policy, including organising and mobilising charitable work. Within Third Way politics, for instance, vulnerability is used to categorise and identify the "deserving disadvantaged who are in need of protection" (Misztal, 2011, p.3). This position on vulnerability is subject to widespread political and sociological critique. It is recognised as risking reductivism and essentialism in ways that can limit agency and further disempower groups identified as vulnerable. In turn it is critiqued for not sufficiently attending to the social, political and economic conditions that create or reinforce vulnerability (Butler, 2014; Mitzsal, 2011).

A second tradition views vulnerability within a relational lens, conceptualising it as a "condition of human life" and recognising that all "human beings are susceptible to suffering and harm, exacerbated by the inequities of the social systems in which they live or ameliorated by responsible social institutions" (Mitchell, 2020, p226). Rather than an innate feature of a particular group or individual identity, this tradition recognises vulnerability as a universal human condition that is variously exacerbated or ameliorated via modes of social, political and economic organisation (Fineman, 2010; Ghandeharian and FitzGerald, 2022). These 'post-identity' theories of vulnerability bring focus to intersecting institutions and power structures, rather than intersecting identities, as driving the uneven social constitution and experience of vulnerability (Fineman, 2010). Fineman argues the political power in this move: "Mobilizing around the concept of shared, inevitable vulnerability may allow us to more easily build coalitions among those who have not benefited as fully as others from current societal organization" (Fineman, 2010, p. 17). From this standpoint, it is the responsibility of society to ameliorate vulnerability by protecting individuals against harms, and it is the uneven protection against harm afforded to different people that shapes unequal levels of vulnerability.

Our work builds from this second tradition of vulnerability research. However, while this work has been instructive in recognising the range of social, political and economic conditions that potentially shape vulnerability, there remain tensions within vulnerability discourse characterised by a slippage, or what Mitchell (2020, p.231) describes as a "morphing from a description of social conditions and relations to a category of person - 'the vulnerable'." The challenge of how to negotiate these lines of debate is live, with substantial material implications for the organisation of public and social policy centred around recognising and providing support to those identified as vulnerable (van Holstein et al., 2022). Questions centre around how vulnerability and its subjects might be recognised and supported without recourse to the more fixed and disempowering discourse of 'the vulnerable'.

Provoked by these debates, in this paper we offer vulnerabilising as a heuristic to further decentre vulnerability research away from the subjects of harm and toward the relational constitution of harm. Our focus is the mechanisms and processes that generate susceptibility to harm (or wounding, cf. Mistzal, 2011), foregrounding the ways that systems, infrastructures and practices join diverse human and nonhuman actors together to collectively generate or give rise to vulnerability within defined contexts. We conceptualise vulnerabilising within an ontology of connection. Informed by assemblage thinking, we understand vulnerabilising as a process that is affected through the coming together and co-functioning of diverse actors and entities across time and place (Anderson and McFarlane, 2011) and that opens an entity to the possibility of harm.

3. Conceptualising vulnerabilising assemblages

Vulnerabilising is a process that has socio-material, temporal and spatial dimensions. Like any other assemblage, vulnerabilising is emergent and generative, unfolding in conjunction with the actors who are part of a given relation. It is a process that is given form and made specific through the creative liaisons and frictions that take place between these actors. Actors are shaped through these relations (for example, they are vulnerabilised to a risk of future harm). They are not, however, fully defined through these relations. Rather, actors bring distinct characteristics and qualities "that shape the possibilities and capacity for action" (Power 2019, p. 767) and that reflect what DeLanda terms "relations of exteriority" (DeLanda, 2006 p10-11).

The importance of conceptualising susceptibility to harm as assemblage is emphasised in harm reduction philosophy as applied to drug policy. Drug use is often associated with harms such as exposure to infectious disease through sharing of used needles, or death by overdose. Harm reduction strategies seek to reduce these harms, not by banning drug use, rather by addressing other factors such as the conditions and contexts in which these risks are amplified. Such conditions operate as complex assemblages (Duff, 2012). Following a similar approach, we argue vulnerabilising needs to be understood as produced through an assemblage of relations, rather than the consequence of any singular action in isolation.

Vulnerabilising explicitly positions vulnerability within a temporal frame, emphasising the openness of relations and the possibility of harm (s). Risk is an inherently temporal concept, "bound to the present, but importantly also bound to possible future outcomes" (Frederiksen and Heinskou, 2016), which cannot be predicted at any certainty. The timing of harm, and whether it does or does not eventuate, is open and unpredictable. Vulnerabilising thus takes place while the sets of relations that open an actor to harm are present: this may be a brief moment that is followed rapidly by the suggested harm, or by a change in

circumstances that remove risk. Vulnerabilising may also be temporally stretched, as relations expose an actor to harm or a perceived risk of harm over time. Although our focus is on the risk of future harm, the 'vulnerabilising moment' at which vulnerabilising relations are still present, has immediate effects. The vulnerabilising moment can carry an atmospheric charge or generate a set of emotions connected with the uncertainty and possibility of future material harm, as well as the possibility of circumventing those. Some emotions can be pleasant, such as the excitement of taking a risk. Others can also be experienced as painful, such as fear or anxiety.

The spatialities of vulnerabilising relations are also open. Assemblages are made up of actors that can be co-located but that also frequently connect across time and space (Delanda, 2006). As we explore in our empirical discussion that follows, for people with disability the vulnerabilising effects of inaccessible housing are shaped through actors that are co-present as well as those that stretch across space, from the material space and location of the house itself to the policy frameworks and systems that organise housing (such as building codes), discourses that position people with disability as 'Other', and the body itself. Conceptualising vulnerabilising as assemblage prompts analysis that unpacks these diverse actors and their combined effects.

Vulnerabilising assemblages open bodies to harm, but harm is a complex and ambiguous concept. Harm is broadly understood as a negative consequence that can be attributed to a cause. It can be material, such as the loss of property or risk of bodily injury, as well as emotional. The duration of harm can vary, from fleeting pain or discomfort to longer lasting injury. A distinction is sometimes made between personal and interpersonal harm (Delfabbro and King, 2019). While personal harm is focused on individuals, interpersonal harm can affect multiple people and relations between them, for instance "broader harms in the community, such as might arise when gambling directs expenditure away from community activities or contributes to a loss of amenity or social cohesion" (Delfabbro and King, 2019, p. 745). Here we conceptualise harm as relational, that is, although it can be experienced by an individual person as a physical or emotional pain or injury, it is produced by relations with other people and things.

While vulnerabilising relations open people to the risk of harm, there can also be a dignity in risk, as disability scholars and rights advocates have long stressed. Perske, who coined the term 'dignity of risk' in 1972, emphasised the self-determination, personal growth and self-fulfillment that come not only from risk taking, but also from experiencing harm, and then picking oneself up and trying again (Perske, 1972). Perhaps a distinction can be made between voluntary risk-taking by individuals – which carries with it such 'dignity of risk' – and risk of harm imposed by others. The dignity in the latter is questionable. However, we conceptualise both as forms of vulnerabilising, acknowledging that risk-taking is potentially both a form of self-vulnerabilising, which exposes people to harm, as well as a positive expression and fulfilment of the dignity of risk.

As Amoako and Frimpong set out, assemblage thinking brings focus to the processes "of becoming, arranging, organizing or fitting together through various levels of relationships" that give rise to vulnerability. But what are the processes or mechanisms through which processes, or vulnerabilising assemblages, operate? In the following sections we examine this question empirically in the context of inaccessible housing.

4. The study

With the purpose of exploring the nature and experience of vulnerabilising assemblages, the paper draws on two interconnected qualitative data sources: an online questionnaire (1,178 responses) and 45 in-depth follow-up interviews.

An online questionnaire was distributed in August 2020, circulated widely via email, with assistance from disability rights advocacy groups who distributed it through their networks. In developing the survey we drew on existing literature on home modifications, but also developed new questions and issues that relate to inaccessible homes that have not been modified, as well as homes built to high accessibility standard in the first place. The survey targeted people over 18 years old with a mobility impairment across Australia. It could be filled by the person with a disability or another person assisting them. 1178 responses were received, representing a diverse cross-section of the population of people with mobility restrictions in Australia, including diversity in gender, age, level and type of disability, housing and living arrangements, and employment status. The two most common physical conditions among people with disability – arthritis and back problems – were also the two most common in the sample. However, people with severe or profound disability, women, unemployed (64 years old and under), younger people, and people living in homes that have been modified were over-represented in the sample. In a previous report we published primarily quantitative analysis of the survey data (Wiesel, 2020). In this paper, we use only qualitative data from respondents' responses to open ended questions in the survey, as complementary to the interview data. Quotes from the survey are thematically presented in Tables 1, 2 and 3.

In-depth interviews were conducted with 45 participants who expressed an interest and provided their contact details in the online questionnaire. Due to COVID19 social distancing restrictions in Melbourne, where the research team was based, all interviews were conducted remotely over the phone or videoconference (using Zoom). Most interviews lasted between 45 and 60 min, and were conducted late August 2020, by a team of four research assistants. Each interviewee received a $50 shopping e-voucher as a recompense for their time. A purposive sample of interview participants was selected to achieve diversity in terms of:

- housing tenure – including homeowners, private renters and social housing renters;
- personal characteristics (age, gender, disability type and severity);
- accessibility features and barriers in their home;
- impacts of accessibility or inaccessibility on daily life, social relations, work opportunities and health.

The interviews were semi-structured, with the focus of questions adjusted to each participant's individual circumstances, allowing participants to construct narratives in ways that were less restricted by a pre-conceived format.

In line with most existing literature, our initial analysis focused on direct harms already experienced by participants with disability living in inaccessible housing (see Wiesel, 2020). In re-analysis of the data for this paper, we have taken a different approach. With our interest in exploring the nature and experience of vulnerabilising assemblages we implemented a qualitative, thematic analysis of participants' accounts focusing on their concerns and worries about the risk of future harms related to living in inaccessible housing. Three themes emerged through this analysis: firstly, the role of accessible housing in *exposing* people with mobility restrictions to potential future harm, such as risk of injury; secondly, the way through which living in inaccessible housing *removes or erodes people's defenses* against future harm; and, thirdly, how living in inaccessible homes reinforce conditions that *legitimise or motivate harm* to people with disability. Rather than an exhaustive account of the study findings, we present emblematic examples from our data for each category. Before that, in the following section we discuss the ways inaccessible housing has been assembled in Australia.

4.1. Assembling and disassembling inaccessible homes

Housing is most commonly discussed in the literature as a 'market' or as a 'system', but in this paper we follow the approach of critical geographers who theorise housing as an 'assemblage'. From this perspective, home "becomes a site composed of ideologies, ontologies, markets, labour, different actors and subjectivities, and so on. It is an agglomeration of relations" (Maalsen, 2020, p. 1541). Like Maalsen's analysis of

smart homes, we approach inaccessible homes as assemblages or agglomerations of material, legal, economic, cultural and discursive relations.

Assemblages are not fixed, rather dynamic and changing; yet, the persistence of inaccessibility in homes is striking, especially considering how much else has changed in the size, design, technologies, and materialities of homes over the last few decades (Maalsen, 2020). The harm of inaccessible housing for people with disability has been acknowledged for a long time, in line with the social and bio-social models of disability that emphasise the importance of disabling environments and their interactions with bodily impairment (Milner and Madigan, 2001). In 2006, the United Nations Convention on the Rights of People with Disabilities (CRPD, Article 9, 1a) recognised people with disabilities' right to "live independently and participate fully in all aspects of life", and the responsibility of signatory states to identify and eliminate accessibility barriers and obstacles in various settings, including housing. Since 2008 Australia is one of 82 countries which are signatories on the CRPD. In 2011 the Australian Government reiterated its commitment to delivering accessible homes for people with disability in the Australian National Disability Strategy (NDS) (Australian Government, 2011, p. 32). Despite these commitments, nearly two decades after the CRPD, most housing in Australia does not meet basic accessibility requirements. In this paper, we define 'basic' accessibility requirements in accordance with Livable Housing Australia's (LHA) 'silver' standard, discussed below.

Legislation has been a significant factor that has stablised (or 'territorialised') the inaccessible housing assemblage. Until very recently, the Australian National Construction Code did not require meeting minimum accessibility standards in newly built homes. While anti-discrimination legislation requires all public buildings to be built to accessible standards, private homes have been exempted. Rather than mandatory requirements, Australian Governments encouraged developers to voluntarily build new accessible homes, by supplying information and resources on accessible housing design. A not-for-profit organisation, Livable Housing Australia (LHA), was established to develop guidelines, educate the public and building industry, and oversee accreditation of accessible housing. The LHA silver standard of accessibility requires seven features as a minimal or basic standard of accessibility. These include:

1. A safe continuous and step free path of travel from the street entrance and / or parking area to a dwelling entrance that is level.
2. At least one, level (step-free) entrance into the dwelling.
3. Internal doors and corridors that facilitate comfortable and unimpeded movement between spaces.
4. A toilet on the ground (or entry) level that provides easy access.
5. A bathroom that contains a hobless shower recess.
6. Reinforced walls around the toilet, shower and bath to support the safe installation of grabrails at a later date.
7. Stairways are designed to reduce the likelihood of injury and also enable future adaptation (LHA, 2017).

The LHA was set up with a target of having all new dwellings built to its silver level standard in 2020 (Ward and Franz, 2015). Rather than a mandatory standard, it was implemented as a voluntary approach where builders were expected to build to silver standard in response to growing demand and increased awareness. However, this approach has failed to deliver on its target: ANUHD and RI Australia (2015) estimated that by 2015 less than 5% of newly built homes were built to a silver standard. A more recent study by Winkler et al. (2020) examined the design of twenty popular 'project home' models currently offered by Australia's largest builders and found that while many accessibility features were included in most designs, none were fully compliant with LHA's silver level accessibility standard.

The building industry in Australia has played an important role in maintaining housing inaccessibility, through fierce and active resistance to the introduction of mandatory minimum accessibility standards to the National Construction Code. Discourses of consumer choice, property rights and free market have been mobilised by industry groups to justify this approach. The Australian Housing Industry Association (HIA) is the peak industry association for residential building in Australia. HIA's submission into the 2020 consultation on the inclusion of accessibility standards illustrates some of those discourses; a key argument for rejecting mandatory accessibility standards was that "many homeowners want freedom in designing their own private residence" (HIA, 2020, p.15). Rather than standards mandated by regulation, HIA supported continued reliance on free market dynamics to deliver accessible housing: "[HIA members] support a suite of voluntary market-based approaches to promote and deliver tailored accessibility inclusions in individual homes" (HIA, 2020, p.3) From their perspective, the current lack of accessible housing simply reflects "Lack of demand from consumers for inclusion of features" (HIA, 2020, p.15). As discussed in the introduction, vulnerabilising is not necessarily intentional; inaccessible building codes and the exemption of housing from anti-discrimination legislation are not intended to harm people with disabilities, rather to promote free market ideologies and the interests of particular interest groups.

In the absence of a regulated minimum accessibility standard, a voluntary approach leaves the accessibility of homes as a matter to be negotiated individually by home purchasers, architects and builders. In their interviews, participants described the difficulties they experienced when negotiating with builders in the absence of regulated standards. Of 45 participants with disability we interviewed, nine lived in homes that were built to be accessible and another participant was in the process of building an accessible home. Five of these ten participants reported difficulties negotiating their home design with builders, or errors or unapproved modification to plans made by builders, leading to significantly reduced accessibility. This reinforces other literature demonstrating the difficulties experienced by people with disability when engaging with builders to construct new accessible homes which exceed the building code requirements (Thomas, 2004; Burns, 2004; Nasar and Elmer, 2016).

As argued by Imrie (2005), in a UK context, most building professionals "hold pejorative views about disabled people and their design requirements" (p. 45). Such ablism in the building industry is a crucial contributing factor to maintaining housing inaccessibility. But importantly, builders are reluctant to change existing 'tried and tested' designs, because of the high costs, tight profit-margins and high degree of speculative risk in their industry (p. 46). Builders have a strong influence on legislators and policy makers, through their lobbying power and effective strategies (Jacobs, 2015). This includes well-resourced organisations such as HIA. Also, in Australia, the construction industry is the fifth largest employer nationally, accounting for about 8.7% of all employees, and a significant contributor to economic activity and tax revenue (Parliament of Australia, 2022). Such influence can discourage legislators and policy makers at Federal and State Government from imposing regulatory changes to which builders are opposed.

Despite its persistence, ongoing activism by people with disability and allies has had some success in 'deterritorialising' the inaccessible housing assemblage. Disability rights activists have been campaigning for decades to introduce accessibility standards into the building code. These include, among others, the Australian Network for Universal Housing Design (ANUHD), Rights and Inclusion Australia (RIA), and a more recently formed coalition of activists named Building Better Homes. Activists' strategies included grassroots campaigns, the lobbying of politicians, and collaborating with academics in Australia and internationally to build research evidence on the benefits of accessible housing codes. Despite the opposition of the building industry, activists

have been successful in promoting regulatory change. In 2021 Australian state housing ministers agreed for the first time to introduce minimum accessibility standards in the National Construction Code (NCC). The changes require that all new homes be built to the LHA 'silver' accessibility standards (barring site specific exemptions). However, the states of New South Wales, Western Australia and South Australia announced they will not adopt the new NCC in their jurisdictions. The standards also do not retrospectively apply to pre-existing housing.

In the remainder of the paper, we explore three vulnerabilising mechanisms that emerged in participants accounts of inaccessible housing.

4.2. Exposure to harm

The first vulnerabilising mechanism emerging from participant accounts was 'exposure to harm'. We use this phrase to identify participants' concerns about how living in inaccessible homes materially 'exposed' them to the possibility of harm. For example, for many, living in inaccessible housing meant ongoing exposure to the risk of physical injury. Each injury, in turn, can reinforce risk of future injuries. Managing such persistent and cumulative exposure to harm was associated with significant emotional stress.

The risk of injury was ever present for most participants living in inaccessible housing. Injury risks were generated through the material form of homes and in relation to the embodied abilities of residents and their activities. For example, one participant, Ian, a retired homeowner, has lived with his partner and children in a freestanding house in Melbourne for twenty years. He has paraplegia due to a spinal cord injury that occurred 35 years ago, and uses a manual wheelchair for his daily activities. While the house design enabled the embodied activities of his partner and sons, for Ian inaccessible features in the house generated the risk of injury. Over the years these risks eventuated multiple times, resulting in severe injuries at home. Ian broke his legs several times when transferring from the wheelchair into the bathroom. Only after costly modifications – including full renovation of the bathroom with a flat entry for the wheelchair, a rolling shower chair, and reinforced floor and walls to support the hoist and handrails – did the falls and injuries stop. Before the renovation Ian's house worked to vulnerabilise his body, opening the risk of future harm. Other literature demonstrates that the risk of injury due to inaccessible housing is widespread (Aplin et al., 2015, p. 126).

Inaccessible housing can also generate escalating exposure to harm over time. For example, when injury occurs, exposure to further harm is not removed, rather, it can continue or indeed be magnified, as illustrated in Edna's interview. At the time of the interview, Edna was a self-employed professional working from home on a casual basis in her private rental unit. Since birth she had lived with muscular dystrophy, a progressive disease that has become more debilitating over time. Edna's home has several inaccessible features, including stairs, and two bathrooms that are too small for use of mobility aids. When Edna moved in she was still able to walk, and thus at the time the unit seemed to meet her needs. However, those inaccessible features exposed Edna to the risk of injury. Indeed, after just over a year, she lost her balance when walking over a step in her home. Due to the injury from the fall, Edna lost her ability to stand and walk, which means now the unit is even less fit to meet her current needs and abilities, significantly enhancing the risk of another injury at home. Her ensuite bathroom has been set up for toilet use; however, as there is inadequate space for her toilet transfer bench, she has to reverse on her wheelchair out of the bathroom, often hitting the door on her way out.

Beyond the physical harm, the emotional labour of managing this ongoing and worsening exposure to risk of injury has been debilitating for Edna. The risk of another injury preys on Edna's mind, and she described being compulsively worried that if she were to fall within the cramped conditions of her shower and toilet, she might seriously injure herself again or become stuck and unable to ask for help. Thus, inaccessible housing is vulnerabilising by exposing people to the risk of injury; and the vulnerablising effect is often intensified after every injury.

The risk of injury is but one of many exposures associated with inaccessible housing, such as the risk of getting caught in a house fire with no ability to escape. Such experiences were shared by many participants living in inaccessible homes, and contrasted strongly with experiences of security described by those participants who were able to secure more accessible homes, as illustrated in Table 1.

A further risk that people living in inaccessible housing felt exposed to is that of forced institutionalisation in a nursing home if their ability to navigate their home deteriorates over time. One survey respondent commented: "I worry now that I won't get better or more mobile so will I be able to keep living at home? Going into aged care terrifies me, especially now with the pandemic".

Table 1
Exposure to risk in accessible and inaccessible homes.

Quotes from survey respondents living in inaccessible homes	Quotes from survey respondents living in accessible homes
Exposure to risk of homelessness	
My greatest fear is becoming homeless due to the inaccessibility of housing. It has led to suicidal thoughts.	Having a house of my own that is modified to meet all my accessibility needs has given me a feeling of stability and confidence for my future that I have never felt since I acquired my disability 24 years ago…knowing that my everyday life is so much easier, my physical needs are met and this will be my home for the rest of my life.
Exposure to risk of house fire	
If I can open the front door, I won't burn to death… it is really frightening. That one modification would be fantastic. I would really like to be able to get out of the front door.	I feel grateful every day that I now live in a purpose-built fully accessible home of my own. I feel safer, more secure, it has led me to feeling free and liberated.
Exposure to risk of falling	
I'm not confident in my ability to stop myself falling. It's made me fearful and reclusive.	I don't live with the constant fear of falling.
Exposure to risk of mental illness	
Bathing and self-care are traumatic and upsetting with physical risk which is stressful and makes me anxious and upset leading to self-harm.	If I can move easily around my home and attend to all my daily living requirements, like everyone else can, I feel more relaxed, independent, and resilient.

Source: Authors' analysis of responses to open-ended questions in the online questionnaire.

4.3. Breaking down defenses

The second theme that emerged was the breaking down of defenses against harm. This refers to the way that, for most participants, living in inaccessible homes meant ongoing erosion of resources which can help cope with future harm, including material resources (money), but also bodily resources (physical and mental health), and social connections (care networks).

Rowena's story was a powerful example of the way inaccessible housing vulnerabilises by depleting physical and mental resources. Rowena, in her fifties, lived in Brisbane and worked part-time as a consultant. Prior to falling ill, she worked in executive roles in the public sector. However, several years ago she was diagnosed with chronic fatigue syndrome, a condition that causes debilitating fatigue and limits the amount of energy she can spend over a day. Every action Rowena takes involves a trade-off. For example, the choice to prepare a meal means doing without meeting a relative or friend that day: "Because I have a limited energy envelope, and because I'm expending energy from the climbing of stairs and lifting and so forth, that means I have less energy to do everything else.".

The inaccessibility of her home further limits Rowena's choices. There is no single design feature in her home that is impossible for Rowena to manage, but navigating the home drains her limited daily energy supply. For instance, to enter or exit her home, Rowena must climb one flight of stairs, which requires a great deal of effort, meaning she will need to forego another activity that day (e.g. washing up or spending time with friends or family). Other inaccessible design features include her kitchen, with Rowena finding it draining to lift her arms to reach the shelves. These effects are compounding. Rowena particularly worries about exhausting all her energy for a day, and being left unable to evacuate her home in the event of an emergency.

Living in inaccessible housing also significantly inhibited many participants' ability to take on paid work, thus limiting their capacity to accumulate material resources. Material resources can provide some defense against harm, for example, by allowing home modifications. The interviews revealed the complex ways in which inaccessible housing limits capacity to work – an impact that has received only limited attention in previous literature on housing accessibility. We elaborate on this vulnerabilising aspect of inaccessible housing in the following section.

Living in inaccessible homes, and importantly the inaccessibility of most relatives' and friends' homes, also impact on the ability to maintain social lives. Again, beyond the obvious direct cause – physical difficulty to enter other people's home – it is often lack of energy, injured self-confidence, and mental health pressures due to inaccessible housing that make it difficult for people with mobility restrictions to maintain social connections. Living in inaccessible housing also increases the care burden on immediate family members living in the household, often straining relationships. These experiences are captured in Table 2. Such forced social isolation, in turn, vulnerabilises by removing people from their care networks, a critical protection against possible harm.

Kelly's account speaks to these vulnerabilising impacts. Kelly, in her 40 s, is a mental health professional. She was born with spina bifida, has severe scoliosis and uses a manual wheelchair since she is not able to stand or walk. Kelly rents a detached social housing unit, in which she has been living on her own for close to 20 years. The unit was built to basic accessibility level, equivalent to the silver standard, so meets most though not all of her accessibility needs – it is 'good enough' in her words. Her main concerns relate not to the accessibility of her own home, but rather those of her family and friends. Kelly is a very social person, but access barriers significantly restrict her from spending time with family and friends. She cannot visit her friends at their inaccessible homes without assistance to move around and use their toilets. She commented: "we are no longer stuck in institutions, but we are stuck at home because of poor design." Housing accessibility also impacted her long-term intimate relationship with an able-bodied partner of 20 years. They have not been able to move in together due to the difficulty finding a home that is suitable for both. For example, her kitchen bench has been lowered to meet her needs but would be uncomfortable for her partner to use.

The pain of not being able to visit family and friends in their homes was shared equally by research participants who lived in accessible homes, and those who did not. However, those who lived in accessible homes had greater capacity to host friends and family in their home, and therefore were less socially isolated. One participant commented: "it is disappointing that my friends with disabilities can't come over to my house because it is inaccessible. It disconnects me from my community, my disability community".

Social connections, material resources and good health all provide important 'defenses' against harm. Indeed, literature on disaster and climate change vulnerability highlights how reduced social connections (Aldrich and Meyer, 2015), poverty (Fothergill, and Peek, 2004) and poor health (Curtis and Oven, 2012) contribute to vulnerability. Inaccessible housing is vulnerablising by eroding these crucial defenses against harm.

Table 2
Impact of inaccessible housing on social and family relations.

Living in inaccessible housing	Living in accessible housing
Lack of energy, injured self-confidence, and mental health pressures due to inaccessible housing makes it difficult to maintain relationships	
The less accessible my house is, the more energy it takes for me to do the most basic things, leaving no energy left for social relationships or a life in general.	[social life improved] Immensely! Good access means good self-worth, self-capacity, independence and, self-motivation, energy for life rather than struggling for day to day tasks.
Living in inaccessible housing has negatively affected my wellbeing and mood, so I didn't have energy to have friends and family over	Without accessible housing I would not have the freedom of movement or energy to care for my children
Living in inaccessible housing increases the care burden on family and friends, straining relationships	
Struggle to maintain relationships due to accessibility issues or lack of accessibility, entirely. Too much strain on other person to do tasks that I otherwise am fully capable of doing, had there been minor adjustments. Leads to "carers" having resentment and leaves Self vulnerable to neglect and abuse.	When living with my parents I couldn't always have friends at home but now in my own fully accessible house and without my parents (24/7 Support workers instead) I can have friends over or I can go out to social events my parents couldn't take me to. Now my parents can be Mum & Dad not my carers.
The less accessible my house is the more I depend on my family for help, which definitely hinders our relationships on multiple levels.	Having an accessible home enables me to independently assist around the home, decreasing my reliance upon others to assist me, thereby improving my relationship with my wife and children.
Having an accessible home makes it easy to be visited by friends and family	
My elderly parent and my sister cannot visit due to the stairs, as they both have bad backs. My mother also has problems with her hips.	Having an accessible bathroom on the entry level means that my friends with mobility impairments can visit me.
I have many friends in wheelchairs who cannot visit my home. We have to pay for venues if we want to do an activity, which usually means we don't do them.	We built this house specifically for access and have a brilliant toilet design which means, two friends with wheelchairs can visit for a long time (pre COVID19) as they are able to use our toilet

Source: Authors' analysis of responses to open-ended questions in the online questionnaire.

Table 3
Inaccessible housing and impact on ability to work.

Living in inaccessible housing	Living in accessible housing
Ability to work from home	
With the COVID pandemic, I have found that my house (in terms of appropriate desk and more particularly "physical space") is NOT meeting my needs and is limiting my work productivity.	Accessible housing mean I can work or study whenever I want.
I have to go to different places to work. Loss around 15 h a week	I certainly was unable to attend work or study as because the house was inaccessible… We had to move to another town and purchase a home. The home needed a lot of modifications and once this was all done, I was just then able to return to study.
Working from home during COVID has been …difficult because of lack of space for an ergonomic accessible work desk.	Having my modified apartment enabled me to return to work full time, despite my injury.
Time and energy available for work	
Time and energy spent getting prepared for work can take an overall toll on energy left to get to/from work and around the workplace.	A quiet environment at home, e.g. thick walls, supports my hyperacusis. [Otherwise], high temperatures (due to poor shading on windows) worsen my body's heat regulation and therefore drain my limited energy.
When the house is inaccessible, the time it takes to access the shower and toilet prevents me from taking on paid employment.	I have a home that makes life easy for me, so I am able to think and plan for things outside the home. Also, I can come home to a place that renews me.
Energy required to live/clean/cook/ shower in rental housing that didn't meet my access needs meant I decided to work part time (4 days a week). So, I lost 1 day a week wages + associated superannuation, leave entitlements + missed promotion opportunities at work due to being part time employee.	Ease of living at home and entering/ exiting home improves energy levels to be able to maintain employment
Bad design means extra effort which means less capacity for work or study.	If our home was not accessible it would severely limit social, mental and creative wellbeing which would impact on ability to sleep/et/bathe suitably and therefore be in a positive way able to attend waged work and thereby contribute to paying taxes.
My apartment has incredibly limiting space in the bathroom in particular, and this has meant that I have been late for things, especially when work was still in an office. The space between the wall, my wheelchair and the bed is narrow. My closet is largely inaccessible. Getting ready for anything, but work especially, takes a long time.	Without somewhere to shower or sleep, good *** luck trying to hold down a job or focus on other things
The energy which navigating these stairs takes is something which I have to factor into every day… That is not even considering the energy needed to cook dinner or perform other typical household chores once I get inside after work. This takes a significant toll on the extent to which I can be productive during the workday.	I could be more independent and focus time and energy on family and work instead of worrying how I get around my house.
Independence	
Being unable to shower or dress myself has caused issues on keeping my employment	If my home was not accessible, I would rely heavily on others for assistance, therefore limiting my ability to work or study
When I lived in a rental that had a step at the front door I really needed other people to always be able to be there to get in and out of the house which meant there were times I couldn't leave the house so I couldn't work	Living in an accessible home means I'm able to come and go freely without having to wait on others to assist me
Difficult moving in house doorways narrow no safe access into/out of house.	If I did not have safe, secure, accessible housing I would not be a PhD or a senior public servant. My study and career over 30 years depended on it. Gaining entry and exit of house enables me to participate in full-time work and occasionally socialise
It takes a significant amount of time to get prepared to leave the home with required assistance to bathe due to the design of the bathroom. I would not require assistance if the bathroom had been designed with an accessible thought process	
Living close to work	
Due to a lack of even minimal accessible housing I have had to spend all my disposable income travelling to work in a taxi because no accommodation was closer.	It is sheer luck that I found a ground floor Villa. Now they are all high-rise apartments. I only want to live on ground floor due to access and safety concerns. If I didn't find this home close to public transport, I may not have been able to work as taxi fares are too expensive (compared to bus/train)
Having limited accessible housing available means it is not easy to find a suitable living arrangement that is close to work, which causes me to have to travel long distances to my parent's home, limiting the number of hours I can work each week.	If I did not have a fully wheelchair accessible home in a location of my choosing I would have had huge difficulty finding a job, keeping a job due to the fact it takes me a long time to get ready in the mornings and need to be close to my place of work.

Source: Authors' analysis of responses to open-ended questions in the online questionnaire.

4.4. Motivating harm

The third theme emerging from participants' stories was the way living in inaccessible home created conditions that reinforce stigma of people with disability as unhygienic, unproductive, and dependent. We argue that such stigma, then, is used to justify inflicting further harm on people with disabilities, whether through hate crimes, discrimination, or denial of welfare rights in neoliberal regimes.

For many of our participants, living in inaccessible housing made it difficult to challenge stereotypes of people with disability as somehow "de-gendered and asexual perversions of the human form" (Nario-Redmond, 2010, p. 483). For example, participants reported how inaccessible housing prevented them from performing regular self-care, in turn reinforcing stereotypes around hygiene and cleanliness. For Edna, the risk and effort associated with entering and exiting her bath means she often skips showering when she needs to go out in the morning. This gives rise to anxiety about her hygiene and odour throughout the entire day.

Inaccessible housing also reproduces the perception of people with disability as non-productive, as if it was an intrinsic characteristic. As mentioned above, living with a disability in an inaccessible home creates difficulties entering and sustaining paid employment. The quotes in Table 3 reveal how the effort of navigating inaccessible home leaves little energy (and time) to take on paid employment. For many, leaving and entering the house to get to work is difficult and dangerous when steps are involved, while working from home is often not an option when there are no accessible workspaces at home. People with mobility restrictions in inaccessible homes are more reliant on paid or unpaid assistance to shower, take a meal and leave in time for work, and it is often difficult to secure such support. When accessible housing supply is scant, finding a suitable home close to a suitable workplace is also difficult. Perhaps as much as a direct harm, loss of employment opportunities can be understood as a vulnerabilising condition, by exposing people to stigma as non-productive (as well as eroding their material resources, which are important defenses against harm, as mentioned in the previous section).

While stigma legitimises harm by others, inaccessible housing also creates conditions that can lead people to self-harm. Several survey

respondents made a direct link between the experience of living in an inaccessible home, and suicidal thoughts or self-harm:

It has dehumanised me to the point that I have become a recluse and am suicidal.

Bathing and self-care is traumatic and upsetting with physical risk which is stressful and makes me anxious and upset leading to self-harm.

My greatest fear is becoming homeless due to the inaccessibility of housing. It has led to suicidal thoughts.

In the quotes above, the risk and fear of future harm were so acutely felt, that they drove participants to considering, and at times inflicting, self-harm. This highlights both the immediate effects of the 'vulnerabilising moment', i.e. the powerful emotions connected with the uncertainty and possibility of future material harm. And it also highlights the way vulnerabilising assemblages, such as inaccessible housing, not only expose people to harm, or remove their defences against harm, but also more directly facilitate future harm, by others and by self.

5. Discussion

In this paper we proposed the concept of 'vulnerabilising' to describe assemblages that increase different people's susceptibility to harm. We have also sought to identify the mechanisms through which such assemblages vulnerabilise people. Using inaccessible housing as a case study, we identified three types of mechanisms through which its vulnerabilsing effects are produced, and which we suggest may also be applicable to other types of vulnerabilising assemblages.

First, vulnerabilising assemblages generate exposure to harm, including processes placing people in harm's way, or preventing them from escaping harm. For example, inaccessible housing elements such as staircases expose people with mobility restrictions to risk of falls and injury, while inaccessible exits prevent escape during a fire, flooding or earthquake. In the literature on natural disasters, there is sometimes a distinction between the vulnerability of a person or people (their susceptibility to harm, for example due to old age), and their exposure to an external hazard (e.g. Cutter, 2003). Here, we attend to both 'susceptibility' and 'exposure' not as givens, rather as being actively produced by the vulnerabilising assemblage. Inaccessible housing exposes people to harms which are not always immediate (though some certainly are), rather are accumulated over time, resonating with what Nixon (2011) termed a process of 'slow violence'.

Second, vulnerabilising works through erosion or removal of defenses that protect people from harm. Relational strands within vulnerability literature suggest that all human and living things are inherently vulnerable, but that social institutions and care networks and infrastructures offer better protection and defense for some relative to others, generating unequal vulnerabilities (Fineman 2008; Ghandeharian and FitzGerald, 2022). Housing, as a site for care, is one of those infrastructures that provides protection for some but not others (Power and Mee, 2020; Power and Gillon, 2021). In this paper we illustrated how inaccessible features in homes remove or erode some of the defenses that protect people with disability against harm, including not only care by others, but also self-care and internal defenses against harm. We argue that vulnerabilising assemblages deplete the resources available to people to defend oneself against harm, from money to emotional and physical energy. Isolating or alienating people from their care networks also breaks a critical form of protection from harm.

Third, vulnerabilising can involve giving legitimacy to harm against certain people, for example through Othering, stigmatising, and dehumanising them. Such discourses position some lives as less 'grievable', thus less deserving of protection from harm, if not outright deserving of harm (Butler, 2016). The denial of harm, or misrepresentation of its source, for instance, by describing it as natural or inevitable, is another way of legitimising harm. Life in inaccessible homes, for example, leaves imprints on the bodies of people – from visible injuries to bodily odours – that reproduce ableist discourses that depict people with disability as deformed and dependent. Such discourses have long legitimised various harms inflicted on people with disability, from their forced institutionalisation, to social isolation and workforce discrimination. Furthermore, life in inaccessible homes can be so unbearable that it can drive people towards self-harm.

The three different mechanisms of vulnerabilising that we identify in this paper are entangled and mutually reinforcing. For instance, dealing with ongoing exposure to injury risk (exposure) depletes emotional and physical resources to deal with other harms (breaking down defenses). When cumulative harm eventuates due to ongoing and increasing exposure, for instance in the form of repeat injuries, it can reinforce stigma associated with disability, legitimising and motivating further harm.

The vulnerabilising effects that are produced in inaccessible homes can eventuate as harm within the home itself, but also elsewhere. For example, not being able to shower at home can eventuate as harm when meeting a colleague at work. This points to the complex, diffuse geography of vulnerabilising assemblages; in this case, the home is the centre of a vulnerabilising assemblage, but its effects expand far beyond the home. Arguably, when harms eventuate elsewhere, the vulnerabilising effects of inaccessible homes become less visible, as evident in the case of reduced employment opportunities.

The distinctions between the analytical categories we propose are not always clear cut. Fatigue or injury are at once direct harms, and forms of vulnerabilising. Similarly, an injury at once generates exposure to new harms, breaks down defenses, and legitimises harm (by deforming human bodies). Other experiences, however, such as taking a loan to finance accessibility modifications, can help reduce the vulnerabilising effects of an inaccessible home, but in can vulnerabilise by depleting a person's material resources (Dawney et al., 2020).

Fineman (2010) argues that framing vulnerability as a condition inherent to all humans can help bring together wider political coalitions and willingness to address the causes of vulnerability. Framing the effects of inaccessible housing as 'vulnerabilising' aligns with this approach. While our empirical analysis focused on people with disability, people of all abilities are vulnerabilised by inaccessible housing. This is a central tenet of universal design literature, which recognises disability as a condition that could happen to any human through injury, illness or ageing (Coleman et al., 2003). For the majority of the population, rather than causing direct or immediate harm, inaccessible housing is a longer term and often invisible risk, engendering bodily risks and remediation costs in later life when income is typically lower. Foregrounding these risks through framing inaccessible housing as a vulnerabilising assemblage, affecting all people however unevenly, recognises and creates a broader political constituency who might appreciate and advocate the value of inclusive design mandates.

As a vulnerablising assemblage, inaccessible housing is deeply entrenched in Australia (or 'territorialised' in assemblage thinking jargon). This has been reinforced by dominant neoliberal discourses valorising free market and consumer choice over regulation and state intervention, coupled with ableist discourses depicting disability as an unfortunate individual fate. Such discourses have legitimised a voluntary rather than regulatory approach to production of new accessible homes. But vulnerabilising assemblages are also sites of resistance, from the everyday practices of negotiating an inaccessible space and avoiding its harms, through to individual efforts to modify homes, and collective campaigns to change the Australian building standards. The changes to the NCC agreed in 2021 – achieved through decades of activism by disability rights activists – will go a long way towards unsettling (or 'deterritorialising') the housing inaccessibility vulnerabilising assemblage, but on its own will not fully dismantle it. Importantly, these changes will make new houses more accessible, and more easily modified for even greater accessibility. But some Australian states have resisted adoption of the new code. And even in those states where the changes will be implemented, it will take a long time for new accessible homes to be built in the volume that is needed, and to 'filter' to the people who need them most. Builders will also require education and

training in fulfilling the code. Homes built under the new code will not be fully accessible for diverse people with different types and severity of disability, and will only include the most basic elements of accessibility at the LHA's silver level. As argued by Imrie (2005, p. 14) while the regulation of accessibility standards is necessary, in and of themselves, they will fail "to produce the quality of livable spaces responsive to the differentiated and complex needs of people", and to address the diversity of "human concerns that turn houses into a home".

Acknowledging inaccessible housing as an assemblage is a sobering reminder that introducing minimum accessibility standards into the building code is no panacea, rather one piece in a complex puzzle. On the same token, however, introducing accessibility standards into to the code should be understood as having potential effects that go beyond accessibility itself, for instance, on other vulnerabilising assemblages such as those that exist in employment and healthcare. Exploring these effects of inaccessible housing might also help reimagine accessible housing as a de-vulnerabilising assemblage, where home is a place where exposure to harm is minimised; a place in which to build defenses against harm, from social resources (e.g. as place for socialising), through to physical and mental resources (e.g. the home as a place for rest and mental recovery) and material resources (the home as a space that facilitates employment opportunities – allowing working from home, or comfortable travel to and from a workplace elsewhere); and the home as a place that delegitimates harm, or a place that facilitates care by self and others (e.g. housing design that facilitates self-care, and projects an external identity that is socially valued). Again echoing Imrie (2005, p. 14), such effects go well beyond the remit of existing accessibility standards.

There are several limitations to this paper. First, the research questions and methods focused on collection of data on harm already experienced by participants living in accessible homes. But in this paper we have focused on participants' concerns about future harm. Further research on vulnerabilising assemblages will benefit from a more direct focus of future harm in research design and the collection of data. Second, the paper takes an exploratory approach focusing on qualitative data to develop a conception of vulnerabilising assemblages. Future research on vulnerabilising assemblages will benefit from additional quantitative analysis, to discern how widespread, variable and similar the dynamics identified here are. Third, particular attention is needed in both qualitative and quantitative research to consider variation in the vulnerabilising effects of inaccessible homes (or other vulnerabilising assemblages) on people differentiated not only by ability, but also other social differences such as gender, race, class, etc.

6. Conclusions

Misrecognising the source of vulnerability can lead to inadequate and harmful 'protections' of people labelled as vulnerable, such as over-protection and institutionalisation of people with disability. Shifting attention from the 'vulnerable' person to vulnerabilising assemblages is important to better identify the mechanisms which generate risk of harm. These mechanisms include giving legitimacy to harm; exposing people to harm; and breaking down their internal and external defenses against harm. Further theoretical and empirical research will no doubt continue to identify other effective mechanisms of vulnerabilising and particular attention is needed to expose less visible mechanisms, including those which are unintentional, or which appear to be beneficial in the short term. However, vulnerabilising assemblages are also sites of resistance, where harms and their causes are exposed and mitigated against through various forms and scales of agency. Importantly, future research in this space should also move beyond mechanisms, to explore how vulnerabilising (and de-vulnerabilising) assemblages emerge, territorialise and deterritorialise.

CRediT authorship contribution statement

Ilan Wiesel: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Writing – review & editing. **Emma R. Power:** Conceptualization, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

Acknowledgement

The study was funded by the Summer Foundation and Melbourne Disability Institute.

References

, 2015ANUHD and RI Australia, 2015. Report on the progress of the National Dialogue on Universal Housing Design 2010-2014. https://aduhdblog.files.wordpress.com/2016/08/nduhd_report_jan15.pdf.

Aldrich, D.P., Meyer, M.A., 2015. Social capital and community resilience. Am. Behav. Sci. 59 (2), 254–269.

Amoako, C., Frimpong, B.E., 2020. Becoming Vulnerable to Flooding: An Urban Assemblage View of Flooding in an African City. Plan. TheoryPract. 21 (3), 371–391.

Anderson, B., McFarlane, C., 2011. Assemblage and geography. Area 43 (2), 124–127.

Aplin, T., de Jonge, D., Gustafsson, L., 2015. Understanding home modifications impact on clients and their family's experience of home: A qualitative study. Aust. Occup. Ther. J. 62 (2), 123–131.

Housing Industry Association (HIA), 2020. Housing Australians, Submission to the Australian Building Codes Board Proposal to include minimum accessibility standards for housing in the National Construction Code: Consultation Regulation Impact Statement https://consultation.abcb.gov.au/engagement/consult-ris-accessible-housing/consultation/download_public_attachment?sqId=pasted-question-1585616484-05-55407-publishablefilesubquestion&uuId=73101462.

Livable Housing Australia, 2017. Livable Housing Design Guidelines, http://www.livablehousingaustralia.org.au/library/SLLHA_GuidelinesJuly2017FINAL4.pdf.

Australian Government, 2011. National Disability Strategy 2010-2020, https://www.dss.gov.au/our-responsibilities/disability-and-carers/publications-articles/policy-research/national-disability-strategy-2010-2020.

Beer, A., Bentley, R., Baker, E., Mason, K., Mallett, S., Kavanagh, A., LaMontagne, T., 2016. Neoliberalism, economic restructuring and policy change: Precarious housing and precarious employment in Australia. Urban Stud. 53 (8), 1542–1558.

Burns, N., 2004. Negotiating difference: disabled people's experiences of housebuilders. Hous. Stud. 19 (5), 765–780.

Butler, J., 2014. Bodily vulnerability, coalitions, and street politics. In: Differences in common. Brill, pp. 97–119.

Butler, J., 2016. Rethinking vulnerability and resistance. Vulnerability in resistance, 12-27.

Coleman, R., Lebbon, C., Clarkson, J., Keates, S., 2003. From margins to mainstream. Inclusive Design 1–25.

Curtis, S.E., Oven, K.J., 2012. Geographies of health and climate change. Prog. Hum. Geogr. 36 (5), 654–666.

Cutter, S.L., 2003. The vulnerability of science and the science of vulnerability. Ann. Assoc. Am. Geogr. 93 (1), 1–12.

Davoudi, S., Shaw, K., Haider, L.J., Quinlan, A.E., Peterson, G.D., Wilkinson, C., Fünfgeld, H., Macevoy, D., Porter, L., 2012. Resilience: a bridging concept or a dead end? Plan. Theory Pract. 13 (2), 299–333.

Dawney, L., Kirwan, S., Walker, R., 2020. The intimate spaces of debt: Love, freedom and entanglement in indebted lives. Geoforum 110 (March), 191–199.

DeLanda, M., 2006. Deleuzian social ontology and assemblage theory. Deleuze and the Social 250–266.

Delfabbro, P., King, D.L., 2019. Challenges in the conceptualisation and measurement of gambling-related harm. J. Gambl. Stud. 35 (3), 743–755.

Duff, C., 2012. Accounting for context: Exploring the role of objects and spaces in the consumption of alcohol and other drugs. Soc. Cult. Geogr. 13 (2), 145–159.

Fänge, A., Iwarsson, S., 2003. Accessibility and usability in housing: Construct validity and implications for research and practice. Disabil. Rehabil. 25 (23), 1316–1325.

Fineman, M.A., 2010. The vulnerable subject: Anchoring equality in the human condition. In: Transcending the boundaries of law. Routledge-Cavendish, pp. 177–191.

Fothergill, A., Peek, L.A., 2004. Poverty and disasters in the United States: A review of recent sociological findings. Nat. Hazards 32 (1), 89–110.

Frederiksen, M., Heinskou, M.B., 2016. Trusting the other or taking a chance? An investigation of chance and trust temporalities. Time Soc. 25 (2), 374–392.
Ghandeharian, S., FitzGerald, M., 2022. COVID-19, the trauma of the 'real'and the political import of vulnerability. Int. J. Care Caring 6 (1–2), 33–47.
Goodwin, I., Davis, E., Winkler, D., Douglas, J., Wellecke, C., D'Cruz, K., Mulherin, P., Liddicoat, S., 2022. Making homes more accessible for people with mobility impairment: A lived experience perspective. Aust. J. Soc. Issues 57 (4), 956–959.
Imrie, R., 2005. Accessible housing: quality, disability and design. Routledge.
Jacobs, K., 2015. The 'politics' of Australian housing: The role of lobbyists and their influence in shaping policy. Hous. Stud. 30 (5), 694–710.
Lau, G.W.C., Yu, M.L., Brown, T., Locke, C., 2018. Clients' perspectives of the effectiveness of home modification recommendations by occupational therapists. Occup. Therapy Health Care 32 (3), 230–250.
Martino, E., Mansour, A., Bentley, R., 2022. Housing vulnerability and COVID-19 outbreaks: when crises collide. Urban Policy Res. https://doi.org/10.1080/08111146.2022.2028616.
Meerow, S., Newell, J.P., 2016. Urban resilience for whom, what, when, where, and why? Urban Geogr. 40 (3), 309–329.
Milner, J., Madigan, R., 2001. The politics of accessible housing in the UK. In: Peace, S., Holland, C. (Eds.), Inclusive housing in an ageing society: Innovative approaches. Policy Press, Bristol, pp. 77–100.
Misztal, B., 2011. The challenges of vulnerability: in search of strategies for a less vulnerable social life. Springer.
Mitchell, E., 2020. Negotiating vulnerability: The experience of long-term social security recipients. Sociol. Rev. 68 (1), 225–241.
Mustaniemi-Laakso, M., Katsui, H., Heikkilä, M., 2022. Vulnerability, Disability, and Agency: Exploring Structures for Inclusive Decision-Making and Participation in a Responsive State. Int. J. Semiot. Law. https://doi.org/10.1007/s11196-022-09946-x.
Nario-Redmond, M.R., 2010. Cultural stereotypes of disabled and non-disabled men and women: Consensus for global category representations and diagnostic domains. Br. J. Soc. Psychol. 49 (3), 471–488.
Nasar, J.L., Elmer, J.R., 2016. Homeowner and homebuyer impressions of visitable features. Disabil. Health J. 9 (1), 108–117.
Nixon, R., 2011. Slow Violence and the Environmentalism of the Poor. Harvard University Press.
Parliament of Australia, 2022. Snapshot of employment by industry, 2022, https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/FlagPost/2022/November/Employment_by_industry_2022. Accessed:21 April 2023.
Perske, R., 1972. The dignity of risk and the MR. Ment. Retard. 10 (1), 24.
Plouin, M., Willem, A., Fron, P., Roth, P.M., 2021. A crisis on the horizon: Ensuring affordable, accessible housing for people with disabilities, OECD Social, Employment and Migration Working Papers No. 261. https://www.oecd.org/publications/a-crisis-on-the-horizon-306e6993-en.htm. Accessed: 21 April 2023.
Power, E.R., Gillon, C., 2021. How housing tenure drives household care strategies and practices. Soc. Cult. Geogr. 22 (7), 897–916.
Power, E.R., Mee, K.J., 2020. Housing: an infrastructure of care. Hous. Stud. 35 (3), 484–505.
Power, E.R., 2019. Assembling the capacity to care: Caring-with precarious housing. Transactions of the Institute of British Geographers 44(4): 763-777.
Smith, N., 2006. There's no such thing as a natural disaster. Understanding Katrina: perspectives from the social sciences. https://items.ssrc.org/understanding-katrina/theres-no-such-thing-as-a-natural-disaster/.
Snipstad, Ø.I.M., 2021. Concerns regarding the use of the vulnerability concept in research on people with intellectual disability. Br. J. Learn. Disabil. 50 (1), 107–114.
The Centre for International Economics (CIE), 2020. Proposal to include minimum accessibility standards for housing in the National Construction Code, Consultation Regulation Impact Statement.
Thomas, P., 2004. The experience of disabled people as customers in the owner occupation market. Hous. Stud. 19 (5), 781–794.
van Holstein, E., Wiesel, I., Bigby, C., Gleeson, B., 2022. More-than-care: People with intellectual disability and emerging vulnerability during pandemic lockdown. Trans. Inst. Br. Geogr. (Online first). https://doi.org/10.1111/tran.12595.
Ward, M., Franz, J., 2015. The provision of visitable housing in Australia: Down to the detail. Social Inclusion 3 (2), 31–43.
Wiesel, I., 2020. Living with disability in inaccessible housing: social, health and economic impacts. University of Melbourne, Melbourne.
Winkler, D., Martel, A., Chen, Y., Greaves, T., 2020. Preliminary findings: Audit of accessible features in new build house plans. https://www.summerfoundation.org.au/wpcontent/uploads/2020/08/Preliminary_findings_new_housing_audit_Aug2020-final.pdf.