



Vulnerability and vulnerable groups from an intersectionality perspective

Christian Henrik Alexander Kuran^{a,*}, Claudia Morsut^a, Bjørn Ivar Kruke^a, Marco Krüger^b,
Lisa Segnestam^c, Kati Orru^d, Tor Olav Nævestad^e, Merja Airola^f, Jaana Keränen^f,
Friedrich Gabel^g, Sten Hansson^d, Sten Torpan^d

^a University of Stavanger, Norway

^b International Center for Ethics in the Sciences and Humanities, Tübingen, Germany

^c Stockholm Environment Institute, Stockholm, Sweden

^d Institute of Social Sciences, University of Tartu, Estonia

^e Institute for Transport Economics, Norwegian Centre for Transport Research, Norway

^f VTT Technical Research Centre of Finland Ltd, Finland

^g International Center for Ethics in the Sciences and Humanities (IZEW), Tübingen, Germany

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ABSTRACT

In general, the identification and protection of vulnerable groups in the case of hazards or when a crisis unfolds is an issue that any crisis and disaster risk management should address, since people have different levels of exposure to hazards and crises.

In this article, we promote the application of the intersectionality perspective in the study of vulnerable groups, and we call for intersectionality as a guiding principle in risk and crisis management, to provide a better and more nuanced picture of vulnerabilities and vulnerable groups. This can help national and local authorities and agencies to formulate specific guides, to hire staff with the skills necessary to meet particular needs, and to inform vulnerable groups in a particular way, taking into account the differences that may coexist within the same group. Intersectionality allows us to read vulnerability not as the characteristic of some socio-demographic groups. It is rather the result of different and interdependent societal stratification processes that result in multiple dimensions of marginalisation. In this vein, we argue that research should focus on 1) self-perceived vulnerability of individuals and an intersectionality approach to unpack vulnerable groups; 2) cases of crises according to the level and/or likelihood of individual exposure to hazards, to better nuance issues of vulnerability.

1. Introduction

In general, the identification of vulnerable groups, such as the elderly, children and the mentally and/or physically impaired, in the case of hazards or when a crisis unfolds, is an issue that any crisis and disaster risk management should address, since people have different levels of exposure to hazards and crises, which do not affect people equally. A vulnerable group can be defined as a “population within a country that has specific characteristics that make it at a higher risk of needing humanitarian assistance than others or being excluded from financial and social services. In a crisis such groups would need extra assistance, which appeals for additional measures, i.e. extra capacity, as a part of the emergency phase of disaster management” [1]: 34).

However, a few studies on vulnerable groups in crises (see Ref. [2–4]

point out that, too often, the identities of vulnerable groups are “homogenized in practice without regard for the intersecting traits and continual factors that result in unequal disaster and environmental outcome” [5]: 136). In other words, group characteristics often take precedence over individual characteristics. To overcome this challenge, researchers in the field of crisis and disaster management, as well as disaster management professionals, have recommended the use of the intersectional perspective as an analytical tool to uncover qualitative differences in vulnerability and resilience within groups. Indeed, recent studies show this approach to be fruitful [6,7]. While the recognition of qualitative use of intersectionality still homogenises people, it does so in a more fine-grained way and can be said to represent more adequately societal processes and hierarchies.

In this article, we propose an assessment of social vulnerability and

* Corresponding author.

E-mail address: christian.h.kuran@uis.no (C.H.A. Kuran).

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vulnerable groups, through the lens of an intersectional perspective, to uncover qualitative differences in vulnerability. We argue that, in general, countries and international organisations define vulnerable groups according to pre-crisis social, economic and cultural factors, without taking into account that these same factors usually engender and perpetuate inequality, exclusion, and lack of access to and control over resources. These factors are very much ingrained in our societal systems and function as multipliers of marginalisation, which can become especially apparent in crises and disasters. In this vein, the intersectional perspective helps to uncover the intersection of multiple social variables and identities and the overlap of traits, vulnerabilities and exposure to hazards and crises in different groups, which can result in different positions of privilege and disadvantage (see Ref. [8]).

To achieve the aim of the article, we, firstly, examine how four countries from the H2020 BuildERS project's consortium – Estonia, Finland, Norway, and Sweden – officially describe vulnerability and identify vulnerable groups in official national public documents and surveys. Having framed vulnerability in the official country perspectives, we, secondly, discuss these empirical data vis-à-vis the intersectional perspective. Thirdly, we suggest a model for an alternative framing of vulnerability and vulnerable groups through the intersectional perspective, to deepen our understanding of vulnerability.

2. Theory

Our theoretical approach builds on the intersectional theory and how it has developed in terms of a perspective which intertwines with issues such as hazards, crises and, most of all, vulnerability, which can be defined as “the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard” (UNISDR, 2009: np). The concept of intersectionality can be traced to the work by black feminist researchers concerned with how oppressive power is embedded in societal structures and systems [6,9], while the intersectional theory is credited to the American lawyer, civil rights advocate and leading scholar of critical race theory, Kimberlé Crenshaw, who has worked to understand the interrelated oppression of African-American women [10]. The intersectional theory concerns primarily how the exercise of power, through intersecting domination and oppression, affects individuals who face multiple social inequities, with consequent multiple marginalisation. As the intersectional perspective developed outside the disciplinary field of race or sex, it has been applied to study and challenge power relations in fields such as sustainable development (see Ref. [9]); climate change vulnerability (see Ref. [11]); human rights [12]; risk analysis within a wide variety of risks, including diseases, earthquakes, and forest fires [13]; environmental and water-related hazards and crises [14]; and, more recently, crisis and disaster vulnerability (see Ref. [5,9]).

Adopting an intersectional perspective means to move beyond looking at power relations through one-dimensional categorizations, which lead to the establishment of homogenous groups, as, for example, men and women. Rather, it promotes the combination of several social variables – such as sex, age, ethnicity, disability, and immigration status – at the same time, since social construction of identities, such as nationality, physical/mental/emotional conditions and ethnicity, are not homogenous [15–17]. As such, an intersectional perspective captures differences in “individual lives, social practices, institutional arrangements, and cultural ideologies and the outcomes of these interactions in terms of power” [8]: 68), through the acknowledgment of different spheres of influence, perceptions, and actions across environmental, social, and economic dimensions. Yet, this does not entail including as many social variables as possible. The focus should lie on those variables that are relevant “in the particular case, while keeping in mind the bigger picture” [11]: 422). In addition, it primes the analysis for the inequalities of interacting with the social constructs of identities to understand the multidimensional complexities of social constructions [18–23]. Differences may also result in hierarchies that lead to both

oppression and opportunity [24,25].

Within hazards and crises, the intersectional perspective illuminates how multiple social differences are (re)produced in responses to hazards and crises. This deepens the understanding of how different social groups are both affected by, and also have their own effect on, the impacts of various hazards and crises.

According to Tierney [26]: 12), hazard is “the agent or means through which harms and losses might be realized”. Hazards can be natural, anthropogenic or a combination of both. Hazards, per se, do not cause a crisis or a disaster. The extensive literature on crisis and disaster risk management has provided several definitions of crisis. All have in common a series of un-ness (i.e. unexpected, unscheduled, unplanned, unprecedented, unpleasant; see Refs. [27]: 10). Or unexpected, undesirable, unmanageable and unimaginable (Boin et al., 2018). Rosenthal et al. [28]:10) provide the most encompassing definition of a crisis as a “serious threat to the basic structures or the fundamental values and norms of a system, which under time pressure and highly uncertain circumstances necessitates making critical decisions”. Although this definition is 30 years old, it is still valid in the way it sheds light on three aspects of a crisis: the threat, the urgency and the uncertainty (Boin et al., 2018).

A crisis unfolds when the hazard meets a vulnerable condition. Indeed, the same hazard can lead to different crises, whose diverse impacts depend on who in a given society is exposed to the hazard, the degree of exposure, and the type and extent of vulnerability in question. Thus, it is not only the triggering event, i.e. the characteristics of the crisis, that depicts vulnerability. Vulnerability is a social construction, highly contextual, and differs between social groups (see Ref. [29]). Vulnerability can differ, due to, for example, income, livelihood, education, health, or area of residence. Differentiated vulnerability not only causes inequity – an important underlying driver of crises [30] – but it can change over time, adding further complexity to how vulnerability can be assessed. Tierney [31] explains that the degree of vulnerability does not depend on one dimensional attribution (e.g. to a demographic group, such as the elderly or children), but is the result of a complex relationship between different factors, like social class, race, sex and age, to name just a few:

[...] people are not born vulnerable, they are made vulnerable. [...] different axes of inequality combine and interact to form systems of oppression – systems that relate directly to differential levels of social vulnerability, both in normal times and in the context of disaster. Intersectionality calls attention to the need to avoid statements like “women are vulnerable” in favour of a more nuanced view [...] [31]: 127–128)

This dynamic understanding of vulnerability often refers to a very strong dependency on the situation, which renders targeted crisis relief actions increasingly difficult, as pre-determined categories represent just a potentiality and might be misleading [32].

Taking into account the intersectional perspective in relation to vulnerability and vulnerable groups means to challenge the diffuse tendency in public policy to statically categorise groups in terms of vulnerability to hazards, which neglects the differentials and fluidity of the composition within groups, in terms of vulnerability and resilience. As Tierney suggests “[...] vulnerability has temporal, spatial, and situational dimensions. It exists at particular points in time and in particular locations; while disaster vulnerability is shaped by historical trends, conditions can also evolve and vary in ways that make individuals and groups more or less vulnerable, both in terms of impacts and in terms of outcomes” [31]: 125). In addition, crises conditions may render assumedly robust individuals and groups vulnerable because of their exposure to the consequences of the crisis in question.

The levels of vulnerability vary, to a large extent, according to the individual capacity to cope with and to adapt to hazards or crises. This capacity to reduce vulnerability depends, in turn, on access to and

control over different types of resources, such as level of education, social relations, health, and income. These are commonly distributed unequally between different societal groups and are dependent on social constructions of, for example, masculinity and femininity. It is clear from the literature on crisis and disaster risk management that political and cultural structures, as well as historical forces, play a significant role in shaping societal vulnerability to hazards (see e.g. Ref. [33–35]). Likewise, the literature on societal vulnerability to hazards analyses cultural practices and norms, constructing social relations that result in different roles, responsibilities, values, and identities, depending on various social variables [12,35,36].

Hence, the intersectionality perspective commonly investigates intersections in specific contexts, using empirical methods to explore people's experiences and perceptions. It is common for intersectionality analyses to specifically pay attention to the question of who is how marginalised in a given context (see e.g. Refs. [12,37]), but it is important to bear in mind that groups can be vulnerable in some and resilient in other contexts. For instance, the reliable social network and the high social capital might not be very helpful when travelling in remote regions of the world, far away from home and without one's own social ties.

3. Material and methods

To gather data, a scoping study approach was used. In addition, a snowballing practice, through which the researcher starts out with one central article, book or document and further pursues reference after reference, using inclusion criteria [38,39], was the main mode of data collection. This approach helped to find national documentation easily available from Estonian, Finnish, Norwegian, and Swedish sources addressing issues of vulnerability and vulnerable groups, in three veins: scientific literature; official public national surveys retrieved from national statistics agencies' websites; and official public documents and reports from governmental websites, mainly the national Ministries of Interior Affairs and national agencies working with hazards and crises. .

Official public national surveys and documents were mapped and organised according to: a) how national authorities define vulnerability; b) which factors national authorities often use to categorise vulnerability; c) which categories of vulnerable groups are most often mentioned. Aside from the fact that they are part of the BuildERS' consortium, the choice of the four countries was based on the following criteria. They are geographically close, sharing similarities of language and culture, and have a relatively strong welfare systems, which guarantees basic services to the whole of the population, follow a similar risk governance and, to some extent, provide comparable categories of vulnerable groups and vulnerability factors. They all have a relatively low risk according to the INFORM Global Risk Index (GRI) [40]. The GRI includes three dimensions of risk, to assess the risk level of countries: a) hazards and exposure; b) vulnerability; and c) lack of coping capacity. While all of the four countries are listed in the very low exposure category and attested the provision of extensive coping capacities, Norway and Sweden are grouped in the «low» while Estonia and Finland are grouped in the «very low» vulnerability category. This difference of only one indicator allows for a targeted analysis of the impact of different takes on vulnerability and vulnerable groups.

4. Empirical part

In this section, we present how the four selected countries, namely Estonia, Finland, Norway and Sweden, frame vulnerability and vulnerable groups in official national public documents and surveys. The results of the single country cases are then in the subsequent section compared and discussed.

4.1. Vulnerability and vulnerable groups in Estonia

In Estonia, the term 'vulnerability' is often used in various official documents and reports mainly dealing with cyber security, to describe infrastructural and technological weaknesses [41]. When used to describe characteristics of the society, the Estonian Civil Protection Concept [42] considers vulnerable those individuals who lack skills and capacities to cope with a crisis, while the Estonian State Protection Concept [43] highlights that protective factors against vulnerability are social networks, prevalence of shared values and trust in state institutions. These protective factors work towards building social cohesion and solidarity to buffer the shocks that hazards or crises may pose to the Estonian society [43]. In general, Estonian official documents consider that a variety of psychological, physical, social and economic elements shape and influence vulnerability. These same elements are used to identify vulnerable groups, such as children (up to 18), the elderly (from 65+ years), individuals with chronic diseases, the Russian-speaking minority population, individuals or families with a lower income, and those living in sparsely populated municipalities with limited economic capacity [42]. Thus, vulnerable groups are defined along socio-economic, demographic and language elements in Estonia.

The elderly are considered to possess lower capacities to react to a crisis [44,45] and poorer knowledge on information technology than the younger population [45]. Another important issue related to the elderly is that 36% of the 239,600 individuals living alone in Estonia are older than 65 years [46]. This can make the elderly even more vulnerable, if there is no one else to rely on for information or help, especially if the individual is physically or cognitively disabled. Another group of people that may need extra care in times of crisis consists of individuals with chronic diseases. According to Estonian Statistics [46]; 30% of the Estonian population has a chronic disease. A chronic disease may decrease the sensory, regulatory or motoric capabilities of an individual, which may impede appropriate response. In addition, it is likely that individuals with chronic diseases need constant medication. Considering that Estonia has a population of 1.4 million, based on these two categories, a significant number is likely to be considered vulnerable in the case of a crisis. The Russian-speaking minority population is mostly concentrated in the capital, Tallinn, and the north-eastern part of Estonia (Ida-Virumaa region). Despite possessing Estonian citizenship, most of the Russian-speaking population speak little Estonian and often use Russian media as their main information source [47]. This may lead to an increased risk of politically motivated reports by the Russian media that do not mirror the actual situation of a crisis unfolding in Estonia. In general, the Russian minority is less prepared for crises mainly due to language barriers [45]. In addition, the Estonian-speaking urban population traditionally has second homes in the country-side, while the Russian-speaking minority often does not have means to own a second home in the country-side, which can become a refuge in case of a crisis [45].

In Estonia, individuals or families with a lower income usually live in blocks of flats, which are less expensive than other types of housing [48]. This part of the population (57%) is materially and financially the least prepared to cope with a crisis [42]. On the other hand, individuals or families living in sparsely populated rural areas are also considered vulnerable, since, with fewer taxpayers to support the municipality's local budget, they may not receive help and support from the municipality in the case of a crisis [43]. In general, rural areas in Estonia with weak physical as well as social infrastructures within health care and education are less able to support their inhabitants in case of hazards and crises.

4.2. Vulnerability and vulnerable groups in Finland

Finnish strategic documents, such as the national risk assessment [49], do not contain a definition of vulnerability, while the Finnish National Emergency Supply Agency [50] defines vulnerability as an

exposure to a security threat and states that the vulnerability of, for example, electronic infrastructures and logistics systems is growing. As in Estonia, vulnerability is mainly ascribed to weaknesses of infrastructures and vital functions. At the national level, Finland describes vulnerability in terms of security/insecurity as a subjective understanding of one's own vulnerability. Vulnerabilities vary according to groups and are affected by elements such as age, gender, and socio-economic status [51]: 180–187). Vulnerable socioeconomic status may include, for example, belonging to an ethnic minority, low levels of education, a precarious labour market status and low income [52]. Accordingly, the Finnish Institute for Health and Welfare outlines that vulnerable groups do not have the same opportunities as the mainstream society. The Roma minority is one example for a group considered as vulnerable by the Finnish authorities [53], due to socio-economic status.

Within official Finnish statistical categorisation, we find slightly different groups from the above policy documents, such as the elderly (65+ years) living alone, young adults in an urban environment – the so-called Not in Education, Employment, or Training (NEETs), low-income/low-educated households, homeless people and undocumented migrants. The growth in the number of the elderly will accelerate in Finland in the next few decades [54]. The number of the elderly will mostly rise in large cities, where the majority of them will be increasingly less prone to leaving their households for other places. This correlates with a potential lack of social networks or family connections of the elderly and can result in the invisibility to service providers, authorities, NGOs and rescue organisations.

According to Statistics Finland [54]; in 2018, the proportion of NEETs among the age 20–24 was approximately under 12%. The share of 20- to 24-year-olds without a tertiary qualification is still significant, although the trend has been declining (Official Statistics of Finland, 2020). Individuals with a low-income accounted for 12.1% of the population in 2017 [55]. Due to their economic situation, these people are less prepared in the case of a crisis [56]. There are about 5500 homeless people in Finland, most of whom are people without a house but able to temporarily stay with relatives and acquaintances. They live mainly in large cities [57]. Undocumented migrants are people living in Finland without the legal right to do so, and it is estimated that there are between 3000 and 10,000 of them, although the estimations vary (www.paperittomat.fi). They form a particularly vulnerable group, whose living conditions are exacerbated by diseases, general poor health conditions, poor or non-existent housing and poverty [58,59].

4.3. Vulnerability and vulnerable groups in Norway

Within the context of crisis, disasters and resilience, Norwegian policy documents describe vulnerability as “an expression of the problems a system experiences when it is exposed to an unwanted event and problems associated with resuming its functions” [60]: 18). The same definition is elaborated by the National Risk Assessment Report as follows: “Vulnerability refers to the problems a system has to properly work when it is exposed to an unwanted event, as well as to the problems the system has to resume its functions” [61]: 28). A system encompasses infrastructures, value or production chains, organisations or a community at local, regional or national level. The vulnerability of a system affects both the probability that an unwanted event will occur and what consequences it will provoke. On the other hand, there is no official definition of vulnerable groups. The term ‘vulnerable groups’ is used only once in a procedure document by the Norwegian Directorate for Civil Protection (DSB), for the development of comprehensive Risk and Vulnerability Analysis (RVA) for municipalities, and is not clearly defined, although the protection of vulnerable groups is considered one of the critical functions of the Norwegian society [62]. However, by surveying various governmental agencies, such as The Norwegian Institute for Public Health and The Equality and Anti-Discrimination Ombud, we find that vulnerable groups, such as immigrants, children and the elderly, are singled out and considered to be the targeted

Table 1
Country overview.

Country	Vulnerability definition	Vulnerability elements	Vulnerable groups
ESTONIA	Individual lack of skills and capacities to cope with a crisis	socio-economic status, demography, language	children (up to 18), the elderly (from 65+ years), individuals with chronic diseases, the Russian-speaking minority population, individuals or families with a lower income, those living in sparsely populated municipalities
FINLAND	subjective understanding of one's own vulnerability (degrees of security/insecurity)	socio-economic status, demography,	the elderly (65+ years) living alone, (NEETs), low-income/low-educated households, homeless people, undocumented migrants
NORWAY	problems a system has to properly work when it is exposed to an unwanted event, as well as to the problems the system has to resume its functions	social model of disability, demography, gender	children, the elderly, migrants, women
SWEDEN	system's (in)ability to function when under stress	Root causes rather than “general” elements	people with disabilities, dementia, and psychological issues, people that do not speak Swedish or English, socially isolated, live in an environment that is unsafe, or belong to stigmatized groups

audience of various agencies. The vulnerability of these groups seems very much based on the social model of disability (see Oliver, 2013; [63], which distinguishes two dimensions: 1) the impairment, which is the physical, mental or emotional condition of an individual, and 2) the disability, which is a consequence of how society deals with this condition. In addition, there is a special focus not only on children, but also on women, more than in Estonia and Finland. Gender is often mentioned in the Norwegian documents as a vulnerability element. Still, there are few references to vulnerability and vulnerable groups in the context of crises and disasters in Norwegian public policy documents.

4.4. Vulnerability and vulnerable groups in Sweden

As in Norway, vulnerability is defined at a systemic level in Sweden. Indeed, the Swedish National Audit Office describes it as a system's (in) ability to function when under stress [64]. There is no general agreement on how to define or identify vulnerable groups in Sweden, and so the process of mapping and analysing vulnerable groups has been approached in different ways in various contexts. One example is related to the implementation of the UN 2030 Agenda, where Statistics Sweden makes a connection between the principle of leaving no one behind and the issue of measuring progress towards this aim. This commitment implies that countries should identify, prioritise, and create better conditions for the most vulnerable groups in society. The UN 2030 Agenda, indeed, specifies a number of elements for identifying these groups, such as age, income, gender, race, ethnicity, migratory status, disabilities, geographic location, as well as other indicators relevant to national contexts [65]. While the current data collection in Sweden does not allow for a breakdown that captures different groups under all these categories (for example, due to legal, resource, and ethical concerns), there is an ambition to better cover these aspects in the future, to

identify and make more visible vulnerable groups [66]. For instance, the study, *The individual's ability to take responsibility for his or her own safety – Particularly vulnerable groups* [67], points to the need to understand the underlying causes explaining why individuals might not be able to take full responsibility for their security in times of crises. The study stresses that these causes are often interrelated, and that they change over time and are context-specific. Thus, vulnerabilities are dynamic and not static. These causes include financial situation, health, social networks, place of residence, ability to cope with stress, and access to information technology. The study also suggests that the following groups might be particularly vulnerable in the Swedish context: people with disabilities, dementia, and psychological issues; people that do not speak Swedish or English; those who are socially isolated, live in an environment that is unsafe, or belong to stigmatized groups, as well as ethnic minorities, some migrant groups, and people who suffer from different forms of addiction (e.g., drugs, alcohol) (see Table 1).

5. Discussion

In this section, we compare the national definitions of vulnerabilities and the vulnerable groups. Then, we discuss how the intersectional perspective can offer a more nuanced mapping of social vulnerabilities, beyond single-axis categorisations of vulnerable groups and finally discuss some *challenges for risk and crisis management*.

5.1. Comparing national vulnerability definitions and groups

By comparing the national approaches to vulnerability, we find differences that are both conceptual and empirically grounded. Vulnerability is not only situation-dependent, but also refers to a particular (national) context it is embedded in. Finnish and Estonian disaster relief authorities reveal a rather traditional understanding of vulnerability that ascribes it to particular socio-economic and demographic groups. In the case of Estonia, geographical location (urban/rural) and household condition (house/block-flats) are considered elements of vulnerability, especially in the case of the household type. However, how do these elements intertwine with other elements, such as high or low income or age, to really reflect the multiplicity of oppressions that affect vulnerability in various types of crises? This question remains unanswered in the reports and documents we analysed.

In contrast, Sweden deploys a dynamic and situation-oriented understanding of vulnerability and, finally, Norway bases its understanding of vulnerability on capacities that are societally granted. This understanding of Norwegian authorities also reflects a situational understanding of vulnerability that mitigates the risk of stigmatising individuals as necessarily vulnerable.

In the reports and documents that we analysed, Sweden avoids generalisations about vulnerable groups and focuses more on the underlying elements of vulnerability, which are considered fluid, thus situational and context dependent. In Norway, it was difficult to find a definition of vulnerable groups, perhaps since Norway focuses on the abilities of the individual and groups to withstand a negative event, and these are not necessarily considered to be determined by age, gender or socio-economic conditions. However, we found that there are certain groups generally considered vulnerable, very similar to those considered in Estonia and Finland. These two countries formulate a definition of vulnerable groups based on socio-economic status and demography, and this leads to what we call a 'typical' or 'predefined' vulnerable groups.

This ontological assumption of vulnerability is problematic, since it assumes an all-encompassing vulnerability by only looking at one demographic, socio-economic, or other personal marker. A very common element is demography, applied in three countries, with the exception of Sweden. Children as well as the elderly are regularly depicted as vulnerable. As for the example of the elderly, age becomes a proxy for likely health conditions, potential social isolation or economic problems that render an individual vulnerable. However, age remains only a

proxy, a heuristic instrument. We argue that, empirically, the elderly are disproportionately often – but not per se – subject to increased vulnerability. However, speaking of the elderly as a homogenous vulnerable group is a form of stigmatisation that needs to be justified by the advantages of doing so. Indeed, it helps, statistically, to know that an aging population means structural changes in a society, and this knowledge is useful for formulating political choices, such as constructing more retirement homes or providing targeted services for this type of population when a crisis occurs. At the same time, we need to scrutinise how far governmental reports actually produce vulnerability by one-dimensionally putting people in the role of the passive help receivers while denying their agency and expertise. This creates images that are necessary to be dismantled to tackle, rather than administrating vulnerability.

Another element is the socioeconomic status, which is considered especially in Estonia and Finland, although in different veins: limited to low/high income in Estonia; more inclusive in Finland since it combines ethnicity, education, work and income. Norway approaches vulnerable groups according to the social model of disability, while Sweden focuses on the root causes that lead to vulnerability. In Estonia, low socioeconomic status concerns mainly people living in blocks of flats or in sparsely populated rural areas, while in Finland this concerns mainly ethnic minorities and migrants. Defining particular vulnerable groups through socio-economic status is problematic, since it limits the attention to pre-defined categories. Such an approach runs the risk of marginalising other people by totally neglecting their needs and interests. This, in turn, results in increased injustices and vulnerabilities [68] as in the case of the declaration of migrants as a vulnerable group mentioned in Finnish, but also Norwegian and Swedish documents. Given the very heterogeneous contexts in which people with a migration background live, it is crucial that national and local authorities do have contingency plans that are suitable to address the spectrum of diverse, and maybe even conflicting needs rather than treating migrants as a homogenous group and potentially exacerbating existing vulnerabilities.

The national definitions of vulnerability and the categories of vulnerable groups raise a first set of reflections. First, how do we combine specific national contexts into a broader idea of assessing vulnerability in European disaster risk management? The countries considered in this article frame and describe vulnerability quite differently. Therefore, it can be possible that certain vulnerability elements are not discussed in some countries, but taken into account in others. In the four countries, vulnerable groups are defined according to elements such as age and socio-economic status. However, those do not exclude an individual within a certain group from being considered *more or less* vulnerable in shifting contexts. In reality the elements of vulnerability intertwine in such ways that, especially when looking at 'typical' or 'predefined' vulnerable groups, we need to challenge our understanding of vulnerability and reflect more on the multiplicity of the intersecting traits and characteristics an individual possesses. In this vein, intersectionality becomes a useful perspective to assess vulnerability as a dynamic phenomenon and helps to unveil dimensions of marginalisation that are rarely mentioned or not mentioned at all in official surveys and documents. The intersectional perspective calls for a recognition that social groups are a mix of social variables and thus placing people in one group or the other leads to general conclusions or, even worse, stigmatisation. Using intersectionality with the various underlying elements of vulnerability described in the empirical section means considering these same elements as "intersecting traits" [5]: 136), as they are context-specific, interrelated, and dynamic in nature. Intersecting traits differentiate within groups by making individuals belonging to a given group subject to their own unique vulnerabilities. This allows the coexistence of multiple identities in a constant transformation of the oppressed and privileged aspects of each individual. Since intersectionality distinguishes vulnerability as the result of societal (power) relations, it is highly useful to analyse those factors that cause injustices and discriminations and finally prevent people from

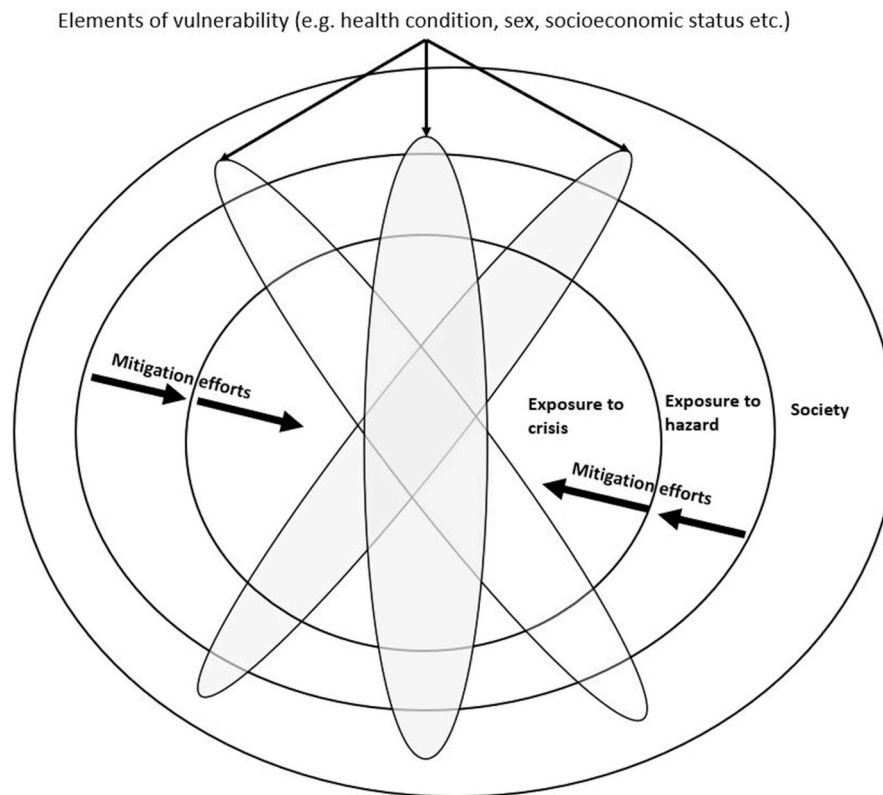


Fig. 1. Model for framing vulnerable groups, hazards and crises through the intersectionality perspective.

being emancipated, in the sense of being freed from those constraints that hinder them to enact what they would freely choose to do (see Ref. [69]). To some extent, Sweden follows this approach by looking for root causes of vulnerability.

A second set of reflections concerns how to combine specific national contexts into a broader idea of assessing vulnerability in European disaster risk management. The countries considered in this article frame and describe vulnerability quite differently. Therefore, it can be possible that certain vulnerability dimensions elements are not discussed in some countries, but taken into account in others. The strength of the intersectionality perspective to go beyond category limitations also requires scrutinising categories beyond national borders. For instance, the elderly might be vulnerable due to very different reasons in different countries, which can only become visible, if this multi-dimensional perspective is taken. We argue that it is more appropriate to describe an individual's vulnerability along several elements of vulnerability at the same time: a multiplicity and fluidity of elements - being at the same time old, rich, well-educated and living in a house - which, in their combination and interaction, determine a person's vulnerability, especially in case of a hazard or crisis.

5.2. Challenges for risk and crisis management

The understanding of vulnerability as an intersectional phenomenon with a dynamic dimension makes it hard for risk and crisis managers and for policy makers to anticipate who might need help most urgently in a given situation, making planning very challenging. This raises the challenge on how to operationalise dynamic vulnerability for disaster risk management purposes. To address this challenge, we propose a twofold approach: First, understanding vulnerability as a dynamic phenomenon still allows to differentiate who is more often in vulnerable situations than others. Rather, it enables risk and crisis management to have a more nuanced understanding of the stratified distribution of vulnerabilities within a society. It breaks up the black box of wide

groups, like the elderly or low-income people, and allows to consider additional elements and thus explain why sometimes low-income people are far less vulnerable than expected (see the case of the Catholic Vietnamese community in New Orleans during Hurricane Katrina in 2005 - [70]: 260; [71]). Second, the intersectional perspective can help to problematise how vulnerable groups are defined and classified in the official data. If we approach vulnerability through intersectionality and, thus, take a closer look at the elements of vulnerability impacting that group, the description of being vulnerable becomes merely a snapshot of a specific situation, which is likely to be the case. In addition, mitigation efforts by risk- and crisis managers can reduce exposure, but the intersectional perspective calls for the necessity of understanding that the elements that make different groups vulnerable can overlap according to the context. An individual who belongs to a certain group is to a varying degree vulnerable, according to the multiplicity of oppressive impacts. In addition, intersectionality helps to avoid the homogenisation of individuals within groups.

Finally, the intersectional perspective shows that vulnerability is a product of situations people are living in, the so-called *vulnerable situations* (see Wisner et al. [35]:15). As these situations are to a large extent socially (re)produced, they can be transformed by social action. Indeed, the 2015 Sendai Framework for Disaster Risk Reduction took up the definition of vulnerable groups and added the analytical frame of "people in vulnerable situations" [72]: 10), besides the mentioning of women and children. Vulnerable situations revolve around the question about who is, for what reason and in which situation vulnerable. This, in turn, requires a deep and nuanced identification and analysis of elements of vulnerability that might intersect and result in differentiated degrees of vulnerability (see Ref. [31]). The identification of these elements allows to tackle societal power hierarchies and, thus, at least some of the root causes of vulnerability, rather than engaging in the problematic game of defining vulnerable groups. Moreover, a situational understanding of vulnerability allows focusing on how to stimulate coping capacities and, thus, how to substantially enhance resilience for

those who are currently side-lined [68].

6. Conclusions

This article promotes a more systematic application of the intersectionality perspective in studying social vulnerability, which can provide new insights for risk and crisis managers with. Indeed, intersectionality can offer a more nuanced mapping of social vulnerability and thereby overcome binary categorisations of vulnerable groups. Context specific societal analyses, which take into account the variations and intertwines of elements of vulnerability should support the work of crisis- and risk managers, starting from the understanding of the multiple root causes of oppression that can lead to multiple types of coexisting vulnerabilities.

We argue that the intersectional perspective should be applied as a guiding principle in risk and crisis management, using, for instance, the model presented above in Fig. 1 to find the overlapping segments of elements that result in the creation of vulnerable societal groups during crises. An intersectional perspective uncovers not only the social differences but also how multiple power structures reproduce social inequities in certain contexts; inequities that affect vulnerability during crises. However, this can make the work of crisis managers more difficult and challenging. Yet, by applying the intersectional perspective, a deeper understanding of vulnerability allows to tackle problematic power hierarchies and imbalances, take more specific and targeted actions in crises to protect so far neglected individuals, and formulate better and more targeted legislation. Within the crisis and disaster risk management, this is relevant in everyday prevention initiatives, but particularly when a crisis unfolds.

In this endeavour, research plays a major role in providing studies about the ways in which vulnerability unfolds in crises. Further research with significantly larger sample cases is needed to enable in-depth breakdowns of the data, to move beyond categories such as demographic groups (e.g. elderly, children) when analysing vulnerabilities. Research can provide a better and more nuanced picture of vulnerabilities and vulnerable groups, to help national as well as local authorities and agencies to formulate specific guides, to hire staff with the necessary skills to meet particular needs, to inform people in appropriate ways, taking into account the differences that may coexist within groups that are currently portrayed as vulnerable. In this vein, we argue that research should focus more on 1) unpacking vulnerable groups through the intersectional perspective; 2) cases of crises according to the level and/or likelihood of individual exposure to hazards, to better nuance issues of vulnerability.

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 A. Supplementary data

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