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Myths, Maps and Vernacular Perception: A Theoretical Framework for Analyzing the Spatial Representations of Environmental Health Crises in Mythological Narratives

REET HIIEMÄE[1]
Senior Researcher, Department of Folkloristics, Estonian Literary Museum, Estonia
reet.hiiemae@folklore.ee

MARE KALDA
Senior Researcher, Department of Folkloristics, Estonian Literary Museum, Estonia
mare.kalda@folklore.ee

MASOOD MASOODIAN
School of Arts, Design and Architecture, Aalto University, Finland
masood.masoodian@aalto.fi

ANDRUS TINS
PhD Student–Junior Researcher, Department of Folkloristics, Estonian Literary Museum, Estonia
andrus.tins@folklore.ee

Abstract: Environmental Health Crises (EHC), often manifesting as interconnected polycrises (e.g. combining environmental, medical or military aspects), have surged in frequency, intensity and geographic spread in recent decades. Public understanding of such crises plays a crucial role in taking proper action to mitigate their consequences. Thus, finding innovative communication models that would address and mediate the complex nature of EHC is of utmost importance to serve the societal needs for clarity, safety, hope and physical survival. While mythological and scientific approaches have conventionally been conceptualized as opposites, this article's objective is to delineate their points of convergence and to argue that awareness of patterns in mythological narratives can offer analytically significant insights for contemporary crisis communication. By reviewing existing map-based health risk communication tools and frameworks, and relying on multiple sources of mythological narratives related to various EHC (e.g., epidemics, environmental hazards and disruptions), the authors will propose an empirically and theoretically grounded framework for analyzing the spatial representations of environmental health crises in mythological narratives to highlight how mental mapping becomes a critical component of vernacular spatial problem-solving activity. While highlighting consistencies in spatial crisis responses in mythological narratives and comparing them to modern EHC-narrating patterns, the proposed framework aims to function as a pathway for bridging the gap between scientific crisis mapping and the vernacular lived, multisensory, mythology-informed representations of EHC. By theorizing the integration of such dynamic and agentic perspectives into public communication, the study seeks to advance more effective and empathetic engagement with EHC-related risks.

Keywords: environmental health crises, mapping, mythological narratives, crisis communication, coping

INTRODUCTION

Environmental Health Crises (EHC) have since ancient times been actively accompanied and shaped by a mythological dimension, transmitted through respective recurring imaginations and narratives with certain spatial logic and culturally resonant mappings of danger, agency and environmental transformation. In recent decades, EHC have intensified in both scale and complexity, and the pivotal role of narratives – which often diverge from official discourses and contain elements known from mythology – in shaping societal understandings of epidemics and other crises has by no means diminished. Thus, even today, as recent crises – such as outbreaks of the African swine flu or incidents of air and water pollution – have demonstrated, trajectories of an EHC are shaped by multiple factors spanning the medical-biological sciences (e.g., pathogens), engineering and geosciences (e.g., urban planning, civil protection) as well as the social sciences and the humanities (e.g., information flows, narratives, religion, culture, or human behaviour viewed through the lens of human geography). All of these can influence both routes by which a threat is transmitted and its global or population-level presentation (cf., similar thought by Hebert-Dufresne et al. 2025). In the context of narrative response, many authors have drawn attention to the concept of infodemics – the overabundant spread of information that impacts the actual spread of certain crises (e.g.,

Hebert-Dufresne et al. 2025, or a review by Abuhaloob et al. 2024). In relation to COVID-19, for example, the emphasis in respective research was mainly on mis-, dis-, and mal-information circulating in vernacular but also official channels and its adverse effects on society (for more on this topic, see Borges do Nascimento et al. 2022). However, we postulate that certain EHC-related myths, culturally and religiously informed understandings and related mental mapping patterns can be at least partly useful, providing ready-made clues for orientation in a crisis situation and thereby reducing fear and mitigating the consequences of crisis outbreaks. Therefore, it seems worthwhile to dig deeper into the historical spatial vernacular knowledge systems while looking for their role as cultural tools through which communities have interpreted, mapped and responded to unfolding threats. Thus, the starting point of this article is the question: *How do mythological narratives represent EHC spatially, and what recurring patterns can be identified across different cultural traditions?*

Several authors (e.g. Kropej 2022; Hiiemäe et al. 2021; O'Shea 2025) have shown how the motifs of mythological plague legends, hurricane or flood myths have resurfaced in the collective memory in the face of contemporary experiences comparable to those endured by humanity centuries ago. A folkloristic view uniquely helps to recognize the embodied, sensory and spatial meaning-making patterns of contemporary narratives, placing them within the longer arc of legend history (cf. Kitta & Brodie 2020: 1). However, little has been investigated in terms of whether they also have to do with crisis communication.[2] We argue that crises of trust caused by failed public communication are part of the negative impact of infodemics, as trust, rather than information alone, drives public health decision making (cf. Dwyer et al. 2025). Thus, we take a rather unusual approach, trying to generalise the patterns of mythological folklore that have arisen as a reaction to EHC through history to provide a conceptual bridge to contemporary efforts, while asking our second, forward-looking research question: *How can insights derived from the spatial structures of mythological narratives inform the development of more effective, empathetic, and culturally resonant crisis communication frameworks?* By pointing out the dynamic agentic and experiential spatial representations found in mythological narratives, we hope to highlight the reasoning behind the consistencies that are still present today – in constructive as well as less constructive forms. We propose that considering them while designing public communication on the complex realities of EHC can help avoid "health and communicative inequities" (Briggs & Mantini-Briggs 2016) and increase societal understanding.

MATERIAL AND METHODS

By reviewing some existing map-based health risk communication tools (cf. Stieb et al. 2019) and frameworks (e.g. Augustin et al. 2023), mythology

compendiums and mythology-based empirical research (e.g. Parker 2012; Hiiemäe 2024), studies in narrative spatial theory (e.g., Tally 2013) and theories of dynamic and context-dependent agency (Emirbayer & Mische 1998; Bandura 2001), this study employed a multilayered methodological design integrating approaches from folklore studies, risk communication research, mapping, memory and agency theories to propose an empirically and theoretically grounded framework for analysing mythological narratives through the lens of spatial crisis coping. Our primary dataset consisted of traditional mythological narratives – spanning from classical mythology interpreting origins, creation, cosmology and gods to mythological folklore elaborating on similar topics – that were included based on the following criteria: (1) representation of threats through EHC (including illnesses and epidemics, ecological imbalance, famine as well as hybrid crises incorporating military or ecological dimensions); (2) identifiable spatial elements (e.g., boundaries, movement patterns, containment zones, safe/unsafe places); (3) narrative structures describing societal, communal, or individual responses, related to various environmental health crises and their spatial conceptualisations. Our main sources were curated collections of plague and ague legends (Hiiemäe 1997; Paal 2014) and CHRYSES project's[3] extensive myth database for crosscultural coverage, consisting of mythological material from published text collections and online databases from various European regions.

As a follow-on step, using qualitative content analysis (in line with Schreier 2012), narratives were coded targeting the following key elements: (1) roles of human and non-human actors / agency related to spatial navigation of danger, (2) narrative functions (e.g., warning, explanation, causality, transformation), and (3) emotional and affective modalities. Further, attention was paid to: (1) locational markers (mountains, borders, water bodies, villages); (2) movement patterns (escape and hiding, avoidance, pilgrimage for stopping crisis); (3) symbolic geographies (sacred/protected zones, danger areas, liminal spaces), and (4) environmental cues (changes in weather, landscape transformations, e.g. lakes flying to another place). As a comparison, the results of the CHRYSES project's mental mapping workshop held in Estonia that compared spatial trajectories of crises in mythological legends and on participants' mental maps were considered (see more about the workshop results in Hiiemäe & Kalda 2025).

TRAJECTORIES OF MEMORY AND SURVIVAL

In the context of scientific mapping, Gregory and Ell have pointed to the paradox that geographical maps used in scientific or historical research are effective as illustrative tools but poor at telling stories or enabling narrative interpretation (2007: 90). In mythological narratives, on the contrary, the spatial trajectories of danger are usually embedded into mutually conditioned narratives of

explanation and spatial coping as well as causality chains. For instance, Greek mythology provides a common mythological schema – best seen in Sophocles' Oedipus the King –, where moral as well as physical pollution causes plague, crop failure, infertility of women and of animals (Parker 2012). Our analysis highlights common structural and narrative patterns, though they can be nested into local landscape types and religious views and adjusted to specific region-bound EHC.

In the viewed mythological narratives depicting risk and danger related to EHC, the main emphasis is nevertheless on **survival**. However, coping strategies also show regional variation to some extent. For example, in Estonian mythological legends on various EHC (especially epidemics) the emphasis is on multiple ways of active coping (such as fleeing or fighting) whereas in the material from some Slavic or Western European regions the crisis can be also portrayed as willed by the omnipotent god and thus related to more passive forms of coping (such as praying for mercy). Nevertheless, in most of the reviewed material the spatial means for survival in the form of certain types of agency are somehow articulated. The issue of survival may also have been treated from a negative aspect: such narratives depict the destructive force of the crisis (for instance, exemplified by its personified form), but also contain the statement, how the malady could have been avoided or overcome. The corresponding binary oppositions also occur in the following Estonian legend texts – one about an epidemic and the second about sudden flooding – which list both the behaviour that brought along death as well as means that granted or would have granted survival:

> *The plague came to the house threshold as a goat, sometimes as a bird, sometimes was known to look like a magpie. Whoever mentioned its name – fell down and that was it. Who did not utter a word – survived.* (Hiiemäe 1997: 158)

> *In Kolga parish, there is lake Kahala. People talk about how it came into being as follows: Once in the summer when some men were ploughing on the field, a big cloud came and in front of the cloud a bird was flying who shouted: "Flee, folk! Flee, folk!" Those who fled, were saved. Those who couldn't flee, are on the bottom of the lake until today.* (ERA II 222, 538 (3) < Kuusalu, Estonia 1939)

When seeking to situate the argument within the framework of classical theorists, Claude Lévi-Strauss (1955: 443) asserts that handling oppositions is a fundamental characteristic of myth, noting that "mythical thought always works from the awareness of oppositions towards their progressive mediation". Similar reliance on oppositional narrative structures has been observed in folk tales and other folklore genres (Olrik 1965), and some scholars have

argued that it is inherent to human cognition even more broadly (Dundes 1997: 46–47) or that the base of society as a whole is myth and narrative (Hart 2005: 19). However, these authors only fleetingly refer that such narrated oppositions may also include a geographical dimension.

It should yet be added that in the face of severe crises, the binary of death and survival is not merely a narrative device but reflects the fundamental real-life alternatives from a human perspective – although the symbolic language for narrating these can differ somewhat across folklore genres. Nevertheless, some crises prompt communities to reconfigure both their physical environments and their internal "maps" of danger and safety but also to evoke "memory booms" (Fridman & Gensburger 2023) and cycles, being vividly represented in narrative tradition for centuries afterward (as is the case with plague lore). Others fade from narrative attention as soon as the immediate threat subsides (a tendency observed, for example, with COVID-19, which often functions merely as a temporary anchor in retrospective narrations, situating events as before or after the pandemic, cf. also about its distorted remembering in Sprengholz et al. 2023).

The persistence of certain crises as more vivid memory events with respective narrative patterns comes close to Jan Assmann's (2011) concept of cultural memory which can be used as a theoretical bridge between ancient mythological crisis narratives and their modern counterparts. Assmann (2011: 36) distinguishes between communicative memory, which is short-term and based on lived experience, and long-term cultural memory, which is transmitted through interpretive symbolic forms such as rituals, narratives or mythic structures. It seems that longer remembered are crisis narratives that carry within them both the memory of harsh historical realities and the symbolic lessons – or at least the ideal or potential – of survival, thus acquiring ritualized and narrative codification, embedding them in cultural memory as identity-shaping experiences. They are canonized through storytelling, commemorative practices, enduring frameworks of moral and meaning, ensuring their transmission or reactivation in renewed forms across generations. By contrast, crises like COVID-19, despite their global scale, often lack this deep symbolic anchoring and when new epidemics arise, comparisons tend to be made with earlier epidemics, such as historical plague.

BUILDING BLOCKS OF FRAMEWORK

Certain ways of narrating EHC seem to be constantly recycled. What appears "modern" in, for instance, pandemic dashboards, climate infographics, or media maps (e.g. on water pollution) is thus structured by deep memory, where mythic logics supply ready-made interpretive frames that guide perception and action across time. In Assmann's (2011: 23) terms, such narratives function as "figures of memory" organizing the present by projecting culturally

authorized patterns of crisis and restoration into current experience. Lévi-Strauss even goes so far as to postulate connections between epochs and modes of thought, by noting: "We may be able to show that the same logical processes are put to use in myth as in science, and that man has always been thinking equally well; the improvement lies, not in an alleged progress of man's conscience, but in the discovery of new things to which it may apply its unchangeable abilities" (Lévi-Strauss 1955: 443). In this context, it is noteworthy how frequently crises are visualized using spatial-cartographic imagery in scientific discourse and in media reports that reinterpret scientific findings through their own narrative lenses, with many crisis narratives privileging places over people. For instance, during the COVID-19 pandemic, media coverage often reduced victims or unvaccinated persons to percentages on geographic maps, foregrounding regional and territorial trends instead of individual lives. Only a few people (e.g. some survivors or medical staff) were still portrayed as distinct heroic examples of coping and resilience. Maps disseminated in newspapers as well as research publications typically featured large-scale units, such as entire counties, provinces or the whole world, rather than the individual agency level or local specifics (cf. for example Beleche et al. 2021).

The past mythological crisis narratives also display a place-centred logic and can be generalized as being grounded in three pillars of threat definition – two of which are spatial in nature – often presented via narrated mental maps:

i. **Personification**: giving the danger a clear agentic shape, often combined with the notion of deliberate intent,
ii. **Localisation**: confining the danger to a particular location,
iii. **Directional framing**: assigning the danger a trajectory (cf. a similar observation in the context of plague lore Hiiemäe 2004: 67).

Based on this initial triad, a further narrative layering model can be proposed, consisting of:

i. **Actor-based mythic surface layer**: what supernatural actors (e.g., demons, deities, spirits, monsters) control which domains (e.g., water, forest, disease, weather) and by which means (e.g., punishment, imbalance) in relation to an EHC.
ii. **Socio-historical layer** resonating with spatial memory of past crises, i.e., recurrent and/or concurrent historic key dangers (e.g., epidemics, such as plague, cholera, smallpox, crop failures, climatic anomalies, such as droughts, floods, water contamination, famine, warfare and demographic shocks bound to certain places or place types).
iii. **Spatial-symbolic layer** of depicting danger: mythologically explained hazard zones, boundaries of safe and unsafe, movement paths of danger.
iv. **Temporal layer**: Although a sudden onset is a defining feature of a crisis, certain signs of impending danger are often hinted at (often presented through seeing omens, hearing a warning voice or sound), and

the **perceived proximity of crisis – both in space and time** – can significantly shape the intensity of response.

v. **Agentic layer**: polarised depiction of proper behaviour that grants coping, and wrong behaviour that leads to perishing, often dynamically related to the above layers (i) to (iv).

In the context of EHC, layers (i) to (iv) can be represented through a variety of narrative motifs, such as a plague maiden seen walking through a valley or village in spatial resonance with historic epidemic routes; an infertile field guarded by a spirit memorializing historic crop failures in the area; or a cliff with a "devouring beast" preserving memory of devastating landslides. As a result, a danger becomes mappable as being described through clear paths and roads, zones and boundaries. In a similar manner, certain spatial borders can be related to layer (v), outlining agency that grants survival, for instance crossing a watercourse or a crossroad ensures safety from supernatural harm-doers (spirits of epidemics, angry forest spirits or ghosts, the devil) in a vast amount of Indo-European mythology.

In several cases there is even no specific spirit entity to represent a crisis, but an affected natural resource may be depicted as thinking and acting in a human-like manner. For instance, in several European regions the mythological notion exists that the land can become ill or certain spots on the landscape can make people ill, unless they take specific environmental precautions – i.e. exhibit proper behaviour. In Irish mythology, for instance, a well just "goes away" when a butcher repeatedly cleans parts of animal carcasses in it. In the following Estonian example, two related environmental health crises are thematized: a cattle epidemic and a subsequent water pollution. According to the legend, humans carry the carcasses of dead animals into the lake, which disrupts the environmental balance and causes the lake to "go away". Consequently, the moral of the unacceptable behaviour is exemplified through pointing out that in addition to having lost their cattle and losing a water source, humans also lose their fish stocks:

> *In Malla there was a big lake in the old days. Once the large herd of the manor house died and the dead animals were carried into the lake. Then the lake rose from its old place and went to Uljaste. Most of the fish that lived in the lake disappeared along the way. On the road, a big black bull walked in front of the lake roaring, and where the bull laid down, the lake landed, too.* (H II 9, 66 (2) < Viru-Nigula, Estonia, 1889)

The following Austrian sample text presents two spatial scales of different sizes – the region of Lower Austria and the village Au – threatened by epidemic danger and illustrates the interrelationship between these two. The clever

behaviour of the young man described helps preserve the smaller scale unit – and as usual in mythological material, the safety on this scale is described in an absolute manner:

> *When the plague ravaged Lower Austria, a young man from Hof was walking on a dark autumn evening to visit his sweetheart in Au. Near the border between the two villages, he heard strange sounds and saw a slender, blackclad woman who begged him tearfully to carry her across the boundary into Au, as she could go no farther. Cheerfully, the strong young man lifted her onto his back. She asked if he knew whom he was carrying; when he said no, she revealed that she was the Plague and could only reach Au with his help. As a reward, she told him to go into the village and place stones on the windows of his relatives and acquaintances – those houses she would spare. The clever man placed stones on every window he could find. The Plague angrily confronted him, asking whether everyone in the village was really his relative. He boldly answered yes. In the end, no one in Au died.* (shortened version of the legend text from Austria; full version is published in Petzoldt 1994: 101–102)

To bring a parallel to the spatiality frameworks that are related to modern health crises, the study of Augustin et al. (2023) deserves attention, as they introduce three spatial scales as foundational elements in their conceptual framework linking determinants of health to spatial context. They further define these scales as follows:

(i) **Macro-scale**: Global and international levels (e.g., continents), encompassing large-scale forces such as climate change, global pandemics and international governance.
(ii) **Meso-scale**: Intermediate or regional levels (e.g., nations, provinces, council areas), including policy, governance systems, healthcare infrastructure and socioeconomic conditions.
(iii) **Micro-scale**: Local or neighborhood levels (e.g., communities, urban blocks), focusing on living environments such as green spaces, accessibility to healthy food, healthcare services and local infrastructure.

They argue that threats and health determinants should be examined across these nested spatial scales, emphasizing how global driving forces, governance structures and community-level conditions interact to shape health outcomes. Their framework highlights the importance of spatial embedding in health analysis, suggesting that understanding crisis narratives – and the definition of danger – requires attention to how risks are mapped and articulated at each spatial level.

However, it is important to note that in both mythological and modern narratives in our material (including the results of our CHRYSES project's mental mapping workshop held in Estonia in 2025), active spatial framing operates at the **meso** (regional) and **micro** (community) scales, reflecting the persistence of spatially significant thresholds and zones. By contrast, the **macro** level appears in mythological material only sporadically and superficially – and is often limited to a loosely defined "country" level – but there is significant focus on the **individual** (personal and family) level instead. This absence of a macro level can be partly explained historically because mythological narratives emerged in pre-modern societies where perception of administrative units was localised – or even cosmological – rather than national, making the household and community the primary loci of meaning and security.

The most important difference, however, concerns ***agency*** in the form of context-related proper behaviour based on the same scales. While some scientific crisis maps leave humans and their agency out altogether, concentrating only on the crisis (cf. findings related to cholera maps in Al Dalal'a et al. 2026), mythological material depicts active agency mainly at the named three levels: **individual**, **micro**, and **meso**. Agency here is understood in line with Emirbayer and Mische's (1998: 962) relational theory on multi-scalar agency that views agency as a temporally embedded and non-static process of engagement that integrates three dimensions: iterational (drawing on past routines), projective (imagining possible futures), and practical-evaluative (making judgments in the present).

Mythological crisis narratives often emphasize distributed agency across individuals, households and communities, where ritual and collective practices enact coping. Modern official crisis discourses, by contrast, often centralize agency at the governance level, privileging policy and institutional actors – a practical-evaluative stance focused on systemic control and homogenized safety orders. Yet, as our mental mapping workshop findings (Hiiemäe & Kalda 2025) also demonstrated, individual and family scales remain crucial in contemporary vernacular imaginaries, revealing a projective dimension where personal spaces (especially the home) are envisioned as the primary locus of resilience. Paradoxically, during COVID-19, the locus of home gained importance even in centralised guidelines, as people in crowded apartment blocks and remote farmyards alike were ordered to passively stay home, prompting many to seek a greater sense of agency (e.g. through mutual aid networks described in Ramkissoon 2020, or outright rebellious behaviour). This finding also resonates with the study of Albert Bandura (2001), who reframed social cognitive theory around the concept of agency, arguing that people should be viewed as active agents who intentionally influence their own functioning and life circumstances, operating within a system of reciprocal causation among personal factors (cognition, affect, biology), behavior and environmental influences. Bandura's notion of agency includes moral dimensions and is strongly linked to self-efficacy – belief in one's ability to exert control over events.

We found the same components of agency in mythological narratives, whereby agency could involve mapping processes to adjust agency to safe and dangerous areas. Similarly, participants in our Estonian mental mapping workshop actively considered possible spatial scenarios for crisis coping (e.g., for a military or epidemic crisis), adjusting them to a possible gradual evolvement of the crisis and touching upon a historical dimension while making references such as "As already my grandma pointed out" or making comparisons with folk narratives. As a generalization, the grassroots approaches reflected in mythological material and our recent mental mapping findings can be presented as shown in Figure 1.

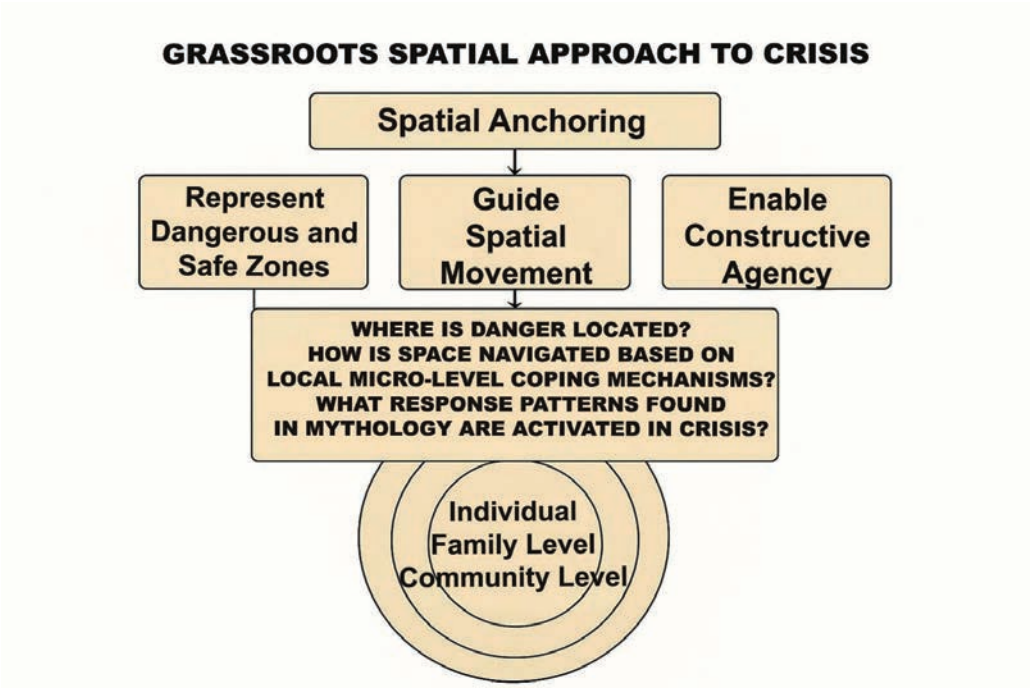

Figure 1.

To exemplify the intertwined aspect of various layers, the following traditional folk narrative presents both the role of the human intermediary in the spatial course of the disease and the community-led mythological ritual of destruction by fire, which, according to legend, brings about the complete end of the epidemic. Thus, the narrative expresses real-life experience as well as a mythical layer, both passed down through family lines and each playing a role in making sense of the crisis and moving toward a solution:

> *Grandma told that the sudden death (meaning plague or some other epidemic) was neither an animal nor a human being and traveled*

> *in Pajpis from farm to farm, killing people. He would not be able to travel between farms unless he was allowed to ride. Once, a man named Matte came riding past the farm the sudden death happened to be at. Matte drove quickly but the sudden death still jumped on and got to the other place where he jumped off. There, at that place, they trapped him in a box and threw into a heated oven, and then the sudden death would have ended.* (shortened version of the legend text from Swedish-speaking Finland, published in 1879 and retrieved from https://sagenkartan.isof.se/#/records/sls00904/search/pest/search_field/record/nordic/true)

Thus, we find that modern crisis communication should also focus more on individual agency, but for completeness of information, all the above-mentioned scales – **macro**, **meso**, **micro** and **individual** – need to be targeted. Their functions, however, are different: the macro and meso levels have general informative function, but smaller levels can be related to effective local landscape-bound agency based on how communities conceptualize environmental danger locally (cf. a case study that emphasizes considering family and community level in hurricane relief in Jacob et al. 2008). The narrative level, in turn, with its recurring elements, shows how stress and uncertainty translate into symbolic forms (such as sacredness or pollution) but also how mythic or otherwise traditional structures encode adaptive knowledge. Briggs & Mantini-Briggs (2016) have demonstrated convincingly in a non-European setting how communicative monopolies leaving out grassroots narrative and belief layers can lead to a one-sided centralised "bio-mediatisation" that can distort and delay effective action. Yet in Western societies, the need for inclusive crisis communication that engages with vernacular narratives is no less significant.

In the following table (Table 1), we present the general tendencies identified through our framework for analysing the spatial representations of EHC in mythological narratives and compare them with established contemporary crisis communication practices (deriving partly from the findings in O'Neil et al. 2013: 6 ff.), to highlight the areas that require attention for designing more effective communication strategies.

Table 1

Grassroots mental /narrated mappings of EHC	Official mappings of EHC
Polarization of safe, dangerous and threatened spaces with clear beginnings and ends – related to **personifications and scapegoats**	**Polarization of safe, dangerous and threatened spaces** with clear beginnings and ends – related to one-sided **personified representations** (e.g. no illness spirits but "dangerous" animals or humans as illness spreaders)

Suggest **certain limited spatial actions / non-actions** with focus on individual or community-based agency.	Suggest **certain limited spatial actions / non-actions** with individual or community-based passivity (rather don't-s than do-s).
Maps of causality sequences in crisis explanation (based on a variety of reasonings)	**Maps of causality sequences** in crisis explanation (framed with current scientific reasoning)
Sacred spaces as markers, sacred can be considered safe because sacred	**No sacred spaces as markers** (but frequent occurrence of quasi-sacralised expert figures)
Community-level help navigation maps (who helps and how) according to religious beliefs and local landscape peculiarities	**Broad official help navigation**; community-level help navigation only in a generalised manner
Coping maps fluid and experiential, **blending spatial information** from myths/memory, belief, intuition, emotion, in modern cases elements from scientific maps but also critics of them	**No blending**; focus on scientific reasoning and maps
Focus on individual and micro-level, context-based	**Focus on larger levels, median values**
Focus on survival	**Focus on death (e.g., maps with statistics of victims), threat, danger**
Retrospective axis of coping	**Future apocalyptic scenarios**

Based on this comparison, it emerges that although clearly linking danger to certain places seems to be a timeless practice, in the case of threats that can spread in any direction via human mobility (such as epidemics), linking them to a single location or a one-dimensional trajectory on a map or spatial scale can be misleading. Similarly, it should be stressed that in mythology, moral lessons hold symbolic importance: therefore, crisis narratives often speak of divine wrath and scapegoats as spatially detectable personifications – figures who can represent the danger and then be either destroyed or driven away from human settlements to protect people. Although similar practices continue in modern discourses (see a case study of animals as danger representations in Hiiemäe et al. 2026) where crises are often associated with deliberate intent or other demonised personifications, in crisis communication, it would be far more effective to place less emphasis on finding a clear singular culprit (for instance, a patient zero or a factor "most" responsible for an environmental hazard) in a complex crisis. Crisis preparation should focus more on empowering individual and community-level experiential agency, being prepared that it can still contain features related to past mental sacrality and mythical memory maps. Mass media discourses frequently emphasize apocalyptic future scenarios, employing crisis tropes such as the inevitability of Russia attacking EU countries, coastal areas globally being submerged by water from melting glaciers, or the resurgence of new pandemics. For the sake of a healthy balance, it would be reasonable to counter this with retrospective perspectives characteristic of mythological narratives, highlighting past strategies of agentic coping and resilience.

DISCUSSION AND CONCLUSIONS

To build a meaningful link between traditional insights and modern prevention measures, we looked at mythological narratives to detect patterns of local-level spatial meaning-making and agency. Nevertheless, we do not try to idealistically claim that responses found in mythology always automatically support resilience toward and recovery from EHC. Besides, sometimes, the effect can even be relational, e.g., some myth-bound spatial agency can support psychological coping positively but impact physical safety negatively (cf. examples in O'Shea 2025: 190). We just want to emphasise that such patterns exist and need to be considered in crisis communication mediated for instance by the news media, crisis intervention authorities and systems, such as mobile crisis alert apps, to avoid obstacles to coping. By translating dynamic directional and landscape-related cues embedded in these narratives into digital real-time mapping features, collaborative crisis apps could help communities visualize hidden environmental health risks and adopt constructive location-tailored responses. As a future perspective, integration of crisis narratives, medical geography and human dynamics data with environmental risk models can be envisioned, enabling a sharper understanding of who is exposed to what hazards in what ways and why. Promising in the context of EHC are the ideas of Rossetto, who points out post-representational cartography which considers maps not as truthful or otherwise power-led representations but as embodied entities, open-ended processes and relational events involving complex networks of human and non-human entities (Rossetto 2024: 90); in addition, animated geovisuals that capture spatial EHC data dynamically could serve for better crisis information mediation (Slavik & Fish & Peters 2024). Ideally, these technologies should be capable of signaling cues for individualized agency within specific locations, such as GIS-based mobile tools that overlay risk maps and realtime alerts to guide users toward safe zones and behaviours based on their precise position. However, most existing mobile crisis management applications seem not to have yet matured to this level of spatially aware, individualized functionality and may prove useless anyway when a crisis is accompanied by power cuts that disable their usage.

Thus, hope should not be placed in technology alone; the multisensory, narrative-based approach given by real human interpretation remains essential for understanding crises and guiding responses as it derives from actual human reality. Narratives continue to order the world in crisis by picking from the vast inventory of events and bringing them together in a syntagmatic chain (cf. similar thought by Manovich 1999: 89), arranging events in a causal, often tradition-bound sequence, where each preceding element conditions the next and the narrative as well as the crisis that it depicts has a clear beginning and end. As indicated by our dataset, individual and community-level agency was one of the key elements in mythological narratives and continues to be so in

modern reasoning. Yet when such a need for agency conflicts with official discourse as the latter focuses primarily on threat and risk without hinting at options of individual agency, there is potential for increased fear and passivity (cf. similar findings in Qian et al. 2025) or the emergence of alternative forms of agency that challenge institutional narratives and power relations or are just unpractical. We bring just one recent example to illustrate how even a wording conveying agency may not function properly without micro-level localisation. A message: "Aerial danger! Take cover!" was sent by the Estonian Emergency Alert System as an SMS and app message after a war drone coming from Russian territory mistakenly landed in Estonia on 25 March 2026. Instead of helping to ensure safety, the alert caused panic in many because it did not specify which and where the danger was and where people should take cover (see a media reflection on the case Ots 2026). However, the following day a representative of the Estonian Rescue Services Agency already acknowledged useful lessons having been learnt from the case, for instance that the message should have been distributed in a more location-specific way.

Although crisis narratives and related public communication actively participate in the production of the crisis as well as coping, there is still limited research on recipient feedback to spatial messages and the use of danger maps within communication related to EHC. However, there are yet some useful studies that have explored crisis communication and the actual coping patterns that emerge from it (Hannawa et al. 2024) or have proposed interactive context-bound risk and hazard maps for the public, specifically addressing the known unique challenges of risk communication (Dransch & Rotzoll & Poser 2010). Therefore, it is essential to further develop and empirically test participatory mental mapping and visual storytelling workshops, along with feedback sessions that explore the intersections of historical crisis narratives, contemporary vernacular crisis mappings and public crisis communication for better knowledge integration and greater trust.

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NOTES

1 Reet Hiiemäe was the lead author responsible for the main research design and manuscript preparation.

2 Under 'crisis communication' we understand (in line with CDC 2018) effectively informing the public by the news media and other communication services as well as state and local agencies responsible for crisis management while delivering situation- and location-specific messages with appropriate content, format and timing, as well as ensuring that communication is culturally accurate and responsive to the needs of the community in preparation for, during and after a crisis.

3 More information on the project can be found on the project webpage: chryses.aalto.fi.

MANUSCRIPT SOURCES

ERA – the folklore collection of the Estonian Folklore Archives

H – Jakob Hurt's folklore collection in the Estonian Folklore Archives

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Reet Hiiemäe is a Senior Researcher at the Department of Folkloristics, Estonian Literary Museum. Her main research subjects are belief narratives, protective rituals, spatial depiction of environmental health crises, contemporary folklore and the psychological coping aspect of folklore and religion.

reet.hiiemae@folklore.ee

Mare Kalda is a Senior Researcher of the Department of Folkloristics, Estonian Literary Museum. Her research areas are treasure legends, geocaching, memes and contemporary folklore.

mare.kalda@folklore.ee

Masood Masoodian is Professor of Visual Communication Design in the School of Arts, Design and Architecture at Aalto University. His research interests focus mainly on investigating the role of visual design and visualizations in addressing a wide range of societal challenges such as environmental crises, ageing populations, public health and well-being.

masood.masoodian@aalto.fi

Andrus Tins is a Junior Researcher at the Department of Folkloristics, Estonian Literary Museum and a PhD student in folkloristics at the University of Tartu. His research focuses mainly on the dynamics of vernacular technology narratives.

andrus.tins@folklore.ee