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Human and Environmental Health in Mountain Areas

Laine Chanteloup et Thora Herrmann

1 Since the 1970s, rapid population growth and accelerated urban sprawl have led to the destruction and fragmentation of natural areas in mountains. This transformation has caused landscape alterations and an increase in interfaces between the anthropogenic and ecological spheres, in turn creating new contexts and opportunities for interactions between humans, animals, and ecosystems (Poinsot 2012; Bortolamiol *et al.* 2017, p.397; Vlès, 2014). It has also led to consequences for human and environmental health, such as the spread of zoonoses and infectious diseases (Oleaga *et al.*, 2018; Plowright, *et al.*, 2021; Mishra *et al.*, 2022). Health concerns are amplified by the effects of climate change, air and water pollution, and increasing biodiversity loss (Palomo, 2017; Peters *et al.*, 2019; Mishra *et al.*, 2022; Hao *et al.*, 2022). Thus, mountain socio-ecosystems have a key role to play in preserving human, animal and ecosystem health, given the latter's interdependence and close interaction in this specific environment.

2 Since the 1990s, a holistic approach to health has emerged (Webb *et al.*, 2010) in response to the inherent limitations of biomedical approaches that have historically ignored environmental, social, and cultural factors in the detection and cure of disease, and which focus exclusively on the physiological aspects of health. This novel holistic approach takes into account the complex interactions between humans, animals, and the environments in which they live (Charron, 2012), allowing for a more comprehensive understanding of health. International recognition through Agenda 21, the global plan of action adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992, first established a direct link between sustainable development issues and health promotion. However, it was at the Johannesburg Summit in 2002 that health was listed as one of the five priorities for sustainable development, establishing causal relationships between the quality of environmental conditions and the health of human populations. This international recognition has reinforced the importance of taking environmental factors into

account in health promotion and in the implementation of sustainable development policies (WHO, 2005).

3 The field of health geography has paid particular attention to the relationship between human health and the environmental context with the introduction in 1992 of the concept of a "therapeutic landscape" proposed by Gesler. This concept was defined as places where "the physical and built environments, social conditions and human perceptions combine to produce an atmosphere which is conducive to healing" (Gesler, 1996, p. 96). A direct link is thus made between territories and human health. Since then, many studies have taken up this concept (Bell *et al.*, 2018), refining its definition "as specific spaces of healing, particularly where the natural environment intersects with the social environment (Gesler, 2003)" (Winchester & Mcgrath, 2017, p. ii). However, these therapeutic territories are not predetermined in advance. Therapeutic character is instead dependent on "a constellation of components and people's subjective experience of the space" (Winchester & Mcgrath, 2017, p. ii). The literature review by Bell *et al.* (2018) shows the importance of natural spaces as places of well-being, whether these are green spaces (Milligan & Bingley, 2007; Meyer-Schulz & Bürger-Arndt, 2019) or waterscapes (Foley & Kistemann, 2015).

4 With medical practitioners, an ecosystemic approach to health, also called the ecohealth approach, has emerged (Lebel, 2003) where health is no longer characterized solely by the absence of disease, but instead assumesa balance between humans and their environment that allows them to achieve their full potential (Waltner-Toews *et al.*, 2008). Although this ecosystemic approach to health is beginning to be well developed in North America, particularly among indigenous peoples (Greenwood *et al.*, 2018; Simon *et al.*, 2018), it seems so far to have remained peripheral when it comes specifically to mountain areas.

5 The study of the interaction between human health and the environmental context in mountain areas is particularly important for several reasons. First, these regions have a rich history of links between health and the environment. These have often been formed by traditional practices and local knowledge, or else by their natural landscapes (such as forests and lakes) being promoted for their effects on people's well-being. In addition, mountain areas are places of great contrast, characterized by both some very natural elements (e.g. protected areas, Durand *et al.*, 2022) and a strong human presence. These lead to different visions of how humans and the environment interlink, which can influence human and environmental health. Finally, mountain areas are particularly sensitive to environmental changes, making them favourable places for research into new models linking human, animal and ecosystem health. Thus, Jean-Marc Besse (2020, p. 6) states that the issue of health leads one to question the links between inhabited places and its inhabitants, as it enables consideration of the multiple relationships (material, practical, sensitive) that humans have with their environment and the characteristics of this environment.

6 Although from the 19th century onwards, the construction of sanatoria and the development of the therapeuthic use of springs contributed to the spread of an idea linked to well-being and health that relied on the development of tourism in mountain areas (Hagimont, 2017), it is nevertheless fictional literature such as Thomas Mann's novel, *The Magic Mountain* (Nobel Prize of Literature of 1929), which contributed to the creation of the myth of the mountain as the ideal place to improve one's health and to cure certain diseases, in particular tuberculosis (Guillaume, 1991). **A. Savioz**, in this

Special Issue, invites us to take a step away from this representation of the mountain environment: he questions the well-being of mountain populations with regard to air quality. Through a historical approach, A. Savioz reveals how, over time, air has been viewed in a very different way in the same area. Until the 1970s, air was seen as a resource contributing to human health and well-being, whereas since the 1990s it has been seen as a danger. The advertising for the thermal spa in the Mont Blanc mountain area, which emphasizes the purity of nature and the health benefits of fresh air, focuses on the therapeutic ideal of the mountains. However, measurements of air pollution in the 1990s and 2000s completely overturned this imaginary by exposing the respiratory health problems of local inhabitants, issues that became major public problems from the 2000s onwards and a source of deep anxiety for the inhabitants of this alpine valley. This has led to greater public engagement, with locals demanding the right to prosper in a healthy and safe mountain environment.

7 In addition to their importance in terms of public health, mountain areas are also often seen as a physical world that provides an escape from everyday life. Mountains are frequently associated with the notion of conquest, due to their high peaks and environments that are challenging to explore (de La Soudière, 2019). However, this notion of conquest is not limited to athletic endeavour; it can also be perceived as a personal or spiritual quest in search of individual fulfillment. The mountain thus offers a privileged contact with various elements of the natural environment and can be considered a sacred place in different cultures, offering a spiritual connection to the divine (Bernbaum, 2006; Ben Dridi, 2016). Various revitalization practices related to these environments have spread over time: from edible and medicinal plant gathering to the proliferation of nature sports. The latter, for example, offer many ways to experience and connect with the natural environment, and contribute to the leisure activities of participants whose lifestyles are increasingly urban (Bourdeau *et al.*, 2011). Yet, practices are not without effects on the lived environment. The end of lockdown policies following the COVID-19 crisis notably highlighted how certain mountain areas found themselves "invaded" by a public who sought contact with nature in order to improve their well-being (Doughty *et al.*, 2022), but whose participation in this act simultaneously degraded precisely that which they had come to seek.

8 **M. Muller** addresses these main issues in her article on Banff National Park in Canada. She is interested in how tourism messaging developed by the park relates to representations of the wilderness, coupled with the facilities implemented to promote both contemplative practices and nature sports. All of this reinforces an imaginary of the wilderness as a place of renewal and well-being in order to improve the mental and physical health of visitors during their experiences as a tourist. The break from everyday life made possible by immersion in the park thus favors a connection to wilderness seen as life-saving. However, the latter (wilderness) remains illusory insofar as tourism development is also a victim of its own success, making it necessary to rethink the management of the externalities of tourism, which increasingly import certain urban characteristics into a place of naturalness.

9 While M. Muller's article deals with questions of tourist well-being linked to a mountain environment perceived as a wild space, **J. Grosinger** and **G. Desveaux's** approach focuses on the well-being of the local inhabitants of an alpine valley in South-Tyrol, Italy, which has recently developed through the cultivation of apples. Through work done with a theater company in the framework of a research-creation project, the

authors invite us to reflect on the quality of life in mountain areas and their connections with the valley. Based on a process which combined interviews with inhabitants and the creation of a creative walking performance linking three villages in South-Tyrol, the article outlines an innovative methodological approach to exploring attachment to place. This unique artistic methodology not only enables the creation of research data on attachment to place, but also has a positive impact on the quality of life of its inhabitants, thus contributing to the overall health of the Alpine region. By integrating the performative aspect of the show into the daily life of the inhabitants, this approach offers an opportunity to strengthen the sense of belonging and connection with the environment. These reflections on the well-being and quality of life in mountain environments show the importance of broadening health issues out to wider environmental issues, whether the environment includes the biophysical context of a mountain area or socio-cultural aspects intimately linked to the environment.

10 A Special Issue on the health of mountain areas could not ignore questions related to an ecosystemic approach to health within the close and reciprocal relationships between humans, wildlife and the environment (Doré *et al.* 2015). The global outbreak of the SARS-CoV-2 coronavirus has highlighted the need for a system-based approach to health that does not dissociate human health from animal and ecosystem health (Parodi, 2021). According to the World Organisation for Animal Health (OIE), 60% of existing infectious human diseases are of animal origin and 75% of emerging diseases are of zoonotic origin (OIE, 2021; Jones *et al.*, 2008). These zoonoses, a concept first described by the physician Rudolf Virchow in the 19th century, are linked to environmental health. It is in this context of anthropogenic socio-environmental changes and in line with the "One Medicine" concept (Schwab, 1984) that the "One Health" concept has developed (Zinsstag *et al.*, 2011). One Health goes beyond zoonoses and emphasises a holistic understanding of human health (Zinsstag *et al.*, 2020), where physiological aspects do not take precedence but connect with other elements such as the well-being of populations (Fleuret & Atkinson, 2007). In this way, the concept challenges the socio-ecosystem-centered approaches to health listed above. Mountain socio-ecosystems are among the most sensitive ecosystems (endemic species, climate change) and therefore constitute an important place to apply and analyse this approach. Various issues of concern around the human-animal-environment triptych have emerged in recent years in the Alps, from the Bargy ibex crisis (Arpin, 2018), where a protected species was widely slaughtered to protect domestic herds from brucellosis and its possible transmission to humans within dairy products such as reblochon cheese, to the issue of marmots developing diabetes due to their feeding by tourists. The ecosystemic approach to health thus offers insights into the dynamics of mountain socio-ecosystems, a framework for epistemological reflection and avenues for better governance of health in mountain areas.

11 This is what is proposed in the article by **M. Gisclard, B. Trabucco and F. Charrier.** They address this link between human health and environmental health through the example of Corsican livestock farms. The agricultural practices of Corsica, such as transhumance and food crops historically anchored in the mountainous landscape of the interior of the island are gradually being abandoned, leading to a clearing of the landscape. The practice of "parcours" where animals are left more or less free to look for their food is becoming more widespread, but it also increases the risks of contact between wild and domestic fauna, which is conducive to the risk of transmission of zoonoses. Faced with this situation, standardized sanitary solutions imposed from the

continent have proven to be limited. This article invites us to reflect on the construction of a health territory where the local breeding system and local knowledge are considered in conjunction with public health policies, in order to find solutions adapted to the context of Corsican breeding and overcome the obstacles linked to the local desire to maintain this particular "parcours" breeding system.

12 Finally, this Special Issue devoted to human and environmental health in mountain areas concludes with two articles in the *transition section* that address issues of health and well-being through two experiments that explore the sensitive aspect of ecosystem approaches to health. **C. Revol and J. Damian** take us on a journey of discovery of alternative care practices linked to mountain areas, based on reconnecting with the natural environment. By learning to listen to the environment, but also to better feel and sense it, people go on an inner, psychological and poetic journey intrinsically linked to the mountains. The second experiment concerns **A. Debusschère's** master's work, which aims to use sensitive cartography to bring out other representations and knowledge related to the health of mountain areas. She presents a journey in the Mont Blanc region with a mother and her daughter, both known for their ability to communicate their feelings and experiences with different elements of the physical environment such as lakes, glaciers and mountains. From this exchange emerges "a "suprasensitive" landscape reading" allowing for a better understanding and awareness of different modes of existence, and thus contributing to a different consideration of the ecosystem.

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