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The three A's of social capital in crises: Challenges with the availability, accessibility and activatability of social support

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Abstract

Social capital has become a major factor for analysing vulnerabilities and resilience in the context of disaster studies in recent years. Usually, it is studied along its three forms of bonding, bridging, and linking social capital, and it is often framed as a static characteristic that a person either has at his or her disposal or not. Based on the results of case studies conducted in Germany and Estonia focusing on four different crises (floods in Germany; long-term disruption of electricity due to a major storm in Estonia; a cyber-attack in Estonia; as well as the COVID-19 pandemic in both countries) we claim that this description and analysis of social capital does not allow for a comprehensive understanding of all the challenges disaster management has to deal with to decrease vulnerabilities and increase resilience. Using qualitative content analysis, we present a heuristic framework which not only asks whether bonding, bridging, and linking social capital is available to individuals, but also whether social capital is accessible and activatable when responding to or recovering from a disaster. In doing so, the paper helps to improve the overall usability of official or unofficial social support to cope with crises.

Previous Next

Keywords

Disaster management; Social capital; Vulnerability; Extreme weather events; COVID-19; Critical infrastructure

1. Introduction

In handling a crisis and mitigating its effects, it is crucial to consider the ways individuals can count on their networks to mobilise resources, be informed about the situation, and make vital decisions [[1], [2], [3], [4], [5]]. Understanding how the characteristics and capabilities of such individual networks might mitigate or amplify the effects of a crisis and influence the intersectionalities of a person's vulnerability is critical to improving crisis management and resilience [[6], [7], [8], [9]].

Studying these networks is strongly linked to the concept of social capital. The most prominent foundations for the work on social capital were laid by Pierre Bourdieu [10]; James S. Coleman [11]; and Robert Putnam [12].[1] The many definitions and research fields that were developed based on their work share the basic assumption that social capital is an important resource available to members of a social network and that access to it is influenced by the social structure of a society (and therefore by societal inequalities). However, the exact understanding of social capital varies widely.

While different dimensions of networks that embed social capital, like closer ties with family and friends, broader support circles within a community, or links with authorities, shape research perspectives, many studies focus on the potential benefits of social capital and implicitly assume that someone either has social capital at his or her disposal or not [2]. However, recent studies indicate that the situation is more complex [[13], [14], [15], [16]] and that the situational nature of social capital must be conceptualised. The aims of the present study are therefore to: 1) Examine the roles of social capital in crises, 2) Develop a conceptualisation of the situational nature of social capital and the factors influencing peoples' possibilities to make use of their social capital in crises.

This paper argues that a sole focus on the availability of social networks and the associated official or unofficial social support is insufficient to fully grasp the issues concerning social capital in modern crisis management. Based on research on a wide range of recent crises in Germany and Estonia (namely floods and storm-related disruptions, the COVID-19 pandemic, and a cyber-attack), we put forward a heuristic framework that asks not only whether bonding, bridging, and linking social capital are *available* to individuals (i.e., whether they have it or not) through being part of social networks, but also whether this social capital is accessible and activatable in certain situations. *Accessibility* thereby refers, for instance, to a specific hazardous situation, e.g., flooding, in which it is impossible to receive support or help from individuals. *Activatability* issues describe situations in which individuals are unable to activate social capital, such as when the support structures themselves are affected. In this regard, the paper aims to develop a conceptualisation of the situational nature of social capital and other factors that influence people's capacity to make use of their social capital in a crisis. This situational nature of social capital is influenced by dimensions such as location, time, measures taken, as well as societal structures.

Empirically, this paper is based on 44 interviews and three focus group discussions conducted from October 2020 to March 2021 with crisis management and social care experts in the affected areas of the case studies. It starts by presenting some of the key theoretical conceptualisations of social capital and their applications to the field of disasters. Next, we describe the case study methodology. Thereafter, we present the case studies results. The framework that was developed based on the empirical findings will then be introduced and situational factors that influence social capital are discussed. Finally, we outline the limitations of the study, as well as implications for further research and crisis management.

2. Existing key conceptualisations of social capital

Although most scholars agree that social capital relates to the hypothesis that "relationships matter" [17] and that benefits can arise from social connections, the exact understanding of the advantages of social capital and connections to social inequality varies widely.

In this chapter, we present the theoretical conceptualisation of social capital in section 2.1, before describing how previous research has analysed and defined the roles of social capital in disasters in section 2.2 (cf. aim 1) and the need for a conceptualisation of the situational nature of social capital in section 2.3 (cf. aim 2).

2.1. Theoretical conceptualisations of social capital

Pierre Bourdieu [10] emphasises a strong connection between social capital and other types of capital. Individuals have social capital, defined as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalised relationships of mutual acquaintance or recognition" [10]; p. 248). While the volume of social capital depends on the availability of other types of capital an individual possesses, access *to* social capital is determined by social inequalities and hierarchies. Therefore, social capital is always distributed unequally. The amount of social capital is also related to the size of the network(s) and the forms chosen to mobilise these networks [10]. Bourdieu's conceptualisation of social capital highlights it as a private resource that individuals have access to through their networks [18].

Other scholars following Coleman and Putnam [11,12] understand social capital as a collective resource that facilitates the achievement of shared goals [18]. In this vein, they focus on a more network-oriented view of social capital. According to Coleman, social capital is a social structure that can support and enable actions. Putnam [19] characterises social capital as (voluntary) cooperation that is sustained by networks of civic participation, trust, and norms of reciprocity. He differentiates between two dimensions of social capital: "bridging social capital (that is inclusive social networks that cut across various lines of social cleavage, linking people of different races, ages, classes and so on) and bonding social capital (that is exclusive social networks that are bounded within a given social category)" [19]; p. 669). Both dimensions highlight the horizontal networks of individuals and groups [20]; p. 119). In addition Szreter and Woolcock [21], introduce a vertical dimension, "linking" social capital. This dimension draws attention to networks across power differences (for example between the

public and private spheres). Linking social capital includes the dimension of inequality and power in the conceptualisation of social capital. The varying emphasis of the different theoretical conceptualisations indicate the complex, multi-dimensional character of social capital.

2.2. The role of social capital in crises

In recent years, research has discussed all three forms of social capital and their interactions as contributing factors to decreasing vulnerability and increasing resilience in disaster situations [2]. In all phases of disasters, social capital can be an important resource, facilitating the spread or reception of information on warnings and providing access to resources or support infrastructure. Social capital can foster civic engagement and collective trust, which helps promote prevention and mitigation measures before a crisis and can mobilise community resources during recovery [5]. Social networks can act as support networks that provide financial and non-financial (such as physical and emotional) resources that enable the community's response and recovery. Social capital also positively influences the level of household preparedness before a crisis [22,23], including access to early warnings, knowledge, and resources, as well as access to related networks [24]. People with few social ties, on the other hand, are less likely to take preventive measures (e.g., evacuating), be rescued, or receive support from others [25]. Isolated people have been shown to have a higher risk of dying and going unnoticed [26]. In this regard, social networks fill gaps in the official communication of information [27], while social capital positively influences an efficient emergency response [18]. Through personal interactions, crisis managers can build social capital across organisations and hierarchies that can influence crisis governance [28]. Against this backdrop, there is a wide range of research on the role of social capital in the different phases of disasters and the disaster management cycle and how it manifests in different ways [1]. Mapping 195 studies published between 1998 and 2015, Meyer [2] explains that most of the research on social capital still focuses on its benefits in the crisis management cycle and reaches the general conclusion that social capital is an asset to enhance resilience. In this way, social capital is mostly considered as something individuals possess or lack.

Regarding the three specific forms of social capital, research indicates that strong bonding and linking capital increase the likelihood of evacuating and sheltering in a home when advised by close contacts or elite sources [29]. In immediate crisis response, bonding social capital is often the first form of social capital that is available to people who are affected by a disaster, and family ties seem to be particularly influential for resilience [2]. Bonding and bridging capital are very important in the immediate crisis and often work in complementary ways. There is evidence that bonding networks persist even when bridging networks break down due to resource scarcity [30]. Furthermore, bonding and linking social capital have been shown to reduce the toll of COVID-19 on communities [31]. Social capital also plays an important role during the response period and can facilitate the recovery of communities [32,33]. Social capital can enhance resilience through network expansions and new partnerships [[34], [35]]. Having social capital increases individuals' resilience to disasters and thereby increases the speed of their recovery [36]. Thereby, the different forms of social capital and their interaction might compensate for shortcomings in one of them. For instance, a person might have strong networks of friends and family as well as to other groups and therefore have more access to bonding and bridging social capital embedded in these networks, but might lack strong linking social capital and therefore be unable to influence the distribution of help and resources (which leads to a reinforcement of social inequalities). Another person might have strong linking social capital but lacks friends or acquaintances to help on the ground during the acute phase of a crisis, and therefore lacks the embedded bonding and bridging capital. In any case, social capital in general is likely to have a positive influence on communities' resilience at every stage of a disaster [37].

However, social capital is also ambiguous. For instance, social capital capacities are influenced by social inequalities, so marginalised people often have less (effective) social capital [38]. Negative stereotypes influence the distribution and concentration of external support [39]. Thus, Aldrich [36]; p. 24) even describes it as a "Janus-faced resource for recovery" connected to social exclusion and marginalisation that negatively affect the volume and composition of social capital for marginalised groups [40]; [41]; [2]. In this vein, the social capital of some might negatively influence the social capital of others. Furthermore, social capital may even lead to an unequal distribution of resources after a disaster [42], further reinforcing systems of marginalisation and discrimination [36]. Finally, framing social capital as a 'cure for everything' can also be criticised for placing responsibilities mainly on individuals [43].

2.3. The need for a conceptualisation of the situational nature of social capital

While many existing studies drawing on case studies of certain disasters show the influence of social capital, they are often based on the underlying assumption that someone does or does not possess a social network and thus social capital. This assumption locates social capital in institutional orders and durable networks [44]. However, disasters are highly disruptive and disintegrate the social structures of everyday life. How disasters influence social trust as an indicator of social capital is context-dependent [45]. The nature of the crises or mitigation measures (e.g., lockdowns during the COVID-19 pandemic, see ref. [13]) can disrupt social networks and thus social capital. In contrast, another study suggests that social capital increased in Sweden during the COVID-19 pandemic even though in-person interactions with members of one's social networks decreased [46]. The dynamic nature of a crisis can thus also positively influence social networks: Social trust, e.g., in family members and non-governmental institutions, can be strengthened in times of disaster [47]. Crises can lead to the emergence of spontaneous social networks (and bridging capital): Mutual help and collective action, as well as resource sharing, are part of an 'improvisational' social capital based on a shared fate and social identity [36,[48], [49], [50]]. This „disaster social capital" [44] resides in social networks that are often created in response to disaster-related immediate needs that are not (sufficiently) addressed by government and

social services. For example, Katrina survivors embedded in larger social networks experienced fewer financial, physical, and health disturbances as a result of the disaster [51]. Developing social connections after disasters influences disaster recovery positively [52]. Studies indicate that social capital increases following disasters [53]. Social cohesion often grows after a disaster and gradually declines during periods of less adverse environmental conditions [54]. Studies have found an increase in network cohesion but at the same time a network shrinkage in response to natural disasters [51,55], as well as a tendency to "turtle up", i.e., an intensification of strong tie interactions and clustering following shocks [56]. In the case of the COVID-19 pandemic, for example Pitas and Ehmer [14] argue that "as bonding social capital is reinforced and bridging and linking social capital are reduced, community capacity for pandemic response and recovery will be diminished". In this regard, disasters, or more generally, crises, might not only lead to the emergence of crisis social capital, but they can also negatively influence social networks and their embedded social capital. Research on Katrina survivors indicates that their networks decayed substantially (by more than 25%) post-crisis, suggesting that networks themselves are not particularly resilient to negative shocks [51]. The network shrinkage during the COVID-19 pandemic described by Kovacs and colleagues [57] may be because only a smaller part of one's network of acquaintances was activated and mobilised [15,16]. Social disruption and a lack of social interaction are also likely contributors to shrinkage in this case [58].

The disruptiveness of crises and their impact on social networks has increasingly become the focus of research. The concepts of bonding, bridging, and linking social capital provide a theoretical framework for a nuanced analysis of different types of social capital and their benefits. Studies often focus on the results of having social networks and social capital that may or may not be embedded in these networks. However, whether social capital can be utilised as a resource in a crisis and what factors influence this is not sufficiently addressed. This paper strives to fill this gap in understanding and developing a theoretical framework that highlights a situational conception of social capital that can be used to analyse the dynamic factors that facilitate or impede the use of social capital in crises.

3. Study methods

Against this backdrop, and as part of the EC Horizon 2020 research project "Building European Communities' Resilience and Social Capital" (BuildERS), which aimed to reduce the vulnerability of European societies most at risk from disasters, two case studies were conducted in Germany and Estonia from 2020 to 2021 to gain a better understanding of the role of social capital in crises. Both case studies explored factors that influence individuals' vulnerability with a specific focus on (the lack of) unofficial and official social support, including support from private relations, surrounding communities, and institutions tasked with supporting vulnerable individuals and/or crisis management. Rather than focusing on certain social groups, a more open approach to factors that contribute to the evolution of vulnerable situations was taken. Instead of focusing on a specific marginalised group, experts working with different marginalised groups were interviewed, as well as disaster management personnel and local authorities. The concept of social capital and its subdimensions were considered essential in this work.

3.1. Data

To answer these research questions, the presented paper conducted two case studies of Germany and Estonia, looking at four different types of crises: floods, the disruption of electricity supply due to a major storm, a cyberattack, and the COVID-19 pandemic.

The German case study focused on the floods of 2002, 2006, and 2013 and was conducted in Dresden and surrounding rural areas. In total, the floods caused 34 deaths and injured 238 people in the state of Saxony, where Dresden is located. Over 400,000 people were affected and tens of thousands of people needed to evacuate (approximately 48,300 in Dresden alone). The Estonian case study focused on the disruption of electricity supply due to a major storm in southeastern Estonia in October 2019, which left 60,000 households without power for up to a week. The case exemplifies an extreme weather event causing the temporary loss of vital services. Both the German floods and the storm in Estonia exemplify increasing vulnerabilities to slow-onset extreme weather events (e.g., storm surges, flash floods, heatwaves) that lead to high costs on human health and well-being [59,60].

Furthermore, the Estonian case study also examined a cyber incident that took place in government ministries in November 2020 to analyse the vulnerabilities caused by cyberattacks. Digital services are described as an increasing and all-encompassing source of vulnerability in Estonia (Estonian Government Office, 2017). In the examined case, hackers obtained sensitive personal data of citizens through the attacks, including about infectious diseases hacked from the Health Board's information system.

In addition, both case studies explored the COVID-19 pandemic. Although primarily a healthcare crisis, the broader effects of social distancing measures caused a perpetuating multi-crisis [61]. The pandemic and its mitigation measures increased existing vulnerabilities and created new ones [62,63]; Olson et al. in this issue; Siimsen et al. in this issue). The Dresden region was one of the hardest hit parts of Germany [64,65].

To find out who was confronted with which challenges in specific crisis situations in Germany, 20 semi-structured expert interviews with crisis management practitioners and social service providers were conducted. The final sample comprised seven experts from disaster management, nine employees of social service providers, and four members of local authorities. In Estonia, 22 semi-structured interviews, two focus groups, and a tabletop exercise with 44 practitioners and experts in the fields of crisis management and social and medical

vulnerabilities were carried out. Interviews were conducted with officials working in Estonian government bodies responsible for disaster management and social/medical vulnerabilities, as well as with representatives of non-governmental organisations involved in crisis management. In both countries, the experts were chosen according to their specialisation and professional position and were directly invited to take part in the study on a voluntary basis. The interviews were guided by a semi-structured questionnaire and conducted by phone or in person between July 2020 and April 2021. The interviews lasted 45–90 min and were fully transcribed. The insights gained through the expert interviews were complemented by data gathered from secondary research.

3.2. Methods

In both country studies, a qualitative thematic content analysis [66] was used, focusing specifically on how social support from private relations and institutions tasked with crisis management showed up in the material. However, we did not ask the interviewees directly about social capital to ensure that the interviews could reveal "key aspect [s] of their sensemaking […] [without] imposing our preordained understandings on their experience" [67]; p. 17). This approach allowed the interview partners to unfold aspects that were most relevant in their experience regarding vulnerability and crises. This not only included existing issues regarding the availability of bonding, bridging, and linking social capital (which could serve as indicators of structures that have to be improved in current disaster management) but also other influencing factors. The data was analysed in an iterative-cyclical process alternating between the empirical material gained from the German and Estonian expert interviews and the literature research in a mutually informing process. The transcribed interviews were first analysed by open coding that focused on the experiences of the interview partners and their sensemaking. In a second step, current research and conceptualisations of social capital were interlaced for a fruitful analysis. In addition to existing concepts, we also focused on "nascent concepts that don't seem to have adequate theoretical referents in the existing literature" [67]; p.20) which led to the development of the framework that is presented in this article. Joint interpretation and minimal and maximal contrasting sharpened the analysis [68]. Covering various crises allowed for a comparison of different incidents and thus a more thorough investigation of the role of social capital in disaster resilience and vulnerability. In this vein, the authors were looking for common themes influencing peoples' ability to make use of their social capital in a crisis. In joint interpretation meetings, the researchers then developed a new framework to provide a more nuanced analysis of social capital and illustrate that it is insufficient for social capital to be available since situational conditions need to permit the affected to access and activate support systems.

In the following, we will first present the results of our case studies and then develop a new framework to analyse situational factors that facilitate or hinder the use of social capital to cope with a crisis.

4. Case studies: the role of social capital in disasters

4.1. Do social networks exist?

In all the crises studied in both Germany and Estonia, the social capital embedded in their social networks influenced individuals' capacity to cope with the situation. Family, friends, neighbours, and community clubs were important resources for people during the floods and the COVID-19 pandemic. They provided emotional, material, and economic support, for example, by listening and talking about fears, providing overnight accommodation for those affected by the floods, or financial support (Interview with a Social Worker in Germany, DE, 2020). Loneliness was described as a key factor for being (or becoming) vulnerable in crises (Social Worker, DE, 2020a). The availability of close family and friends (bonding capital), and therefore the possibility to harness their social capital, was considered crucial to coping during both the storm in Estonia and the COVID-19 crisis in both countries.

During the COVID-19 pandemic, individuals without support networks were considered to be at risk of not receiving necessary help. They were unable to ask for it, and no one was aware of their situation (Police and Border Guard Board in Estonia, EE, 2020). Social workers saw considerable differences in coping levels between isolated elderly who had no support from others and elderly persons who had someone to contact them by phone, teach them how to order food online, communicate via e-mail, or bring firewood and groceries to their doorsteps (City government, EE, 2020; Social Insurance Board, EE, 2020).

4.1.1. Complementary and exchangeable social networks

People who did not have sufficient social networks were more dependent on institutionalised help from social workers (Social Worker, DE, 2020). For those who already used social services before the pandemic, professional help systems created a safety net that was based on 'professionalised' social capital. Those who were not involved in private or professionalised social networks were the most vulnerable. Their needs were often unknown, and they were not offered help accordingly (German City Government, DE, 2020). Having big social networks, and the possibilities of social capital that are connected to them, was described as an ambivalent resource during the pandemic: Those who had many contacts with other people were supported by their network when they became infected with COVID-19, but they were also at higher risk of getting infected due to their many interactions (German City Government, DE, 2020a). Some people were part of social networks, but their social contacts increased their anxiety or anger, or even reinforced shared individual burdens such as drug use as a coping mechanism, and were thus not helpful for coping with the pandemic (Social Worker, DE, 2020c).

During the floods, ties with immediate family and friends, as well as the broader community of neighbours or colleagues, helped people whose needs were not sufficiently met by disaster management and the government. People with disabilities who had strong social networks received information through these networks when emergency information was not provided in an accessible way. For example, a deaf person was informed by their neighbour that they needed to evacuate, in a situation where disaster management only offered audible warnings and information (Social Worker, DE, 2020b). This illustrates how ties with community members, i.e., bridging capital, enabled people with disabilities to deal with a difficult situation and filled the gaps of non-inclusive disaster management practices.

4.1.2. Structure of social networks

The structure of social networks often reflects societal inequalities. Therefore, social networks are more helpful for some people than for others. One interviewee who provides social services to people with hearing impairments and deaf people argued that clients' social networks mostly include other people with impaired hearing (Social Worker, DE, 2020b). While these networks can nonetheless offer support, the social capital residing in these networks may be limited due to their homogeneous structure, which is limited to individuals with similar impairments. Social networks also tend to be homogeneous in terms of dimensions such as financial resources and societal influence (i.e., power), or in other words: social networks are shaped by exclusion mechanisms. Therefore, some people benefit more from their social networks and the social capital they contain than others. Thus, "structure matters" [69].

4.1.3. Spatial distribution of social networks

Relations with neighbours were pivotal, particularly in the more remote areas during the prolonged storm in Estonia. Social relations and previous arrangements with neighbours and village communities became an important source of support for people living alone. However, individuals in communities with less active social networks may have been unable to inform anyone about their needs and thus lacked support (City government, EE, 2020; Rescue Board, EE, 2020b). Due to the uneven availability of official psychosocial and medical care, access to proper treatment was particularly difficult in more remote rural areas during both the storm and the pandemic in Germany and Estonia.

4.1.4. Lost contacts

At times, social networks are available, but the embedded social capital is not accessible. An example of this is numerous cases where close family members exist yet have lost touch and are thus not available as a source of support in times of crisis. As one of the social workers explained: „I have seen cases, where the family network exists – parents, sisters, brothers, or children. However, in fact, they do not interact. Grownup children do not want to know about their parents. There are numerous variants of why the lives have grown like this and there is no willingness to communicate nor help" (City government, EE, 2020).[2]

4.1.5. Being new

Another case in which social networks are *available*, yet *inaccessible* in the area, is related to the lack of time to connect to these local networks. Being new or unknown to the community impedes access to local networks. A group that was pointed out as potentially "out of the support radar" for neighbours and local crisis managers were newcomers to the area who had not had contact with local government and whose households were, therefore, unknown to social workers (Rural municipality, EE 2020b).

4.2. Can social networks be reached?

While social capital residing in social networks was identified as crucial for coping with crises, the interviews showed that the sole focus on the presence and availability of these networks was not sufficient to analyse the role of social capital in coping with crises. For instance, during the floods, ties with family, friends, and the neighbouring community were quite easily accessible, and people often received support from them. People came together to fill sandbags and clean affected streets and houses. A strong sense of cohesion developed among the population, and the crisis was perceived as a collective experience (City Government, DE, 2020b). Furthermore, people whose family and friends lived in a nearby area that was not affected by the flood were able to lean on their support systems. However, people whose networks were also suffering or old people whose children lived somewhere else could not get initial support through their networks (Care Worker, DE, 2020). 'On paper', they had bonding and bridging capital, but the crisis hindered them from drawing support from it.

4.2.1. Dissociating crisis management measures

Compared to the floods where citizens supported social services or created neighbourhood support services, there was less experience of social cohesion and collaboration during the COVID-19 pandemic (City Government, DE, 2020b; Social Worker, DE, 2020d). Due to physical distancing and lockdowns establishing connections with other people was impeded, which increased the feeling of isolation for many people. During the pandemic, many people felt lonely and struggled to cope with reduced (physical) contact with their social networks. Factors that amplified this dynamic were the mitigation measures to contain COVID-19, insufficient access to infrastructure or devices, and being overwhelmed or not having enough time to connect due to the triple burden of work, homeschooling, and childcare. (Marginalised) Groups

with limited or restricted social networks (e.g., elderly, single households, single parents) were hit particularly hard by (self-imposed or restricted) isolation.

4.2.2. Digital accessibility of support

While technology made it possible to maintain social networks, this was easier for younger people than for older people. Many old people who have social networks struggled to access them during the pandemic due to physical distancing and lockdowns while having no experience in using technology to connect with others (Social worker, DE, 2020e). They may have had close family and friends or good relations with the broader community, but were unable to use them. The interviews showed that even most of the people who were able to use technology to maintain their social contacts had difficulties sustaining their networks. Economic inequality also influenced who was able to maintain their networks: Not having Internet at home, not having adequate devices at hand, or not having the skills to use devices prevented people from tapping into their networks to utilise the embedded social capital to cope with the pandemic (Social Worker, DE, 2020; Social Worker 2020b, DE, 2020). Thus, the digital means that were critical for accessing individuals' bonding and bridging social capital were not always available.

The switch of schools to distance learning put children and their families in a difficult situation. Affected were students who had lost their usual social interaction, making it more difficult to put the embedded bonding and bridging capital to use, but particularly students who needed professional support, e.g., logopaedic help, psychological counselling, learning support. Due to the risk of infection, restrictions on visits to care institutions were imposed, leaving care receivers without the necessary psycho-social support from their families and friends. The provision of care in care homes (including homeless centres, soup kitchens, refugee shelters) was poor due to a shortage of personnel to replace those who were sick or in self-isolation (Interview at City government, DE, 2020; [63]. To reduce the risk of infection, care institutions also stopped accepting new clients. This affected the quality of life of people who could no longer manage their daily activities on their own (Chancellor of Justice, EE, 2020). Thus, the crisis policies may impede access to both the bonding and the linking capital.

Examples from the German case study included LGBTQ+persons who had strong social networks centred on a local LGBTQ+bar that had to close due to the pandemic (Social Worker, DE, 2020e). Another example of not being able to make use of support networks is women in abusive relationships, who were often not able to access their social capital during the pandemic. Due to mitigation measures, they could not meet their friends or family in person and their abusers often controlled their phone and internet access (Social Worker, DE, 2020f).

4.2.3. Infrastructure disruptions affecting the accessibility of support

During the storm, the pandemic, and the cyber-attack, the hazard situation itself dictated the isolation from unofficial as well as official social networks. Whereas during the storm, the isolation was due to physical and/or technological barriers, more social barriers appeared during the pandemic and the cyber-attack. Due to the electricity disruption caused by a major storm, phone and internet services were interrupted as the telecommunication masts in the region were down and there was no access to television, internet, and mobile connection. The interruption of communication networks during the storm complicated reaching out to people to ask for assistance and talk about their problems (City government, EE, 2020; Rescue Board, EE, 2020b, 2021; Rural municipality, EE, 2020a). During the storm, the most critical impact was that individuals could not reach rescue services by phone or send information about their need for help (City government, EE, 2020; Rescue Board, EE, 2020a, 2020b).

Furthermore, during the storm, impassable roads (fallen trees) prevented social workers from reaching some users of local government social care services to assist with keeping their homes warm and getting drinking water, food, and medicine (Rural municipality, EE, 2020a, 2020b; Tabletop exercise, EE, Group 5). People did not have immediate access to unofficial and official social networks due to the technical circumstances of the crisis. Thus, demolished infrastructures may impede access to bonding, bridging as well as linking capital.

4.2.4. Deliberate exclusion from support

Deliberate exclusion from larger networks (bridging capital) also appeared during the cyber-attack and the theft of personal health data. In cases where stolen personal health data was revealed, the individual's inclusion in personal social networks could suffer, either due to prejudice from peers or the individual's self-inflicted guilt/shame about the exposed information.

In addition to self-imposed or regulated isolation, instances of stigmatisation and harassment during COVID-19 demonstrated deliberate and malicious exclusion by other members of the community based on certain characteristics of a person/group. Examples of groups who were marginalised included individuals of Asian descent, immigrants, or homeless people, who were considered likely carriers of the virus (City Government, DE, 2020b; Care Worker, DE, 2020).

4.3. Can social networks be put into use?

Even when social ties are present and can be reached, the interviews revealed that people also need to be able to *activate* the support of social networks and the residing social capital (in a sufficient matter) to use it as a resource to reduce vulnerability and increase resilience in crisis situations. For instance, the interviews showed that even in administrations where there is a person that is responsible for representing the

needs of certain marginalised groups, these representatives were usually not part of the crisis team and struggled to be heard by it (City Government, DE, 2020b).

4.3.1. Limited network resources

One case in which close family ties were present and accessible but could not be sufficiently activated was a single mother who reached her limits during the COVID-19 pandemic due to the increased burden despite the (limited) support that her family was able to provide (Social Worker, DE, 2020a). An individual's "position in a network determines in part the opportunities and constraints that it encounters, and in this way plays an important role in a [one's] outcomes" [69]. If a network has only limited resources, there is less social capital that can be activated compared to a network with overflowing resources.

Institutionalised social capital – which can substitute insufficient social capital embedded in social networks – such as addiction counselling services were available and accessible during the pandemic, but their support was not activatable because they were overloaded due to high demand (Social Worker, DE, 2020c). While some people were able to lean on their bonding capital during the floods, others were not able to activate their support systems because their friends and family were also affected by the flood and therefore were not able to offer shelter or support (City Government, DE, 2020a). In all these cases, the social capital that could be activated was not sufficient to support those affected by crises.

4.3.2. Desire for self-efficacy and independence from support networks

Being able to use the available support networks may also be impeded due to a lack of willingness or courage to ask for support. Such desire for self-determination even in very difficult situations appeared in all the studied crisis cases. One example from the pandemic involved people with health problems and families with young children, whom local governments started to contact to check if any assistance (e.g. delivery of medicines) was needed (Health Board, EE, 2021; Rural municipality, EE, 2020b). However, many contacted people turned down the help offers, as they did not want to leave an impression of being "needy". During the floods, there were also people who refused to evacuate. Here, social capital existed but was not activated on purpose.

4.3.3. Community support culture

The culture of community support can vary widely in different societies, leading to different expectations about the extent to which contacts can be used. During the pandemic, relatives or other close contacts who were far away from the area called local governments and asked to check on their family members (Rescue Board, EE, 2020b; Rural municipality, DE, 2020b). Such activism is not always present.

An individualistic culture of keeping a distance and the desire not to appear to be "nosy" may also hinder activating connections by people who could check their coping during the crisis. Members of a community may lack the courage to reach out to neighbours to see if they were doing alright. These contacts may be available; however, they are not activated because this could put the persons reaching out in an awkward situation. As one of the social workers explained: "Members of communities are sometimes afraid of turning to the neighbour who might need help and knocking on his door. What if the person really answers and then the one turning to the neighbour has to say something," (City government, EE, 2020). In such situations, community ties are not activated.

4.3.4. Discouraging past experiences

Experiences from previous crises may also discourage individuals from going along with support measures. For example, during the floods, some people rejected help and refused to evacuate. The request to evacuate their homes triggered traumatic experiences from the time during and after the Second World War, when their homes were destroyed after they had evacuated them. Their family, friends, and authorities offered them help and support, but they refused it, sometimes resulting in dangerous rescue missions after their homes were so flooded, they could no longer stay (City Government, DE, 2020b).

Previous (negative) experiences with the authorities, especially in handling crises, may have caused distrustful attitudes from members of the public towards first or second responders. One example where feelings of distrust due to poor management of one crisis may have impeded the acceptance of support during the next crisis was evident in the Estonian case. The cyberattack on state information systems and the theft of personal information have far-reaching repercussions for the way society views the credibility and trustworthiness of the state and its institutions (Information System Authority, EE, 2021). The state providing health care services failed to deploy secure information systems as the stolen data was stored unencrypted and lacked extra protection [70]. This knowledge weakened trust in health authorities – the ones who are expected to provide protection and support. The damage to the credibility of services was particularly problematic due to the timing of the pandemic when trust in medical care and information systems was particularly important. Distrust in services and fear of criminal behaviour online may make individuals overly cautious about using health information systems and web-based communication, which were essential means of interaction during the pandemic. The lack of trust led to people not wanting to activate social capital that was available and accessible.

5. Towards a new framework: availability, accessibility, and activatability of social capital

The case studies show that focusing solely on whether someone has social networks, and what social capital resides (or does not reside) in these networks, and how it can be used as a resource during crises, is not sufficient to understand the role of social capital. There is thus a need to develop a conceptualisation of the situational nature of social capital and the factors influencing individuals' ability to make use of their social capital in a crisis.

5.1. Availability, accessibility and activatability of social capital in crises

As described, the literature indicates that social networks and the embedded social capital can be affected negatively by disasters – they are not resilient to negative shocks. Besides, the case studies conducted here show that a more nuanced perspective is needed to explore whether social capital is actually available to people during crisis situations. The present paper thus develops a framework to enable such a nuanced analysis of the (potential) role of social capital in disasters. Based on the analysis of the empirical material, this framework introduces the dimensions of *availability*, *accessibility,* and *activatability* of social capital (see Table 1). These dimensions enable the analysis of social capital as a resource in disruptive and dynamic situations like disasters and make the influence of situational circumstances visible. This knowledge can then be used to explore what support and disaster management structures are needed to ensure that social capital can actually increase resilience and decrease vulnerability.

Table 1. Framework: Dimensions of usability of social networks.

Availability	A person is part of certain social networks.
Accessibility	A person is part of certain social networks and can reach them.
Activatability	A person is part of certain social networks, can reach them, and can benefit from them..

Here, *availability* refers to the current focus of research on social capital, which scrutinises whether an individual is part of certain networks. Considering networks as situationally embedded means that the networks an individual is a part of must also be accessible.

The *accessibility* of social networks can, for example, depend on the location or time of an event. If social networks are located hundreds of kilometres away in a different city or even country, they might be unable to offer the support needed during a crisis. Accessibility is also problematic if family, friends, or even ministry officials are on vacation or offices are not open at night.

Finally, even if a person is part of a network and able to reach it, this does not necessarily mean that its resources can be enacted [71], which refers to the manifestation of available support in the form of actual support received from others. Available and enacted support do not seem to be interchangeable and have a low correlation [72]. *Activatability* thus refers to the ability to make use of the support provided by social networks. For instance, the *activatability* of support is impeded if the network itself is affected by the same crisis. Besides this location-related aspect, resources like personnel or attention are also relevant factors. As our case studies show, under certain adverse conditions, overburdened family or professional networks cannot be activated to the benefit of the person in need. In this regard, activatability is also affected by existing inequalities and justice-related questions regarding sufficient resources for everyone in need. The extent to which a person can activate both informal and formal support in response to crises can be influenced in part by their habitus, which shapes unconscious beliefs about possible and appropriate courses of action. As indicated by the analysed cases, traditions of community support or, on the contrary, the tendency to rely on one's own abilities may be culturally influenced. Thus, the activation of social capital reflects individual agency operating within the constraints of habitus, network culture, and accessible resources. In response to crises and uncertainty, individuals may strategically activate their social network ties to help manage problems and cope [73]. Therefore, this network activation may be the result of a rational choice, a pathway of coercion or resistance, or even take place in a haphazard fashion [74].

These three dimensions allow a more nuanced differentiation of issues that individuals as well as disaster management structures face. This allows for a more complex understanding of why and how certain individuals struggle more than others to receive support through their networks during disasters. The key dimensions of social capital – bonding, bridging, and linking – and their use potential are laid out in Table 2.

Table 2. Operationalisation of the novel framework with examples from the analysed crises.

	DIMENSION OF SOCIAL CAPITAL		
DIMENSION OF USE POTENTIAL	**Bonding**	**Bridging**	**Linking**
Availability	• No family, no friends to ask for help	• Lack of community (in a geographic area or work-, school- and/or interest-related), e.g., in	• Lack of psycho-social or medical care provision in the area, e.g., in more

	DIMENSION OF SOCIAL CAPITAL		
DIMENSION OF USE POTENTIAL	**Bonding**	**Bridging**	**Linking**
	• Loss of contact with existing family, friends	remote or sparsely populated areas	rural/remote areas
Accessibility	• Close contacts inaccessible due to hazardous situation (e.g., virus risk, mitigation measures, interrupted communication, or road infrastructure) • Lack of means or skills to connect digitally	• Community contacts (work, school, and/or interest-related) inaccessible due to hazardous situation (e.g., virus risk, mitigation measures, interrupted communication, or road infrastructure) • Inaccessible/unsafe community relations due to marginalisation • Being new to the community • Lack of means or skills to connect digitally	• Official care inaccessible due to hazardous situation (e.g., virus risk, mitigation measures, interrupted communication, or road infrastructure) • Being new, e.g., a foreigner or a person with no previous need for support, to the care providers (no contact before the crisis), thus not considered as a person in need • Lack of means or skills to connect digitally
Activatability	• Lack of will (or trust) to ask for help, expose one's vulnerable situation to family or friends • Received support is insufficient • Friends and family are also affected by the crisis	• Lack of will (or trust) to ask for help, expose one's vulnerable situation to work-, school- and/or interest-related community	• Lack of will (or trust) to ask for help, expose one's vulnerable situation to authorities and official care providers

5.2. Situational distinction factors influencing social capital

Besides the distinction of the three problem dimensions of social capital, our framework for studying social capital allows us to describe its situational dependency. This is similar to the dynamic understanding of vulnerability outlined by Wisner and colleagues [75]: Vulnerability is a characteristic that emerges from the specific situation a person is in. Vulnerability should therefore not be attributed to certain individuals in an essentialist way [76,77]. Not only could individuals usually considered to lack capacities be able to access hidden capabilities and resources in disasters (e.g., elderly people who can use their experiences from earlier crises to overcome an acute extreme event). Even individuals who are often considered non-vulnerable can be made vulnerable by a specific situation they face (e.g., well-established families who struggle with an overload due to home office, childcare, and household duties during the lockdowns).

Similar to this situational conception of vulnerability, the case studies conducted here indicate several dimensions that can influence the situational existence of social capital. The following section does not aim to be a comprehensive elaboration but shall rather serve as an illustration of different relevant factors based on the case studies.

Temporalities: Social capital can be influenced by temporality, i.e., when a person needs to use a resource. People might also have very different social networks (horizontal and vertical, and in terms of size and quality) at different times of their lives, which influences the social capital that can be activated. As demonstrated by the study informants, the pool of closer and more distant contacts may decrease towards the end of life. Similarly, minors and seniors may rely more on close family circles, whereas school-, work- and interest-related social contacts can be more available, accessible, and activatable during the more socially and economically active years of life. Also, as a newcomer to the area, a person may not have established networks to lean on during times of crisis. Besides, the course of a crisis might influence whether social capital is activatable: At the height of a crisis, others might be temporarily incapable to provide support, but once the situation is more settled, this may change.

Localities and socio-physical context: Often, not only the place a person lives in but also the surrounding areas (or maybe even the whole county) are affected by a crisis or disaster. However, when most of a person's social network is rooted in the city of residence and surrounding area, a person might be unable to tap into the social capital that exists 'on paper' in their networks. Social inequalities and structural disadvantages often lead to neighbourhoods being segregated along the line of financial resources. The stability of houses and the ability to

withstand crises is unequally distributed. The place where someone lives can influence access to networks of other groups and to those in positions of power. The cultural setting can be an important determinant of the interpersonal and institutional trust relations that can be relied upon during crises. Furthermore, compared to those in individualistic cultures, people in collectivist societies may receive greater support from the collective [78]. Societies with stronger social-democratic traditions may offer social cushioning for coping, while more liberal social settings leave individuals more responsible (and autonomous) in responding to the hazard. For example, the rather individualistic and relatively lower interpersonal trust relations in Estonia [78] may have important repercussions on the activatability of social capital during crises.

Increasingly, technology provides a distinctly digital way for humans to communicate with one another [79]. In the context of climate change and extreme weather events, the fragility of the communication infrastructure becomes evident, as demonstrated by the analysed flood and storm cases. This dependence on digital communication makes the accessibility of contacts susceptible to infrastructure disruptions.

Also, technological tools and skills to use them are not evenly distributed. Therefore, these means of accessing social capital residing in social networks cannot be used by everyone in times of need. For example, the digitalisation of contacts during the pandemic offered a good substitute for many to maintain supportive contacts, school, and work relationships. Yet for many of those most fragile and marginalised – individuals with psychological problems, the homeless, or otherwise materially deprived – the digitalisation of communication created an additional barrier to seeking support from family, friends, authorities, or care organisations [63]. Here, the overlap between material-technological and insufficient social capital most evidently affects peoples' coping capacities. In addition, the pandemic showed that people who were only able to connect via technology often did not feel the same level of support that meetings in person provide. Thus, while technology can often be a good substitute, social networks cannot unfold to their whole strength.

Inequalities: While social capital can certainly be beneficial in coping with crisis, it also has a "dark side". Access to social networks and the embedded social capital is not equally distributed. The support that people can offer depends on their resources (physical, financial, infrastructural, and technological). So even if someone is part of a social network, that does not necessarily mean they can be supported by that network. During a crisis, this can lead to some people profiting from the support accessible due to social capital, while others may recover even slower as available resources are transferred to those that already have strong social capital. Social capital can therefore increase inequalities and discrimination. Further, social networks are not always supportive in a healthy way, for example, they can be influenced by ethnic hostility or promote unhelpful coping mechanisms (e.g., drug abuse). The advice to strengthen social capital as a measure to decrease vulnerability and increase resilience can also lead to a problematic individualisation of responsibility. As measures to increase social networks and the possibility of social capital are easier and less expensive than measures to reduce inequalities or work on structural measures to protect against disasters, there is a risk that these relevant issues are neglected in favour of social capital. Disaster management that focuses on social capital to build more resilience needs to reflect on how these efforts impact those who belong to minorities and experience structural disadvantages in their lives: Does it reinforce inequalities? Does this strategy contribute to the unequal distribution of resources?

Disaster Management Measures: Disaster management measures themselves can also influence the usability of social capital to cope with crises. With activities before, during, and after a crisis, disaster management can try to increase social capital, especially for vulnerable people. The type of crisis and the corresponding mitigation measures impact whether social capital is easily activatable for those affected. Social capital is not a static characteristic, it is embedded in social networks and influenced by many factors and it can also grow while dealing with the impact of a disaster. For example, the ability to act and work together to mitigate the effects of the floods in Germany fostered new networks and activated new social capital [44] that functioned as a resource for collective disaster management. Disaster social capital is built when people come together to support each other and the community after a crisis. Often it persists, which can lead to a higher level of social capital in disaster-stricken areas. Further, newly built disaster social capital also can be influenced by societal inequality structures and can therefore also exclude marginalised people. In contrast, measures such as lockdowns that are used to diminish the spreading of a virus might impede access and activation of social capital and may even contribute to a decrease. Disaster management measures need to be taken and adjusted according to the crisis. Additionally, they can be examined to see if they facilitate the utilisation of social capital. Consideration of social capital as a resource for coping with disasters needs to be complemented by planning measures that support marginalised people with less access to social capital who are unable to rely on benefits that are open to more privileged persons.

6. Limitations and implications of the study

Disaster research has often shown that social capital is an important resource in crisis situations [80]. However, in research as well as practical disaster management, the focus on social capital is often too broad and not nuanced enough. The material presented in this paper demonstrated that people can have social networks and that within them there is the possibility of social capital, but that they might not necessarily be able to use it to increase resilience during disasters. Based on expert interviews and tabletop exercises in Germany and Estonia, a more nuanced framework to analyse social capital in disasters was developed by the authors. The dimensions availability, accessibility, and activatability were critical to describe how individuals were (not) able to use their social capital to cope with a crisis. Availability was defined as being part of certain social networks. Accessibility refers to people being part of social networks and being able to reach them. Both are

necessary to activate social capital. Activatability includes being part of social networks and being able to reach them, and adds the aspect of benefitting from them.

The new framework stresses the socio-structural element of support through social capital being available, accessible, and activatable for individuals from various segments of society. Even though different crises were studied, the results may be limited in their transferability to non-European countries because they are based on two case studies in relatively wealthy and stable European democracies. The framework needs to be tested in different socio-cultural contexts to explore situational influences, including the degree of individualistic or communal orientation in shaping the availability, accessibility, or activatability of social capital. What could be further explored is the role of communities and authorities in proactively making support available and accessible. The question relates to how to facilitate inclusive and accessible community relations; how to build trust in authorities' support measures to encourage collaborative relations with rescue, medical, or social care providers. More studies are needed to further specify how the availability, accessibility, and activatability of social capital could affect an individual's resilience or vulnerability in various phases of disaster management: prevention, preparedness, response, and recovery. Similarly, future research could demonstrate how the three A's of social capital may make people vulnerable in different ways when they experience different types of crises, such as disasters triggered by natural hazards, pandemics, technological accidents, or human malevolence.

The framework can be used by researchers as well as disaster management to analyse how social networks and the embedded social capital can increase resilience and what factors influence the successful mobilisation and utilisation of social capital. That knowledge can help disaster management develop measures that enable social capital to have a positive impact in extreme situations. While disaster management already anticipates social capital as a resource for people affected by disasters, this framework further enhances this approach. The perspective on the three A's of social capital can be used to ensure that measures are taken to actually enable social capital to enfold its strength as a resource, while also being aware of negative aspects like unhelpful networks, stigmatisation, and discrimination. Disaster management policies can use the framework to scrutinise their priorities and crisis plans before a disaster hits. It can provide awareness of the obstacles that prevent the use of social capital as a resource to increase resilience. With this knowledge, additional measures can be planned to increase the activatability of social capital in disaster situations. Disaster managers can review their pre-disaster emergency plans, as well as measures taken during the crisis, to see how the extreme situation and the mitigation measures affect the availability, accessibility, and activatability of social capital. This allows for more targeted measures to ensure that social capital can actually be used as a resource to cope with a crisis. To make the framework more useful for practitioners, a guiding questionnaire that enables them to reflect on how crises can potentially disrupt the accessibility or activatability of social capital that is based on more crisis cases could be helpful.

7. Conclusion

This paper has demonstrated that the potential usability of official and unofficial social support networks in responding to disasters depends on more than just the availability of these networks. Based on a range of recent major crises in Germany and Estonia, we have set forth a more nuanced heuristic framework that, next to the availability of various forms of social capital, stresses the role of accessibility and activatability in shaping how individuals may (not) be able to use their social capital to cope with a crisis. To mitigate vulnerabilities, it is critical to consider that the potential to use the bonding, bridging as well as linking types of social capital may depend on situational factors such as time and location, as well as the influence of disaster management measures and structural inequalities. The presented framework can guide disaster researchers, policymakers, and emergency responders to systematically account for social capital as a source of resilience or vulnerability and devise concrete ways to reduce the causes, or at least mitigate the negative impacts, of poor accessibility and activatability of social capital for individuals during a crisis.

Statements and declaration

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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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Nr	Institution/Organisation	Cited as
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2	Social Services for Single Parents	Social Worker 2020a
3	Social Services for people with difficulties to hear	Social Worker 2020b
4	Social Work for people with addictions	Social Worker 2020c
5	Social Work for children and teenager	Social Worker 2020d
6	Social Services for people with disabilities	Social Worker 2020e
7	Social Work for Women	Social Worker 2020f
8	Care facility	Care Worker 2020
9	Disaster Management Office	German City Government 2020a
10	City Government	German City Government, 2020b

List of interviews and focus groups in Estonia

Nr	Institution/Organisation	Cited as
1	Rescue Board, emergency preparedness	Rescue Board, EE, 2021
2	Information System Authority, focus group interview	Information System Authority, EE, 2021
3	Health Board, emergency medicine	Health Board, EE, 2021
4	Police and Border Guard Board, information exchange	Police and Border Guard Board in Estonia, EE, 2020
5	Social Insurance Board, Valga County	Social Insurance Board, EE, 2020
6	Rural municipality, Põlva County	Rural municipality, EE 2020a
7	Rural municipality, Võru County	Rural municipality, EE 2020b
8	Tartu city government, social and health care	City government, EE, 2020
9	Rescue Board, emergency preparedness, Southern region	Rural municipality, EE, 2020a
10	Rescue Board, Saaremaa County	Rescue Board, EE, 2020b,
11	Rescue Board, Võru County	Rescue Board, EE, 2020b

Tabletop exercise discussion groups

1) “Social welfare” group (members from Social Insurance Board, Tartu City Government, AS Hoolekandeteenused (a welfare services company), Information System Authority, Estonian Rescue Board, University of Tartu, Baltic Defence College);

2) “Health care” group (members from Health Board, University of Tartu, The Tartu Ambulance Foundation, Social Insurance Board, Information System Authority, Estonian Red Cross);

3) “Internal Security” group (members from Estonian Police and Border Guard Board, Estonian Rescue Board, The Estonian Internal Security Service, Information System Authority, Emergency Response Centre, Estonian Red Cross);

4) “Vital services” group (members from Tartu City Government, Estonian Rescue Board, Information System Authority, electricity network operator Elektrilevi OÜ, Ministry of Economic Affairs and Communications, University of Tartu);

5) “Management of local communities” group (members from Võru Development Centre, Tartu Rural Municipality, Võru City Government, Põlva Rural Municipality, Naiskodukaitse (Women's voluntary defence organisation), Positium OÜ (company developing methodologies to use mobile data).

Recommended articles

Data availability

The data that has been used is confidential.

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1 [12]; p.19) credits Lyda J. Hanifan, a rural educator form West Virginia to having invoked “the first known use of the concept” in 1916.

2 In Estonia, grown-up children have a legal responsibility to take care of their elderly parents in need.

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