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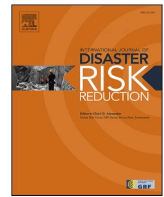

Developing a “culture of disaster preparedness”: The citizens’ view

Sandra Appleby-Arnold [a,*,1], Noellie Brockdorff [a], Celia Callus [b]

[a] Department of Cognitive Science, Faculty of Media & Knowledge Science, University of Malta, Msida, MSD2080, Malta
[b] Nutcracker Research, 67 Kensington Road, Northolt, UB5 6AW, United Kingdom

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ABSTRACT

This study investigated the potential for citizens developing “cultures of disaster preparedness”, which are informed by citizens’ values and experiences rather than imposed from “above”. Based on previous research we conducted during Citizen Summits in Romania, Malta, Italy and Germany, we developed a set of recommendations, which were evaluated during two final Citizen Summits held in Portugal and the Netherlands, using an electronic audience response system and focus group discussions. The results point at three main strategies, which can be expected to foster a “soft” cultural change towards disaster preparedness over time: (1) encouraging measures that build upon already existing cultural values and daily routines; (2) organising preparedness-related activities that are designed as part of citizens’ everyday-life events; and (3) improving perceived self-efficacy by demonstrating how citizens’ already existing, personal everyday skills can be harnessed in disaster situations.

1. Introduction

Despite decades of disaster and emergency management authorities aiming to improve citizens’ awareness of hazards, preparedness levels have been found to be generally low amongst populations around the globe. In response, the UN Office for Disaster Risk Reduction [1] called for researchers to shift their emphasis towards a stronger focus on a “culture of prevention”, in addition to the more established, and equally important, focus on the role of culture in disaster response and recovery (e.g., Refs. [2,3]. The large body of research targeting factors such as local knowledge, rituals, values and norms, gender roles, collective memory, livelihoods, social cohesion, social exclusion, or trust in authorities, has revealed the power of these factors in disaster mitigation [4]. Many of these studies take place outside Europe’s largest cities, and it seems to be an unspoken assumption that, in small-scale settlements or rural areas, shared values can be activated for an enhanced disaster resilience. However, with few exceptions (e.g. Ref. [5], in large urban centres the effects on the population’s resilience of social rather than cultural factors[2] are explored (e.g., Refs. [6,7]. But cultural change is encased within many aspects of life, such as attitudes towards technology (e.g. Ref. [8], or the roles of children or senior citizens in disasters, shifting from passive victims to active responders (e.g., Refs. [9,10]. At the same time, large urban areas are, typically, densely populated environments where different groups do not necessarily collide, but may co-exist alongside visible or invisible boundaries, due to perceived cultural differences, which set them apart. To develop a standardised “culture of disaster preparedness” in such multicultural settings may well be seen as a daunting task. Even more so as history has shown that imposing new norms or values upon groups or societies rarely fares well. However, does that mean that a cultural perspective in disaster research has to be mostly observational, or are there opportunities to “operationalise” culture and cultural factors for an improved disaster preparedness?

2. Overview: cultural factors in disaster preparedness

There is a blurred boundary between “the social” and “the cultural”. Some factors, e.g., values and traditions, are easily identifiable as

* Corresponding author. School of Social and Political Science; 15a George Square; Edinburgh, EH8 9LD; United Kingdom.
E-mail addresses: sandra.appleby-arnold@ed.ac.uk (S. Appleby-Arnold), noellie.brockdorff@um.edu.mt (N. Brockdorff), celia@nutcrackerresearch.com (C. Callus).
[1] Present address: School of Social and Political Science, University of Edinburgh, 15a George Square, Edinburgh, EH8 9LD, UK.

[2] For the purpose of this study, the definition of “culture” by the International Federation of Red Cross and Red Crescent Societies (IFRC) is used, which outlines culture as a set of “beliefs, attitudes, values and their associated behaviours that are shared by a significant number of people in hazard-affected places” [11]. In contrast, social factors describe societies and their segments, e.g., education or income levels.

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cultural. In other cases, though, the differentiation is not as clear. For example, factors like socio-economic status are densely entwined with people's attitudes and perceptions, and can often provide the "structural" conditions for shaping cultural factors that are of concern in disaster preparedness. When exploring behavioural strategies among residents in high-risk areas in Israel and the factors that may influence these behaviours, Shapira and colleagues (2018) identified a relationship between these residents' disaster preparedness and their financial resources. But the availability of financial resources has also a direct effect on livelihoods, and previous research (e.g. Ref. [11], has demonstrated how people develop unique narratives to bridge the gap between hazard risk, the need for appropriate disaster preparedness, and the lack of resources to do so. Such strategies to overcome cognitive dissonance are inherently cultural, being part of the human desire to "make sense" of people's lives and the world around them.

Behaviour related to such strategies may provide the foundation for hypotheses that people who expect a negative disaster outcome will not engage in hazards preparedness, whereas people who expect a positive outcome will engage [12]. It also confirms the link identified between preparedness and perceived self-efficacy related to both natural [13,14] and man-made hazards [15]. However, such models do not sit well with findings in other locations with a 'state-oriented risk culture' [16], where citizens do not see a need to engage in hazard preparedness themselves because they perceive taking preparedness measures as the responsibility of public authorities.[3] Such projection of preparedness responsibilities to others on the one hand, or the aforementioned lack of resources on the other hand, are examples for the so-called 'risk perception paradox' [17], where individuals, despite their high levels of risk perception, rarely take increased preparedness actions.

To address the issue of financial resources, researchers have pointed at encouraging measures that require less financial involvement, e.g., fixing heavy objects to a wall for earthquake preparedness, and begin with easy-to-adapt items, e.g. emergency kits, before progressing to more complex, or expensive, items (see, e.g., Ref. [18]. Russo and Rindone [19] suggest a similar strategy for education and training activities, where the content of education and training activities should gradually transition from discussion-based to operation-based exercises.

Although Russo and Rindone predominantly target disaster preparedness training for practitioners, such a progressive strategy also points at the important role of communication-focused activities for citizens, which may precede and encourage participation in, e.g., physical skills training. In this context, Jang and colleagues (2016) argue that the higher the frequency of 'thinking of and talking about' a disaster amongst community members, the higher their hazard preparedness intention and feelings of empowerment. The research of Wirtz and Rohrbeck [15] revealed that perceived self-efficacy has a medium influence on taking up preparedness activities, but they found a strong influence of knowing others who have taken action to prepare themselves.

Such concepts often draw on concepts of community that relate to groups of individuals who share not only a physical location, but are also assumed to have common interests, needs and aspirations due to their sharing of a specific physical space. More often, though, communities are "collections of competing interests" [20] and, despite being exposed to a specific local hazard, they may not share the same sense of risk [21]. Accordingly, community cohesion may have a positive effect due to perceived responsibility for others, which "spills over" into preparedness activities [22], and, particularly in combination with local knowledge, it can play a life-saving role [23]. But it cannot be taken for granted.

To build or strengthen community cohesion, researchers have also pointed at the usefulness of drawings and storytelling to access memories which were otherwise suppressed, allowing not only the narration to reveal intangible strengths, e.g., neighbourhood help, but also the narrator's willingness to collaborate [24]. The shaping of collective memory and, thus, shared identity amongst a local community, is likely to contribute to its disaster resilience [25] and may be encouraged by organising, e.g., community workshops which specifically promote such activities.

However, generating shared identity may not only serve to strengthen community cohesion to encourage disaster preparedness. Understanding disasters also as inter-group encounters, identification processes play a similarly important role in the relationships between emergency responders and citizens, resulting in increased public cooperation and compliance. Studies have shown that such identification was achieved through open and timely communication including explanations about the actions responders were taking [26], and with a specific emphasis on bi-directional information exchange between citizens and authorities [27]. Here, emergency drills and disaster scenario exercises that involve both practitioners and citizens may thus improve not only perceived self-efficacy through skills training, but also improve knowledge of, and compliance with, preparedness response procedures through shared identity and mutual trust.

It has been argued that one of the strongest motivators for citizens' disaster preparedness is direct and recent disaster experience (see, e.g., Ref. [28]. But, as Becker and colleagues (2017) have outlined, it is a particular challenge to encourage disaster preparedness behaviour in people who have only vicarious disaster experience or life experience (e.g., personal or family-related health emergencies, car accidents). Accordingly, they studied the effects on disaster preparedness of different forms of prior experience, i.e., direct, indirect, vicarious disaster experience and life experience. Whereas their results confirmed previous findings that direct experience is the strongest motivator, they also found that vicarious experience can trigger an increased willingness to pay attention to hazard-related issues, including thinking and talking about hazard issues, assisting with understanding the consequences of future events, and helping with the formation of beliefs about hazards and preparedness. Further, their research revealed that life experiences help inform people's interpretations and decisions about hazards and preparedness. To make hazards relevant to the general public, they suggested practitioners may consider reinforcing the general idea that "preparedness is a way of life" [29].

A recent comparative study in Japan focusing on three structurally different urban locations explored how such idea may be, or already has been, put into practice [30]. Calling it "everyday-life preparedness", preparedness activities in Kitagawa's concept need to be embedded into what communities already do in building a sense of belonging. "Everyday", here, does not refer to thinking about and engaging in disaster preparedness every single day, but it aims to embed preparedness-related thinking and activities in daily life without even calling them disaster preparedness. Kitagawa identified such activities in all three of the chosen settings. For example, residents of a very large block of apartments introduced a "greeting campaign" to get to know each other as a foundation for trust-building, and they developed a system where they could register their skills and capabilities to help each other in everyday-life situations, but also in case of emergencies. In another location, residents organised summer BBQ's where they practised cooking for a very large group of people, which was also seen to be useful for emergency situations. Another example demonstrated how "urban farming" can be useful as a community practice for disaster preparedness by integrating elderly and children via crop-growing in urban allotments. Kitagawa concluded that direct disaster experience is not necessarily relevant in these everyday-life preparedness activities, which combine community development with disaster preparedness building.

[3] Cornia and colleagues (2016) identified such state-oriented risk cultures for Sweden, Austria and Germany. For the Netherlands, they identified signs of both a state-oriented and an individual-oriented risk culture, with Dutch citizens' strong trust in public authorities and their coping capabilities, but also concepts of self-reliance and self-confidence in their personal ability to respond to disaster risks and disaster situations.

However, it remains somewhat unclear to what extent citizens are aware of this potential to develop such disaster preparedness, which requires little extra time or costs. Although it may be questioned whether awareness is necessary as long as these bottom-up activities just "happen", there are other skills and knowledge that do require a conscious effort, even if it is a small one such as having an emergency kit or a personal emergency plan. Additionally, perceived self-efficacy is an important motivational factor for citizens' disaster preparedness, and it is a process, which is likely to start with easy-to-adapt behaviours, build up via communication-focused activities where sharing knowledge and experience enhances taking up responsibility for others. This, in turn, may encourage participation in skills training and more complex preparedness measures. But whereas both researchers and practitioners have recognised these different measures as useful, there has yet been little opportunity for citizens to discuss and, depending on their attitudes, perceptions and life situations, to prioritise, or to "pick and choose". Accordingly, this study used the research format of Citizen Summits to identify in different European locations the potential for "cultures of preparedness" which are determined from below, rather than from above.

3. Methodology

The research reported here is part of a project,[4] conducted over a period of three years, aimed to, methodologically, bridge the gap between practitioners and "lay" citizens, understanding their different perspectives as complementary. Accordingly, between 2016 and 2018 a series of events was organised, which consisted of three Stakeholder Assemblies and six Citizen Summits. Its cyclical character,[5] with the findings from each event shaping the content of the next, allowed for a progression of ideas co-created by disaster practitioners and citizens. The synthesised results of this process were moulded into a set of recommendations for citizens,[6] which were presented and evaluated in the last two Citizen Summits, held in 2018 in Portugal and the Netherlands.[7]

The term "Citizen Summit" has its roots in events organised by governmental institutions or NGO's, intending to provide an opportunity for "ordinary" citizens, rather than experts or politicians, to voice their opinions about issues of public interest. Commonly, these summits include plenary sessions where participants can use electronic keypads to "vote" on questions placed to the general audience, and small group discussions led by facilitators. The CARISMAND Citizen Summits followed this format: Quantitative data collection via an immediate audience response system provided the basis for qualitative focus group discussions aiming to explore cultures and cultural factors, which may shape citizens' disaster-related attitudes, perceptions and behaviours.

The results presented in this study are based on the qualitative data collected during the Citizens Summits in Portugal and the Netherlands. The Netherlands, on the one hand, are concerned with a rather high level of exposure to natural hazards (mostly flooding), but characterised by low vulnerability, low susceptibility, a high level of coping capabilities and advanced adaptive capacities.[8] Citizens in Portugal, on the other hand, have had very recent experience of serious wildfires, which incurred a high number of fatalities, and resulted in a public perception that these disasters were not handled well by the responsible authorities. Accordingly, these locations were chosen to contrast and compare citizens' feedback in two settings with very different types and levels of disaster experience, as well as different perceptions of disaster management and, potentially, different trust relationships between citizens and authorities.

Sample composition. Participants for both Citizen Summits were recruited via local research agencies using a recruitment questionnaire. An industry-standard 'FreeFind' approach was used, and participants were incentivised in line with regular practices for the research location concerned. The aim of the recruitment questionnaire was to achieve a balanced sample with an even gender and age distribution,[9] except for a comparatively low number of senior citizens aged 65 and above, which was expected and reflects mobility issues (see Table 1 below).

Furthermore, the recruitment criteria included three key aspects of disaster experience and disaster risk perception (see Table 2 below), to ensure that all levels of experience with disasters were present in the sample. Gender- and age-related differences in the responses to these questions were found to be not statistically significant ($p>=.05$).

The distribution of experience of disasters and risk perceptions in both research sites confirmed that the Portugal sample was likely to be affected by the recent local events, whereas the Netherlands sample reflected attitudes that may be shaped by the high level of Dutch disaster authorities' coping capabilities.

Although not part of the screening process at recruitment, results from the first part of the Citizen Summits established that levels of knowledge about what to do in case of a disaster varied between the two Summits, with 69% of Portuguese and 49% of Dutch participants feeling not informed or not informed at all about what to do in a disaster (Table 3). Despite these different levels of feeling informed, feelings of preparedness were very similar with two third of participants (Portugal: 66%; Netherlands: 63%) feeling not prepared or not prepared at all (Table 4).

However, whereas participants in both Summits indicated a high interest in information about disaster preparedness (Portugal: 92%; Netherlands: 90%; quite interested or very interested), there were significant differences between the extent to which participants, in the beginning of the Summit, declared their intentions to prepare for disasters. A large majority of Portuguese participants (91%) intended to prepare quite a lot or a lot, but comparatively fewer participants in the Netherlands (28%) planned to do so (Table 5).

Procedure. Each Citizen Summit consisted of a day-long event, held in a central city location to facilitate participants' travel arrangements. The Portugal Citizen Summit was held in Lisbon, the Dutch Citizen Summit was held in Utrecht; in both locations, participants were

[4] CARISMAND (Culture And RISk management in Man-made And Natural Disasters) is a research project co-funded by the European Commission under the Horizon 2020 Programme (2014–2020), Grant Agreement Number 653748, which aimed to explore the relationships between disaster risk perception, culture and (disaster-related) behaviour.

[5] In 2016, the first Stakeholder Assembly was held in Bucharest, Romania, followed by two Citizen Summits in Romania and Malta. In 2017, the second Stakeholder Assembly was organised in Rome, Italy and followed again by two Citizen Summits held in Italy and Germany. The final "round" of events in 2018 was held in Lisbon, Portugal, with subsequent Citizen Summits in Portugal and the Netherlands.

[6] These recommendations for citizens "mirror" another set of recommendations that was specifically developed for practitioners (CARISMAND Deliverable 5.13 Synthesised Stakeholder Assemblies Report, 09/2018).

[7] Overall 60 focus group discussions (40 with citizens and 20 with practitioners) shaped the content of the final set of recommendations that were discussed in Portugal and the Netherlands. In each "round" of Citizen Summits and Stakeholder Assemblies, part of the discussion topics where chosen based on practices that citizens and/or practitioners identified as particularly useful in the previous round. This cyclical research design aimed to foster citizens' discussion of findings from Stakeholder Assemblies, and practitioners' discussion of findings from Citizen Summits. At each round, care was taken to ensure that discussion guides did not bias participants, and participants were encouraged to discuss both advantages and disadvantages of proposals put to them.

[8] Source: https://reliefweb.int/report/world/world-risk-report-2017; accessed 08/2018.

[9] Target quota requested from the recruiting research agencies were a gender split of 50% female/50% male, a target age split of 20% 18–24 years, 40% 25–44 years, 40% 45+ years, and a total target of approximately 90–110 participants per Summit.

Table 1
Sample distribution by gender and age.

Citizen Summit Location	Gender				Age group						
	Total	Female	Male	No answer	18–24	25–34	35–44	45–54	55–64	65+	No answer
Portugal	102	55	43	4	16	21	18	24	17	6	0
Netherlands	89	43	44	2	20	19	15	16	13	5	1
Total	191	98	87	6	36	40	33	40	30	11	1

Table 2
Recruitment criteria.

	Answer = YES	
	Portugal	**Netherlands**
Experience of disasters: ***Have you, or a close friend or family member, ever experienced a disaster?***	93%	58%
Feel that living in a disaster area: ***Do you feel you are living in an area that is specifically prone to disasters?***	57%	21%
Know of vulnerable groups particularly exposed to disasters: ***Do you know of any other people in your area where you live who, you think, are particularly vulnerable or exposed to disaster?***	59%	44%

Table 3
Feeling **informed** about what to do in case of a disaster.

How informed do you feel by the authorities (for example Civil Protection, local police, emergency services) of what you have to do in case of a disaster?	Portugal	Netherlands
Not informed at all	22.7%	13.5%
Not informed	46.4%	35.8%
Reasonably informed	24.7%	42.0%
Informed	6.2%	7.4%
Very informed	0.0%	1.2%

recruited from the larger city area[10]. After the plenary morning session, in the afternoon participants were allocated to groups of eight to eleven participants[11] with an even gender split. All focus group discussions were moderated by native speakers in Portuguese and Dutch respectively to avoid any language or education-related access restrictions for participation. All discussions were audio-recorded, fully transcribed, and the transcripts were translated into English. To ensure the anonymity of participants, all names and other personal identifiers were removed in this process. Line-by-line coding of the translated transcripts followed a preliminary coding framework, which had been set up to allow an initial structuring of the collected data. This initial coding framework was based upon the structure of the focus group discussion guideline, i.e., general feedback, favourable and unfavourable reactions to the individual recommendations, barriers, and suggestions for improvement. The structured results of this first coding permitted the development of a more refined matrix – an "analytical scaffolding" (Charmaz, 2006). Based on this matrix, the transcripts of all 20 discussion groups were then recoded and themes were identified, which provided a better focus on specific attitudes, perceptions and beliefs, revealing participating citizens' acceptance, perceived usefulness and relevance of the recommendations presented.

Table 4
Feeling **prepared** about what to do in case of a disaster.

How prepared do you personally feel for a disaster in your area?	Portugal	Netherlands
Not prepared at all	26.0%	24.7%
Not prepared	39.6%	38.3%
Neither unprepared nor prepared	28.1%	27.2%
Prepared	6.3%	7.4%
Very prepared	0.0%	2.4%

Table 5
Preparedness intentions.

To what extent do you intend to prepare for disasters?	Portugal	Netherlands
Prepare not at all	0.0%	6.0%
Prepare very little	1.0%	18.1%
Prepare a bit	8.0%	48.2%
Prepare quite a lot	59.0%	20.5%
Prepare a lot	32.0%	37.2%

Based on the frequency of these specific findings, a qualitative "rating" (Table 6) was established to identify those recommendations, which found most support amongst participants.

4. Results & discussion

In Portugal, a great majority of participants across all age groups felt that the development of a "culture of preparedness" was, generally, desirable. Whilst aware that a change of mindset would be required for some of the recommendations to be implemented, they also believed that such cultural change was possible over time. As an example, many explained how attitudes and behaviours in waste recycling had changed amongst the Portuguese population over the last decades. In the Netherlands, the data revealed attitudes amongst most participants that oscillated between inertia and interest. Many felt that it was the Dutch government's duty to inform citizens rather than citizens having to gather information themselves. However, some also expressed their opinion that this responsibility should be shared between citizens and authorities. Additionally, a majority of Dutch participants expressed their specific interest in information about disaster risks and preparedness when travelling abroad. In both locations, participants felt that changing the "little things", such as reading signs that contain emergency-related information or putting up emergency numbers with a fridge magnet, and discussing emergency procedures with family members, promised the highest impact on behavioural change. Further, they expressed their strongest appreciation, and interest in, community workshops and training events that not only target learning or refreshing disaster or emergency-related skills, but were also designed to help improving the participants' cultural awareness, and develop "cultural skills".

In the following, we present in detail our findings on the "Top 5" recommendations, which, in both or at least one of the Citizen Summits,

[10] In the Netherlands summit including the city areas of Amsterdam and Groningen.

[11] In each summit, two groups consisted of participants aged 18–24, four groups of participants aged 24–44, and four groups of participants aged 45+. This division into age groups aimed to allow participants to discuss amongst peers with similar life-experiences.

Table 6
Qualitative "rating" of recommendations.

++	All or almost all participants in all groups agreed and found the respective recommendation to be very useful and important. *At least 80% of participants in the respective focus group gave a positive evaluation, and none of the participants rejected, criticised or made any negative comment to the recommendation.*
+	A majority of participants in most groups agreed upon the respective recommendation's usefulness, with some participants considering it to be difficult to implement in their daily lives. *At least half +1 of the participants in the respective focus group gave a positive evaluation, and not more than 30% rejected, criticised or made any negative comment to the recommendation.*
+/−	The recommendation had a mixed reception, i.e., some of the participants perceived it as useful, whereas others felt that it would not be applicable to them (e.g., due to age concerns or personal circumstances). *An equal number of participants in the respective focus group gave positive and negative comments to the recommendation.*
−	A majority of participants in most groups rejected the respective recommendation as not useful or not applicable to their personal circumstances. *At least half +1 of the participants in the respective focus group gave a negative evaluation, criticised or made a negative comment to the recommendation.*

achieved a rating of "++".[12]

4.1. The power of "simple things"

Recommendation 1: Set up personal emergency plans together with your family and friends by discussing emergency contacts, meeting points, means of communication etc. Use simple reminders to have these emergency plans and information readily available, e.g., as a pic on your mobile phone, in your purse, or to stick on the fridge.

This recommendation was perceived by the majority of participants across all age groups in both Citizen Summits as the, potentially, most impactful, and the most likely to be taken up by themselves. Participants in the Netherlands ascribed their motivation, and this recommendation's expected success, to its perceived ease of implementation in their daily lives:

> "I have put this recommendation as my number one. It is very simple and you do not have to look up all kind of complicated things […] There is a lot of power in this recommendation."

> "Having meetings with your parents and agreeing on meeting places etc. that is very useful, (…). It is a very simple agreement that can have big consequences."

> "There is not a lot that prevents you from doing it. There is not a lot that you have to do, and there are no costs involved."

> "This is it, this is what I would like the government to help me with: I would like them [disaster management authorities] to tell me these simple things, things that stick with you."

These quotes confirm the findings of Shapira and colleagues (2018), i.e. that easy-to-adapt measures – "simple things" which require no financial resources and little time as they can be integrated into people's everyday routines – are likely to have the greatest success when initially encouraging citizens' disaster preparedness. However, they also point at two further aspects which were not discussed by Shapira et al.: Firstly, measures like personal emergency plans and family discussions may be simple (and information about them widely available, e.g. on Civil Protection websites), but being simple does not mean that they are obvious. Secondly, their adoption is more likely if they are perceived as generally useful beyond disaster situations, i.e., in everyday life preparedness.

Additionally, everyday life routines like family gatherings are subject to cultural differences.[13] In Portugal, where almost two thirds of young adults aged 18–34 still live with their parents,[14] particularly the younger Citizen Summit participants expressed their intention to take the recommendation up immediately and share it with their family members: *"I'm going to talk to my parents about it"; I'll leave from here and go home and tell my mother for us to think about it"*. Accordingly, this recommendation may be specifically successful in societies with close family ties and where several generations are living under one roof: *"If there is just one person who pushes for it at home, I think if there's already good communication at home, things will flow"*.

The following recommendation for developing a culture of preparedness received similarly strong support in both the Portuguese and the Dutch Citizen Summit as, again, a *"simple thing that can make a big difference"*.

Recommendation 2: Be on the lookout for publicly displayed information about how to prepare for emergencies or disasters, e.g., posters and signs in buses, waiting halls, entrance areas of sports stadiums, shopping centres, concert halls or hotel lobbies. Make a point of reading and memorising such information, and encourage people who are accompanying you, especially children, to do the same.

Here, the assumed ease of implementation merges with filling a perceived "void", by catching people's attention in places *"where people do nothing"*, e.g., in waiting rooms, the subway, or where people queue. However, participants also outlined that publicly displayed information in such spaces increasingly competes with information readily available via tablets or smartphones and, thus, needs to be compelling enough to attract attention. In this context, one Portuguese participant further elaborated how a smartly worded sign in their workplace had improved awareness amongst staff: *"In my company there is a poster that says 'When a disaster happens, don't read the instruction manual. Read it now.' It's such a simple message, and I think many of us have already been to this safety link"*. Generally, though, participants in both summits expressed their awareness, and willingness, to adapt their behaviour: *"I will be paying more attention from now on […] These things need to become ingrained. It just needs to become a simple fact,"* pointing, again, at the power of "simple things".

4.2. The power of sharing

Recommendation 3: Find out whether there are community workshops in your area on how to prepare for, and respond to, disasters. If none are organised, ask your local council or civil protection authority to organise such workshops. Take part in these workshops and use this opportunity to share your experiences of past disasters; discuss values and traditions that played an important role in these situations. The active participation in such community workshops will help community members learn from each other about local hazards and disaster risks, and so strengthen community spirit for improved community responses in the event of a disaster.

This recommendation relates to Wirtz and Rohrbeck's findings [15] that getting to know others via workshops who have taken action to prepare themselves will foster behavioural change. It was found to be very useful by the majority of Portuguese participants in most discussion groups, independent from their age:

[12] A full list of the discussed recommendations, and their evaluation, can be found in Appendix I.

[13] In this case, "cultural differences" are not to be understood as differences due to nationality, but due to different cultural factors, like lifestyle and family ties, that are prevailing in different societies.

[14] 63.4%. In contrast, in the Netherlands only 35% of young adults aged between 18 and 34 lived with their parents in 2017; the EU average is 48%; source: http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do (accessed 05/2019).

> "Participating in workshops and sharing experiences - I think it's very important […] in our country we will always have memories of something that happened."

> "I think it would be useful if there were such workshops. It is precisely in this sharing of experiences and other knowledge that, sometimes, we even put an end to certain myths."

In the Netherlands, the recommendation was also found to be useful by a majority of participants in most discussion groups, although a minority feared that such workshops may *"end up in some kind of sensational story telling session"*. In both locations, participants suggested that more people may be attracted to such workshop if it was part of a larger public event, e.g. a summer festival with several activities, where *"the result would be an educational and fun day"*. This suggestion resonates strongly with Kitagawa's concept of everyday-life preparedness, by embedding disaster preparedness activities in what people already do in building a sense of belonging. At the same time, it ties in with the data collected when discussing the next recommendation:

***Recommendation 4: Find out about training events in your area, e.g. First Aid and CPR training, where you can participate; use these events to learn new skills or refresh old skills. Such events are also an opportunity to train with fellow citizens from other cultural backgrounds; learn to identify and respect their specific cultural needs*.**

In both Citizen Summits, the majority of participants strongly appreciated this recommendation as *"useful in many situations, and it helps you to be aware of different cultural aspects and values"*, though some middle-aged participants in Portugal felt that they may have difficulties to make time in their busy lives between work and family responsibilities. However, across all ages both Portuguese and Dutch participants perceived themselves as living in urban areas that are inherently multi-cultural and, thus, represent specific challenges – an aspect which has been discussed neither by Wirtz and Rohrbeck [15] nor Kitagawa [30]. These perceptions related to multi-cultural issues[15] ranged from language issues to genuine tolerance, and from a somewhat utilitarian attitude of enlarging the "pool" of potential helpers, to the desire to "break down the barriers" and offering help oneself:

> "We need to find proper ways to communicate with each other. Take for instance Amsterdam, that's where I live, a city with so many different languages. That's why it is important to communicate well with each other. (…) That's why we need to coordinate this, you need to organise it well. If not, people will all go into different directions, except for the right one."

> "That's also my experience. I used to live in a multi-cultural environment and I and my children are mixed race. You're all in this together."

> "I think the more you know about each other the more tolerant you'll become."

> "It would also be interesting because we live in a multicultural society, in my area anyway. So that I know that when there's an emergency I can ask this person for help."

> "I think this is important because nowadays, especially in Lisbon, it is a city where many communities are living together. And sometimes we are not aware of our neighbours, we live quite apart from them […] And then we realise something, which is that when we need someone, it doesn't matter what colour or what country they come from."

[15] Whereas some participants discussed this topic by using the term "culture" synonymously with nationality or ethnicity, most of them reflected on cultural differences at the level of different practices, values or norms.

> "We have Syrian refugees in Portugal, but nobody has ever explained how the Muslim religion is, what's the type of care [needed]. There was a lot of talk about hosting families, but there was no training. I received a family and had to learn everything by myself. They arrived, and I didn't know what I was supposed to do."

> "We have a lot of people from different cultural backgrounds in my neighbourhood […] I'd like these people to know that we can all count on each other, regardless of where you're from. They're not only dependent on each other but we, their Dutch neighbours, we can also help them when they're in need. I would like to break the barriers that exist in my neighbourhood. I do believe that these barriers could indeed be broken by these kinds of training events."

In particular Dutch participants showed a high level of awareness that

> "in such training you look at your own norms and values, that this can be an obstacle in providing aid. You do not have to know all cultural backgrounds and have 'manuals' for them, that is not realistic. It is more of becoming aware of your own baggage, the tinted glasses, that you are aware of this and which obstacles it can form".

This quote demonstrates that, rather than expecting disaster managers to turn into cultural trainers, such events would require "cultural moderators" who help participants to reflect upon themselves and put their own values, norms and behaviours into perspective. Accordingly well-designed disaster preparedness training activities that also focus on cultural awareness are likely to benefit both "lay" citizens and practitioners and have sustained effects that go beyond the improvement of knowledge and skills.

> "A sense of community. I live in an area where there are a lot of Moroccan people and there's not a lot of contact with them […] But it is interesting to get to know and understand each other about these matters […] I think this is a really important issue."

> "I think this is a good thing, I would take part […] I would almost be inclined to do it for the sake of getting to know the people who live in my neighbourhood. Instead of a barbeque we could have this as a social and cultural event."

Here, interestingly, the relationship between community cohesion and disaster preparedness goes somewhat topsy-turvy: Social cohesion is not a factor that fosters disaster preparedness, but disaster preparedness training activities are seen as "social and cultural events" which hold the potential to build a sense of community in multi-cultural environments.

4.3. The power of empowerment

***Recommendation 5: When you participate in disaster training activities, use these opportunities to think about and discuss with other participants and your trainers the personal skills you already have that could be helpful in a disaster, e.g. technical skills, communication skills, organising talent or detailed local knowledge*.**

This recommendation met very strong acceptance in Portugal, particularly when participants imagined it not only in the context of preparedness training activities, but also in combination with community workshops, where they saw the opportunity of mutual encouragement through narratives and shared experience. This result confirms previous findings regarding the relationship between perceived self-efficacy and disaster preparedness [13–15], and, additionally, affirms its connection to 'thinking and talking about' disasters [12]. Accordingly, empowerment for improving citizens' disaster preparedness can be seen as a process that is embedded in group dynamics rather than individual learning and reflection.

Dutch participants particularly appreciated the mutual effect of self-awareness and practical exercise:

> "I think it would be good if people would be aware of the different roles they could fulfil, but don't just think or talk about it, you also need to act upon it. These roles don't always need to be practical, you could also think along the lines of 'oh, this person is good at calming people down, and this other person knows how to remember where we can find the emergency exit' […] Basically, believe in your own strength, think about how you can contribute […]"

Additionally, participants in both summits suggested providing specific examples and asked for guidance to facilitate the process of self-identification:

> "Because only when those examples came up [in the morning presentation during the Citizen Summit], you started to think about yourself. If there were more examples, more people would probably feel involved […] Standard roles that you can identify yourself with. What people could do, how they can use it. You can list clear roles that are necessary in a disaster situation."

The previously identified relationship between perceived self-efficacy and disaster preparedness [13–15] may, thus, be fostered by such roles, as their recognition can represent an important first step in the development of self-efficacy – particularly in individual-oriented risk cultures such as the Netherlands [16], because they represent already existing core elements of people's everyday lives, which are easy to identify with.

5. Conclusion

As Domingues and colleagues [31] have demonstrated in their research on perception of coastal hazards in Portugal, generating worry or fear through information or education in an attempt to improve preparedness via increased risk perception may have the opposite effect. In particular, citizens whose main source of knowledge is life experience may not respond well to such strategies. Instead, they may lead to cognitive dissonance and people engaging in strategies to psychologically, rather than practically, cope with perceived risks. Encouraging sustained behavioural change towards disaster preparedness may therefore be more successful if making use of factors that are already aligned with people's worldviews, values and norms, i.e. cultural factors, which are more likely to achieve a "soft" cultural change over time. However, the development of such "culture of preparedness" is not a monolithic exercise, but more likely to build upon on a combination of various dynamics. The results of our research with citizens in Portugal and the Netherlands point at three main strategies, which can be linked to such cultural change.

Firstly, incorporating "simple things" in already existing daily routines is likely to be more successful than other measures, because it only requires little cost or effort. However, its particular strength lies in that it *builds and extends upon already existing cultural values and daily routines*.

Secondly, community cohesion as a cultural value to foster disaster preparedness, particularly in large urban environments, cannot be taken for granted. However, this does not mean that there is no desire for community cohesion amongst city dwellers, and this desire may be conductive to participating in disaster preparedness activities, fostered by general cultural empathy and, not least, natural curiosity or intellectual interest in "the other". Events that facilitate these encounters – which may be workshops that aim to create shared identities via collective memory, training activities that incorporate self-awareness, or a combination of both – are more likely to be accepted if they are, again, *organised as part of everyday-life events*.

Thirdly, targeting self-efficacy, if focused solely on the acquisition of disaster or emergency-specific skills, may face citizens' general inertia or feelings that it is the authorities' responsibility to take preparedness measures. However*, targeting already existing, personal everyday skills and improving citizens' awareness of their additional usefulness for disaster situations*, may serve as another factor in fostering disaster preparedness through everyday-life preparedness.

Understanding preparedness as "a way of life" [29] may also hold further benefits: Fostering preparedness is not only a form of disaster management, but also a dynamic form of health promotion [14], which points at the potential of fruitful cooperation between healthcare providers, disasters management authorities and researchers in targeting cultural change. Such cooperation, aiming to promote and further explore the cultural dynamics of disaster preparedness, is likely to help improve citizens' general health and well-being in their everyday lives.

6. Limitations

The main limitation of this study lies in that the data in both research locations were collected from non-probability samples, which are not representative of either the Portuguese or the Dutch population, or the European population at large. Furthermore, although participant selection aimed to achieve samples with an even spread across all ages, participants aged 65+ were underrepresented. However, age-related differences in disaster experience and disaster risk perception were found to be not statistically significant ($p>=.05$). For the purpose of eliciting the perceived role of cultural factors in locations with different disaster histories, institutional environments and types of local hazards, we consider this underrepresentation therefore to be acceptable. In addition, the qualitative findings from this research do not point at age-related differences in attitudes or perceptions towards cultural practices that would foster an everyday-life preparedness. Finally, "culture" is a term which, in everyday language, is often used synonymously with nationality or ethnicity. Accordingly, focus group participants occasionally defaulted to this definition in their discussions. However, group moderators were carefully briefed to probe and guide participants towards possibilities of a wider understanding of culture, including everyday practices, but without restricting them to pre-defined uses.

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.

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Appendix I

Full list of discussed recommendations for citizens developing a "culture of preparedness"	Citizens' evaluation	
	CS LIsbon	CS Utrecht
• Set up personal emergency plans together with your family and friends by discussing emergency contacts, meeting points, means of communication etc.	++	++
• Use simple reminders to have these emergency plans and information readily available (e.g., as a pic on your mobile phone, in your purse, or to stick on the fridge).		
• Be on the look-out for publicly displayed information about how to prepare for disasters, which is often displayed in public places, e.g., posters and signs in buses, waiting halls, entrance areas of sports stadiums, shopping centres, concert halls or hotel lobbies.	++	+
• Make a point of reading and memorising such information, and encourage people who are accompanying you, especially children, to do the same.		
• Find out whether there are community workshops in your area on how to prepare for, and respond to, disasters.	++	+
• If none are organised, ask your local council or civil protection authority to organise such workshops.		
• Take part in these workshops and use this opportunity to share your experiences of past disasters; discuss values and traditions that played an important role in these situations.		
• The active participation in such community workshops will help community members learn from each other about local hazards and disaster risks, and so strengthen community spirit for improve community responses in the event of a disaster.		
• Find out about training events in your area, e.g. First Aid and CPR training, where you can participate; use these events to learn new skills or refresh old skills.	+	++
• Such events are also an opportunity to train with fellow citizens from other cultural backgrounds, learn to identify and respect their specific cultural needs.		
• When you participate in disaster training activities, use these opportunities to think about and discuss with other participants and your trainers the personal skills you already have that could be helpful in a disaster, e.g. technical skills, communication skills, organising talent or detailed local knowledge.	++	+
• If there is the opportunity, participate regularly in disaster simulation exercises, which will help strengthening a sense of community, and increase the mutual understanding and trust between disaster practitioners and citizens.	+	+
• Encourage friends and family members to do the same.		
• Identify and memorise "safe spots" or "safe zones" in your homes, your workplaces, and your local area.	+	+
• Keep in mind that such safe places may be different for different types of disaster.		
• Share and discuss these safe places with family members, friends and colleagues.		
• If you have a smart phone, find out what mobile phone apps are available in your country and local area that are specifically designed for disaster communication, such as providing warnings and alerts, recommendations for appropriate disaster preparedness and response, and important points of contact in case of a disaster.	+	+
• Become familiar with the features of such apps and test them frequently.		
• Encourage friends and family members to download and use this app as well.		
• If you travel abroad, make it a habit to gather in advance information about local emergency procedures, e.g. via websites of Civil Protection, Red Cross, your country's local embassy, or by asking at the hotel reception of your travel destination.	+	+
• If you use mobile phone apps, find our whether there is a "disaster app" available in the countries where you travel, which provides emergency-related information and guidance in your language.		
• Search online for reliable sources of information (e.g., the Civil Protection website) or ask your local council for information about how to prepare yourselves and your family and friends for disasters.	+	+/−
• Download this information or ask the authorities to send you any available brochures.		
• Update yourself at least once a year.		
• Find out which information channels can be used in case of a disaster, e.g. websites or social media sites of your local police force, Civil Protection etc.	+	+/−
• Make sure you know how to access them, bookmark the links and test them regularly.		
• Encourage and help other family members and friends to do the same.		
• If you enjoy playing online games, find out what serious games for disaster preparedness and response are available in your country and language; train yourself by playing them and encourage others to do the same.	+/−	+
• If there are such games that were specifically designed for children, encourage your children to play them, or play them together; ask teachers or kindergarten staff to play them with the children regularly.		
• If you are involved in digital gaming design, for example as the developer of multi-player online games, a lecturer or a student in this area, help disaster managers to employ virtual reality as a training method.	+/−	+/−
• This could be achieved by using serious game design for disaster preparedness as a study goal, or by including the theme of appropriate disaster response in the design of multi-player games.		
• Volunteer to get involved in the planning of emergency and disaster response activities (e.g., by contacting your local council, or Civil Protection), and encourage fellow citizens from different cultural backgrounds to do the same.	+/−	+/−
• Your participation will help practitioners learn about cultural differences before a disaster occurs and adapt the respective guidelines and procedures accordingly.		

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