



Health in a changing climate: Perceptions of 'broken relationships' during COVID-19 in Austria

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ABSTRACT

This article contributes to understanding health in a changing climate by analysing public perceptions of the root causes of the COVID-19 pandemic in Austria. Drawing on 209 in-depth qualitative interviews conducted between April 2020 and October 2021 in a country that was facing significant challenges regarding national climate targets at that time, the study explores how people linked health, nature, and politics during the pandemic. While many initially expressed hope that the COVID-19 Anthropause would catalyse sustainable change, this optimism soon faded. Over the following year and a half, participants increasingly identified the broken relationships between humans, nature, and things as the root cause of overlapping health, environmental, and climate crises. This culminated in a widespread awareness that personal health is inextricably connected to the wellbeing of the natural environment—and that systemic change, though considered unlikely at the time, is necessary to address these intersecting crises. Our findings show strong resonances between Austrian residents' multidimensional understanding of health in times of climate change and insights from decolonial scholarship, Indigenous people's knowledges, as well as global majority perspectives. In dialogue with environmental health, Planetary Health, and Indigenous scholarship, we draw out how participants conceived health as a condition shaped by various 'natural', biological, ecological, social, political, economic and other dimensions that interact over time and space. Highlighting this perspective from a global minority context raises more far-reaching questions about the need for decolonial repair to address climate-related health impacts.

1. Introduction

What caused the COVID-19-pandemic? From a medical perspective, the answer seems relatively straightforward: the SARS-CoV-2 virus. As a root cause for the spreading of this virus among humans, analysts have proposed a range of theories, including zoonotic transmission, the lab leak theory, natural evolution and the potential influence of previously unknown factors (Chan, 2024; cf. Holmes et al., 2021; Bloom et al., 2021).

Despite uncertainties about the origins of the SARS-CoV-2 virus, however, the transmission from animals to humans raises important questions about how human interactions with the environment affect pandemics: Without social practices such as increasing human intrusion into wildlife, the destruction of previously non-human habitats, or the

hypermobility of global elites, the virus might not have emerged or spread as widely as it did. Research on the origins of the COVID-19 pandemic has directed attention also towards the relationship between humans and their natural environment. The spread and containment of zoonoses—viruses transmitted from animals to humans—have taken centre stage (Radhuber & Jasser, 2021; Everard et al., 2020; Brooks et al., 2019; Gibb et al., 2020). Interactions like these have become a focal point of study for understanding pandemic conditions, raising questions about underlying socio-political-economic foundations (Castree, 2014; Hulme, 2011; Hulme et al., 2020) of the crisis.

Beyond the relationship between humans and their non-human environment, literature has explored how the pandemic resulted from—and crystallised—structural problems (e.g., Fiske et al., 2022; Wagenaar & Prainsack, 2021; Giulio et al., 2021; Parker, 2020). Such

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structural analyses reiterate key points that have been made in decolonial and Indigenous scholarship on the connections between humans, health, and their environments. For example, in a widely discussed essay, philosopher Achille Mbembe (2021) called for “a voluntary cessation, a conscious and fully consensual interruption [to rebuild] a habitable earth” (Mbembe, 2021; S62; cf. Franco et al., 2022; Cooper and Nagel, 2022; Watson et al., 2020), emphasising the need to transform entrenched dynamics of violence, digitalisation, hypermobility, extractivism, energy-intensive lifestyles, power imbalances, growing inequality, land dispossession and systemic injustices. In this context, COVID-19 troubled entrenched global imaginaries shaped by colonisation where deaths in “other” countries often occurred unnoticed, and illustrated our interdependencies and shared fates. As Mbembe (2021, p. S59) powerfully stated, “[w]e must answer here and now for our life on Earth with others (including viruses) and our shared fate.” Accordingly, the pandemic moment has been a pause for breath (both literally and figuratively) that could stimulate deeper reflection of how we relate to all living and non-living beings.

But how did people see the root causes of the pandemic? In many places around the world, people keenly observed changes in their natural surroundings during the emergency phases of the pandemic. In earlier research, we explored the ‘COVID-19 Anthropause’¹ through the lived experiences of people in seven Latin American and European countries, underscoring how people perceived the systemic challenges in bringing about much-needed environmental change (Fiske et al., 2024). Austria stood out as a country in the European Union lacking legally defined national climate targets, including a national energy and climate plan and an effective climate law.² The lack and delayed delivery of Austria’s national energy and climate plan³ stands in stark contrast to people’s perceptions of environmental change during the pandemic and the way they related these changes to their personal health within current socio-economic dynamics. In Austria, people’s perceptions during the early stages of the COVID-19 pandemic strongly emphasised the biopsychosocial and socioeconomic dimensions of health. We previously referred to this phenomenon as a biosocial form of citizenship (Radhuber et al., 2023a), which resonates with the articulation of Indigenous citizenship as a means of addressing deeply rooted structures of exclusion (cf. Radcliffe, 2025). Their perceptions also shed light on the political determinants of health, particularly in the context of divisive policymaking, widening social divides, and the influence of populist anti-establishment parties during the development of Austria’s COVID-19 vaccination policies (Radhuber et al., 2025a). Moving the conversation beyond biopsychosocial, socioeconomic, and political dimensions, interviewees then increasingly recognised how environmental and climate conditions influence health.

Here, we will expand on a central theme that arose from our analysis: how people’s perceptions of the interconnections between health, environment, and climate crystallised during the COVID-19 pandemic. Given Austria’s struggles in setting climate targets and its active role in climate and health debates (along with two authors (BP and IMR) living and working in Austria) we set out to explore what people living in this country thought were the root causes of the COVID-19 crisis during the

first 18 months of the pandemic. After situating our research within the broader discourse on the health consequences of environmental and climate change, we present initial perceptions of a ‘brief respite for the planet’ at the onset of the pandemic. Many of our respondents had an intuitive sense for the interactions between health, nature and politics, believing that systemic change was needed to address concurrent global crises. These findings reiterate the importance of framing health as multidimensionally constituted (much like Indigenous thought has long recognised), i.e., as influenced by various ‘natural’⁴ biological, ecological, social, political, economic, as well as other unknown dimensions that interact to create specific health outcomes across temporal and spatial boundaries. Foregrounding such an understanding from a global minority⁵ country raises more far-reaching questions about the need for decolonial reparatory action to address health in a changing climate.

1.1. Understanding health amid changing environmental conditions

As the health effects of climate change become ever more apparent, researchers are increasingly trying to understand—and find ways to mitigate—the created harm (cf. Brown, 2007; Corder & Brown, 2013; Mayer et al., 2002). Climate change is seen as the foremost threat to human health in the 21st century (WHO, 2018a,b), and an emerging research agenda is crystallising around the connections between climate and health (Radhuber et al., 2025b; Horton and Lo, 2015; Romanello et al., 2023; Whitmee et al., 2015). This agenda gained significant momentum with the establishment of the Lancet Countdown on health and climate change in 2015, following the World Health Organization’s quantitative risk assessment of climate change’s effects on specific causes of death (WHO, 2014). By 2023, this initiative had become the most comprehensive research effort to date that “independently monitors the evolving impacts of climate change on health, and the emerging health opportunities of climate action” (Romanello et al., 2023, p. 1).

One major challenge in understanding these impacts stems from the complex, indirect, and dynamic interactions between climate and health. Scholars differentiate between primary, secondary, and tertiary health effects of climate change (Butler, 2014, 2018, 2024). Primary health impacts of climate change occur when heat waves, floods and extreme weather events directly cause deaths and diseases. So called secondary—more indirect and non-linear—effects arise from altered ecosystem conditions that favour the transmission of diseases through vectors, food, water and others, or worsen air quality triggering allergic reactions. Of the highest level of causal complexity, however, are tertiary effects that “are modified by numerous cultural, political, economic, social and other effects such as poverty, inequality, population growth, resource scarcity and governance” (Butler, 2014, p. 2; cf. WHO, 2021a, 2021b; Whitmee et al., 2015, p. 1976; Smith et al., 2014). Although these indirect health impacts of climate change stemming from socio-political-economic drivers are expected to be the most severe (Butler, 2014, p. 2005), they have received least attention in biomedicine, public health or climate policy.

Addressing the harm caused by climate-health interactions is an

¹ Scholars have referred to the COVID-19 Anthropause to describe the temporary decline in human interactions with the natural environment during the pandemic (cf. Rutz et al., 2020; Young et al., 2021; Fiske et al., 2024).

² The country also entered into a severe internal crisis in June 2024, driven by political and societal disagreements over the EU Nature Restoration Law (Reuters, 2024; Parlament Österreich, 2023). On the other hand, the Austrian government has taken initial political strides to address climate and health challenges, for example through the establishment of the “Climate and Health Competence Centre” at the Austrian National Institute of Public Health (AGES Gesundheitsförderung, 2023).

³ Austria missed the submission deadline of 30 June 2024 and, following the initiation of infringement proceedings by the European Union, delivered its national energy and climate plan on 20 December 2024.

⁴ ‘Natural’, written here in inverted commas, is an indicator of dynamics that may appear natural in the sense of externally given influences, but which could later be understood more deeply in their biological, ecological, socio-political-economic and other constitutions.

⁵ The term global majority was introduced by educator and anti-racist activist Rosemary Campbell-Stephens, who is of Black African-Caribbean heritage. “It refers to people who are Black, Asian, Brown, dual-heritage, indigenous to the global south, and or have been racialised as ‘ethnic minorities’ (...) and represent approximately eighty percent (80 %) of the world’s population” (BBC, 2024; Campbell-Stephens, 2020). This new terminology is currently being discussed in relation to its decolonial potential to shake off Eurocentric power and the risk of homogenising diverse population groups while giving the impression that they have a power that they do not (yet) have in practice.

Table 1
Demographic characteristics of interviewees (elaborated by authors).

	T1	T2	T3
Total number of interviewees (n)	80	72	55
Age			
18-30	14 (18 %)	13 (18 %)	8 (15 %)
31-45	16 (20 %)	15 (21 %)	12 (22 %)
46-60	24 (30 %)	22 (31 %)	21 (38 %)
61-70	20 (25 %)	17 (24 %)	13 (24 %)
70+	6 (8 %)	5 (7 %)	1 (2 %)
Gender			
Female	44 (55 %)	41 (57 %)	36 (65 %)
Male	36 (45 %)	31 (43 %)	19 (34 %)
Other	0 (0 %)	0 (0 %)	0
Household			
Single	20 (25 %)	19 (26 %)	15 (27 %)
Couple	35 (44 %)	31 (43 %)	21 (38 %)
Living with children (<12)	8 (10 %)	7 (10 %)	6 (11 %)
Living with children (12+)	11 (14 %)	10 (14 %)	9 (16 %)
Other	6 (8 %)	5 (7 %)	4 (7 %)
Rural/urban			
Big town (e.g. capital, +500k)	43 (54 %)	38 (53 %)	32 (58 %)
Medium/small town	19 (24 %)	17 (24 %)	11 (20 %)
Rural (e.g. village)	18 (23 %)	17 (24 %)	12 (22 %)
Employment status			
Employed (long-term contract)	30 (38 %)	27 (38 %)	22 (40 %)
Self-employed	15 (19 %)	14 (19 %)	12 (22 %)
Employed (short-term/precarious contract)	5 (6 %)	3 (4 %)	3 (5 %)
Unemployed	5 (6 %)	5 (7 %)	3 (5 %)
Retired	19 (24 %)	17 (24 %)	12 (22 %)
Other	6 (8 %)	6 (8 %)	3 (5 %)
Education			
Less than 10 years	8 (10 %)	7 (10 %)	4 (7 %)
10–14 years (e.g. highschool diploma)	27 (34 %)	23 (32 %)	17 (31 %)
Higher education	45 (56 %)	42 (58 %)	34 (62 %)
Household net income			
Up to 1400€ per month	9 (11 %)	9 (13 %)	6 (11 %)
1401–3000€ per month	29 (36 %)	27 (38 %)	24 (44 %)
More than 3000€ per month	42 (53 %)	36 (50 %)	25 (45 %)

urgent priority. In a landmark decision, the World Health Organization's (WHO) Regional Office for Europe declared the climate crisis and its associated extreme weather events a public health emergency in July 2023 (Copernicus, 2023). The health effects of climate change occur through both direct and indirect pathways, as exemplified by the COVID-19 pandemic where human intrusion into wildlife habitats and risky zoonotic diseases research most likely triggered a global health emergency. Scholars have argued that greater attention should be given to these complex interconnections. However, analysing these more elusive indirect impacts is challenging—not only because of their complexity, but also because social, political, economic, and other drivers of harm are often hard to quantify (Whitmee et al., 2015, p. 1976). To address this challenge, this article uses qualitative longitudinal data collected during the pandemic in Austria to better understand how people experience the socio-political-economic drivers of climate impacts on health. Drawing on environmental health, Planetary Health, and Indigenous scholarship, it examines the conceptual implications of understanding health amid climate change from a global minority context—ultimately concluding that safeguarding and promoting health under these circumstances raises questions about the kind of systemic political change required.

2. Methods

Our data comes from the multinational research consortium 'Solidarity in times of a pandemic', short SolPan(+), which explored people's perceptions, experiences and challenges during the COVID-19 pandemic in 10 European and 12 Latin American countries (Zimmermann et al., 2022). Qualitative, semi-structured, in-depth interviews were carried out in three phases: in April and early May 2020 (T1), in October and early November 2020 (T2) and in October 2021 (T3). For the present

analysis, we focus on a total of 209 interviews conducted in Austria. In the first phase, 80 participants were interviewed; 72 of these were re-interviewed in the second phase, and 55 were interviewed again in the third phase. Interviews were conducted by the 'Solidarity in Times of a Pandemic' Austria team involving up to 20 researchers—not everyone was involved in each step—at diverse stages of their career and handled as research commons.

The analysis for this article was conducted collectively by all three co-authors, with the first author taking the lead in developing the empirical data and suggesting interpretations. Our topic guide featured open-ended questions on the challenges people faced during the COVID-19 pandemic (SolPan Consortium, 2021b). We did not include questions about people's perceptions of the link between climate and health, but began exploring the topic in depth when participants raised it in the context of the crisis's deeper causes. Participants were recruited through various channels, including social media, personal and professional networks through a combination of convenience, snowball and quota sampling (Bryman, 2016)—with the snowballing process beginning through recruitment via personal networks, professional contacts, and public forums. To ensure broad demographic representation, participants were selected based on criteria such as age, gender, family status, employment type, education level, household income and rural/urban living situation.

Our sample includes a diverse range of participants across demographic categories such as gender, age, household size, urban versus rural residence, and employment status, as shown in Table 1. The sample shows a bias in educational levels (with over 50 % of respondents possessing higher education degrees), and a second bias in household

income (as more than half of respondents reside in households with disposable incomes exceeding €3,000, while just over 10 % report incomes below €1400).⁶ Aware of these biases, we paid particular attention to achieving theoretical saturation—the point at which further data collection yields no additional insights (Charmaz, 2014)—to ensure perspectives from all demographic groups were adequately captured. While the sample biases described above may have caused us to miss some subtle nuances, the overarching patterns of how participants became aware of the connections between health, nature, and politics were consistent across all demographic groups. All interviews were conducted online via online portals with audio functions only or by telephone (cf. Oxford Academic, 2024). The study was approved by the ethics committee of the University of Vienna (reference number: 00544).

Interviews were audio-recorded, transcribed verbatim, and coded using ATLAS.ti Cloud software. We identified relevant passages based on a coding scheme developed by a dedicated group within our consortium (SolPan Consortium, 2021a), where interviewees talked about the relationship between the environment, climate, and health during the COVID-19 pandemic. We also did an additional more targeted word search and held regular meetings where we discussed our findings to ensure that co-authors interpret phenomena similarly and to maintain high inter-rater reliability. We analysed these passages inductively, inspired by the Constructivist Grounded Theory approach (Charmaz, 2014, p. 7; cf. Charmaz, 2012). The constructivist orientation of this theory emphasises the need for continuous reflection by researchers and the consideration of different interpretations of the data, without assuming a singular ‘correct’ interpretation (Clarke, 2012; Charmaz & Belgrave, 2019). This process of reflection throughout our analysis allowed us to understand the broad contexts of COVID-19, environmental and climate crises—and their significance for health implications—as raised by interviewees. By considering this broad range of contextual factors, we were able to crystallise a multidimensional understanding of health in the context of climate change from our data.

The use of abbreviated interview codes to reference quotes allows readers to identify the interview round and the respective interview. This information includes T1 for interviews conducted in April 2020, T2 for those in October 2020, T3 for those in October 2021, the abbreviation of the country (AT for Austria) and the interviewer’s initials along with the interview number.

3. People’s perceptions during COVID-19 in Austria

3.1. The pandemic as an incision: where do we go from here?

At the beginning of the pandemic, many interviewees expressed their amazement at how nature was recovering around them. Their observations of how the human impact on the planet came to a brief halt in March 2020 made them realise that change was possible: they saw COVID-19 as an opportunity to envision a more sustainable future and wondered how a climate-friendly recovery could make this happen.

The initial recovery of the sea, air, and wildlife during the pandemic’s early months left a lasting impression on most interviewees. A man over seventy, who lived in the countryside, eloquently described his sense of wonder:

When I look outside, there is this bright blue sky, there are no planes, no contrails or anything up there. Fascinating, isn’t it? Or the birdlife

here, even though we [generally] have very clean and good air and everything, but [the difference it makes,] it’s so incredible! Every metre there, yeah, [you can see] the vegetation, the birdlife, everything ... It just seems like the whole planet is kind of breathing a sigh of relief, isn’t it? And you also hear that from various reports, you hear what’s going on, and how fast the sea is recovering and so on ... right? (T1 AT LS05)

A young woman living in an urban area expressed a similar viewpoint, describing the initial months of the pandemic as “at least a brief respite for the planet” (T1 AT KP03). This sentiment was widely echoed among participants, prompting reflections on how this moment of relief for nature could be extended in the post-pandemic phase.

Several respondents expressed concern about what a climate-friendly recovery from the COVID-19 crisis might look like. As early as March 2020, they articulated fears that a failure to prioritise climate action in the post-COVID-19 era could result in catastrophic consequences. A woman in her sixties living and working in a big city on a high income said that:

My big fear is that all the money being printed now will not be invested in a climate-neutral [recovery]. (...) So once again, the most climate-damaging technologies or industries [e.g., aviation corporations] get the biggest slice of the cake. Well, and if Corona has already unhinged us like this, then we should imagine what will happen when it really is two and a half, three degrees more, right? Then we’ll have completely different problems, won’t we? (T1 AT CH03)

People across all social strata were hopeful when they witnessed the temporary relief for the natural environment during the pandemic: they believed this could be a turning point for meaningful change, raising awareness of our interdependence with nature beyond the initial phase of the pandemic. One respondent sensed an emerging collective will to explore alternative paths in response to the new situation. A man in his sixties from a small town, with less than ten years of formal education, remarked: “Now there are so many different ideas, the ideas to turn this force that there is now into the positive” (T1 AT BP11). Another middle-aged woman living in the countryside with her children asked,

Where do we go from here? Do we truly seize the opportunity as a community and not simply return to business as usual? Or do we revert to the familiar, even if it wasn’t, well, let’s say, what we had envisioned? For me, the truly exciting question is: Where is the majority of society heading? (T1 AT KK07)

In the first months of the pandemic, people marvelled at the blossoming of nature both in its literal and metaphorical senses. This striking experience—attributed to a temporary reduction in human interactions with the natural environment and referred to by some as the Anthropause (cf. Rutz et al., 2020, Young et al., 2021; Fiske et al., 2024)]—triggered considerations for a more sustainable future. It made people feel that change is possible and encouraged them to think about what kind of climate-friendly recovery would be desirable.

3.2. Contemplating the root causes of the COVID-19 pandemic

As people pondered where society was heading in light of the pandemic, they gradually began to see shared root causes of the COVID-19, environmental and climate crises. This eventually culminated in a sense that human health is embedded in broader dynamics of animal, environmental, and planetary health—and that recognising and addressing these interconnections is crucial to designing effective political responses to today’s global challenges.

In the first 18 months of the pandemic, interviewees began to perceive shared root causes of overlapping global crises. They expressed fears that the way humans treat nature at a planetary scale would lead to further global health crises, with the transmission of the SARS-CoV-2

⁶ The sample shows only minimal differences between T1 and T2 (which are only a few months apart, while T2 and T3 are separated by a year). Between T2 and T3, there is a noticeable decrease in the number of men, people aged 41 to 60 and high earners (with a monthly income of more than €3000), with these groups potentially overlapping. The gender distribution at T3 shows a predominance of women, who make up 65 % of the sample, compared to 34 % men.

virus from bats to humans seen as just one example of the increase in vector-borne diseases. A woman in her 30s living in a city with a high-income expressed her thoughts as follows:

I mean, since this bat [seems to have transmitted the SARS-CoV-2 virus, and] (...) with the other crises it was also some animal, and there are still many animals that can pass something ... I'm increasingly worried that (...) more crises could come because of globalisation and the way we treat nature. So, I don't think this was the last one that will affect us. And then you think that somehow there has to be a change of perspective. And I don't have any particular knowledge of biology or anything—I don't know—but I think that somehow, we have to start here. (T1 AT CH07)

This interviewee feared that the underlying causes, including humanity's treatment of the planet and globalisation, would trigger further global health crises in the future—expressing the belief that a new perspective is needed to understand, tackle and overcome these challenges. Respondents thought that society needed to learn from the COVID-19 crisis to address the climate crisis, environmental challenges, and their associated health impacts. A middle-aged woman living in the countryside with higher education (currently unemployed and living on a low income) was concerned that “this [COVID-19] crisis could make other crises invisible” (T1 AT KK02). A man in his sixties, residing in a small town with a high income, noted that we have now seen “if we want to be determined as humanity, [we have seen and been surprised by] what we can do, right?” (T1 AT KP01).

People wondered how best to navigate the health challenges posed by multiple concurrent crises, namely the COVID-19, the environmental, and the climate crises. Recognising the need for a more sustainable post-COVID-19 future, nearly all respondents emphasised the importance of their individual travel behaviours. A young man from a small town proposed restricting non-essential air travel and recalled Venice's pre-pandemic initiative to limit cruise ships. He highlighted the positive environmental changes observed during the early phase of the pandemic, when cruise ships were absent from Venice (T1 AT EW08). Many participants believed that changes in personal habits needed to be coupled with political measures to ensure a sustainable post-COVID-19 future. For instance, they advocated for free public transportation to reduce pollution from congested highways and its associated health effects, while also calling for more comprehensive regulation of mobility, food systems, and supply chains. However, most felt that neither altering individual behaviours nor implementing isolated policy measures alone would be sufficient to address the emerging environmental health challenges. There was a strong sentiment that systemic changes were the only way to tackle the challenges emerging from these multiple concurrent crises. Often pointing to the rapid pace and expansive resource-intensive nature of societal trajectories, participants emphasised the critical need for systemic changes to ensure lasting environmental improvements. Yet many were pessimistic about the likelihood of such changes occurring, as expressed by a young woman with a high formal level of education and a middle-range income: “[I wish] that the COVID-19 pandemic would lead to a systemic change, a rethinking of the economic system, but I don't think that will happen. I would like that to happen, but I don't really expect it.” (T1 AT WS06).

In this sense, COVID-19 was seen as a potential catalyst for significant systemic changes that had long been advocated in the context of the climate crisis. Several people grappled with the question of how to reorient the economy to facilitate a global climate-friendly recovery from the COVID-19 crisis. For many, air travel served as a symbol of the interconnectedness between the COVID-19 and the climate crisis, as it contributed to both the exacerbation of climate change through CO₂ emissions and the worldwide spread of the SARS-CoV-2 virus. Contemplating the necessary structural changes for such a recovery, a retired man in his 60s, who lived in a small town and had a high income, referred to the European Union's approach of linking COVID-19 aid for Spain to climate targets (for Spain's Recovery and Resilience Plan

approved on 13 July 2021, see [EC, 2024](#)). He hoped that Austria could pursue a similar strategy:

[I think it is good] that they are trying to instrumentalise Corona, the relief funds and everything, to bring in climate protection (...) [and] to go in a new direction with the investments. I think the EU is trying to do that. But we will see, yes, whether the President of the European Commission will achieve that. It's incredibly difficult to say; it's not an easy task either. (T2 AT MP02)

As people began to reflect on the kind of systemic transformations needed, they embarked on a reflexive journey concerning the intricate interdependencies between people, nature and health—and eventually began to view the widespread failure to recognise the interdependence of all living and non-living beings as the main driver of the climate, environmental, and COVID-19 crises. In October 2021, our respondents started to refer to how changing environmental and climate conditions pose new challenges to human health. A 41-year-old woman with a high income living in an urban area said that this would probably not be the last pandemic they would experience, explaining that:

Especially in terms of the environmental climate and so on, [in the context] of all these changes, it's clear that new diseases or new disease patterns or new pandemics can come out of this. I believe this will probably be, in my case, the second half of my life, hopefully not to the extent that it has been in the last year and a half. But I think there will certainly be much more to come, or new diseases will emerge that we don't know about yet. (T3 AT SE03)

Air quality was also raised as a health risk closely intertwined with changes in Earth's climate. A pensioner in her 60s, living in a big city on a high income, argued that deteriorating air quality poses a significant threat to human health warranting heightened attention in public conversations. She contended that health impacts of climate and environmental change were side-lined during the COVID-19 pandemic and urged for greater consideration of these aspects:

But you have to give people this basic knowledge. And also realistic risk assessments, so how to deal with risks, which risks are really [out there] (...) Particulate matter, nobody is afraid of that, a lot more people die from that than from a vaccination. I once had a discussion with someone who approached me about this, he was also an anti-vaccinationist ... And I asked him if he had ever thought [about the fact] that particulate matter could cause him to develop asthma prematurely and lose years of his life. And he looked at me and said it was all too complicated. But he wasn't ranting about vaccination anymore, well, I think that's where you have to start. (T3 AT WS07)

As interviewees began to see how their personal health was linked with the collective wellbeing of humans, animals and the environment, they underscored that neglecting these interconnections was at the root of global crises such as the COVID-19 pandemic, the environmental crisis, and the climate crisis. They particularly highlighted how environmental health risks affected people differently, stressing the need to address the unequal distribution of such health impacts. A middle-aged woman living in a big city said that both the COVID-19 pandemic and the climate crisis had a disproportionate health impact on children and young people, which are often considered to be “the generation that is supposed to make things positive” (T3 AT SE04). In addition to inter-generational inequalities, concerns about globalisation, global divides and the associated health risks were also frequently raised. A retired man in his sixties, living in a small town with a high income, expressed worry over the lack of investment in research on viruses affecting populations in other places, such as in Africa.⁷ He noted that, in the context of a changing climate, these viruses could also more readily spread to other regions (T2 AT CH02). Another woman, who had warned as early

⁷ The respondent here referred to Africa as a continent.

as March 2020 that neglecting climate action in the post-COVID-19 era could lead to catastrophic outcomes, reinforced the importance of international solidarity in addressing the climate crisis a year and a half later. Without it, she cautioned, “it won’t be the pandemic that kills us, but the massive climate catastrophes that will drive us into the ground” (T3 AT GS01).

Against the backdrop of the unevenly distributed impact of climate change on health, a political strategy was considered essential to save the situation. A middle-aged man with a medium-level income said that it would be necessary to move away from short-term party-political goals and to pursue proactive, courageous and timely political solutions (T3 AT BP04). This might be a timely moment to shift from merely party-political goals towards a new political pathway, as “perhaps part of the population is now [post COVID-19] more willing or easier to convince to live in a more climate-friendly way” (T3 AT BP04). Interviewees emphasised the need for more exchange between citizens and political decision-makers. Instead of placing advertisements in newspapers, politicians should engage more directly with the public outside the traditional parliamentary setting. In the words of a middle-aged man (also quoted above), they should “just reach out to the people and do information politics [about environmental and climate-related health risks] by holding events directly with them” (T3 AT BP04).

A comprehensive strategy to tackle the health challenges posed by changing environmental and climatic conditions was deemed essential. A retired woman (who lived in the countryside and had a high income) expressed a mix of hope, surprise and ambivalence at the realisation that “a virus had to come along to allow restrictions on societal processes that would have made sense [a long time ago] to protect the same society.” (T3 AT GS06). Another woman also of middle age (residing in a rural area with a moderate income) remarked:

In essence, I would like to see politicians, yes, oh yes, politicians putting politics to one side. The most crucial aspect now is not politics per se, but genuinely health [in a changing climate]. (...) That

would be my wish, so to speak, for them to rise above politics as usual. So that’s what we want from politicians. (T3 AT SE06)

Our interviews showed a prevailing sentiment that human-nature interactions are at the core of today’s concurrent global crises: during the first 18 months of the pandemic, many viewed the failure to recognise the interdependence of all living and non-living beings as the root cause of the COVID-19, environmental, and climate crises. In this context, the complex interactions between ecological dynamics, animal health and human well-being were increasingly recognised, with participants emphasising that the resulting environmental health risks needed to be addressed through systemic changes. Interviewees described in detail how these concurrent crises are rooted in human-nature interactions that are further embedded into broader social, political, and economic dynamics unfolding over space and time. They were of the opinion that a climate-friendly recovery after COVID-19 should begin from this understanding.

4. Discussion: COVID-19 insights—the interplay of health, environment and climate

In the initial months of the pandemic, there was a lot of hope among our research participants that the COVID-19 Anthropause could trigger a more sustainable future. However, six months into the pandemic, these hopes had diminished, and respondents began to perceive a situation of overlapping COVID-19, environmental, and climate crises in Austria. Without specifically addressing these issues in the interviews, our findings were notable as they reflected how people conceptualised the broken relationships between humans and the natural environment (also later discussed as features of the Anthropocene, e.g., [Ford et al., 2022](#); [Sheehan and Fox, 2020](#); [Heyd, 2020](#)) as root causes of the current global crises. Having identified shared patterns of these crises from a global minority context, interviewees turned their attention to the interconnected dynamics between health, nature, and politics in their

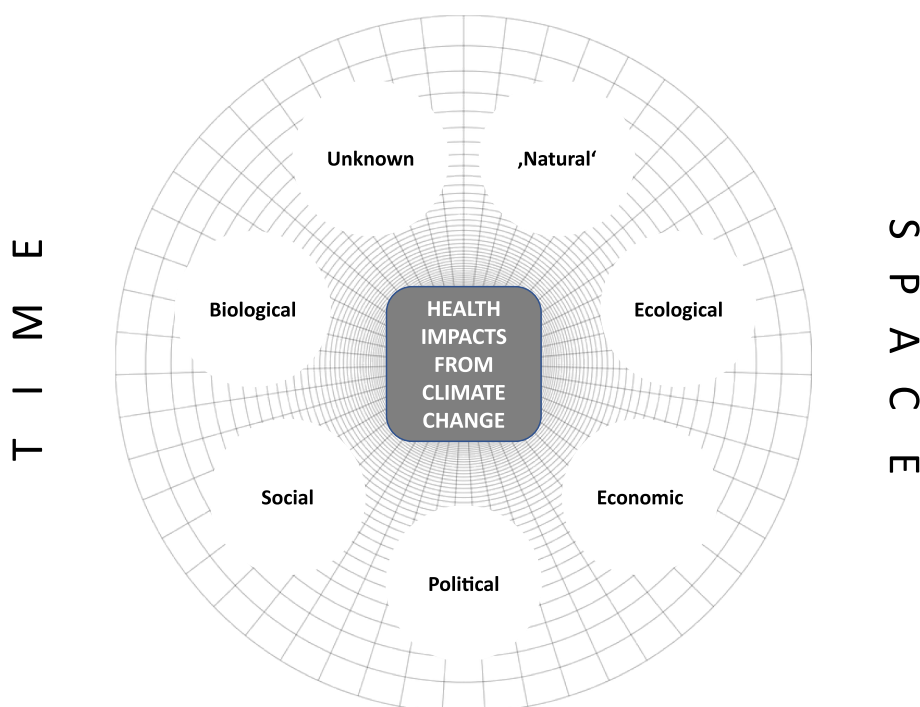


Illustration 1. Multidimensional understanding of health amid climate change (elaborated by authors⁸).

⁸ This illustration will also be published in [Radhuber et al., 2025b](#) (forthcoming).

daily lives.

4.1. A multidimensional understanding of health amid climate change

Our empirical findings show how the pandemic increased awareness for many of the intricate relationship between climate, environment and health. Understanding health in the context of climate change draws attention to the ecological processes that affect the well-being of all living species. Tănăsescu (2022) uses the term ‘Ecocene’ to refer to an era that is no longer solely about humans, but about accommodating, making peace with, and negotiating with everything that is non-human; a view that aligns with Indigenous epistemologies emphasising the interdependence among all beings (e.g. Dwayne, 2010; cf. Elliott-Groves et al., 2020; Todd, 2015, 2016; Watts, 2013). This shift in focus away from humans and towards ecological processes is the broader context in which public health is being sought—and it could potentially invite to expand the World Health Organization’s current definition of health as “a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity” (WHO, 1946; see also the organisation’s focus on climate and health, WHO, 2014; WHO, 2021a; WHO, 2021b). An expanded definition could draw inspiration from Indigenous knowledges on the role of non-human beings and discussions of environmental determinants of human health, ecological determinants impacting both human and planetary wellbeing, and planetary determinants influencing the state of the entire planet (Redvers et al., 2021; cf. The Lancet, 2023; Campbell-Lendrum et al., 2023). It would align with Indigenous knowledges on undoing the colonially shaped notion of human-nature divides, with calls from One Health and Planetary Health scholars to “expand the realm of public health to include how we manage our planet’s natural systems” (Myers, 2017, p. 2866; Redvers, 2021; Todd, 2016; Watts, 2013) and is further supported by our findings of how environmental change became a pressing health concern for people during the COVID-19 pandemic.

Research participants expressed a multidimensional understanding of health that resonates with many Indigenous multidimensional conceptions of well-being (e.g. Elliott-Groves et al., 2020; Sterling et al., 2020). Recognising the connections between health, climate and the environment, participants articulated a multidimensional understanding of health from a global minority context and contemplated the systemic changes needed to address these interconnections. Participants expressed concern that deteriorating environmental conditions will most likely lead to increasing health impacts in the future, such as more pandemics, vector-borne diseases, air quality problems, etc. These qualitative accounts moreover provide detailed descriptions of how such health outcomes are embedded within specific social, political, and economic contexts, exemplifying what Butler (2024, 2018; 2014) has termed tertiary health impacts of climate change. To support such a more integrated conception of health and climate, we propose the use of a map (see Illustration 1) to capture how ostensibly ‘natural’, biological, ecological, social, political, economic, and previously unknown thematic dimensions may not only add up but also interact with each other.⁹ Such interactions can amplify, cushion, or mitigate the health impacts of environmental/climate change across time and space, showing that health impacts occur in the past, present, and future, are influenced by factors that overlap with short-term, ongoing, and long-term issues, and vary across different geographical scales, from

⁹ For example, health status, mental health, ecosystemic changes, inequality, economic hardship, food insecurity, and infrastructure breakdown are closely interconnected. Ecosystemic changes can harm physical health, which then affects mental well-being. These health impacts are made worse by issues like food shortage, resource scarcity, and failing infrastructure. Social practices—such as encroaching on wildlife habitats, destroying natural ecosystems, or the global elite’s high levels of mobility—can either worsen or ease these problems.

local to global.

Linking back to longstanding Indigenous thought, the map we propose extends insights offered by Health-In-All policy approaches, where advocates emphasise that “the most important factors affecting health are social, economic, and environmental and that the policies affecting them typically fall outside the jurisdiction of most health departments” (Hall and Jacobson 2018, p. 364). It also expands calls from Planetary Health scholars to create “ambitious, integrated policies to address the social, economic, and environmental determinants of health” (Whitmee et al., 2015, p. 1978; cf. Görg et al., 2023). A multidimensional understanding could then help grasp how myriad health determinants not only complement each other, but also interact to influence, amplify, or mitigate the effects of climate change on health across temporal and spatial boundaries. It can offer valuable guidance for researchers by structuring debates around how ‘natural’, biological, ecological, social, political, economic and other dimensions add up, overlap and interact in shaping such impacts across temporal and spatial boundaries—helping to identify existing knowledge and pinpointing research gaps. It can also lay the groundwork for more integrated political action by ensuring that solutions are not confined to single policy fields but extend across different areas in an integrated or coordinated manner to address climate and health challenges simultaneously.

4.2. Political action to repair broken relations

Our findings challenge dominant human-nature divides in Austria during COVID-19 by foregrounding a multidimensional understanding of health. Such a wider understanding of health as the central frame of ‘risk’ is aligned with people’s views, experiences and challenges during the pandemic. It underscores current efforts to ‘dehumanise the Anthropocene’ (Todd, 2015) by deconstructing underlying human-centred perspectives. Drawing on insights from global minority contexts, our analysis highlights the complex web of relationships, interactions, and interdependencies that shape the so-called age of the Ecocene (Tănăsescu, 2022). In this sense, our findings foreground the importance of addressing ‘broken relationships’ between humans, nature, and other entities—and the political action required to repair them.

Our interviewees’ perceptions of broken relationships between people, nature and things¹⁰ underlying today’s crises resonate with the ontological underpinnings of Indigenous knowledge. Indigenous scholar Donald Dwayne¹¹ articulated the concept of ‘ethical relationality’ to describe the complex web of relationships, histories, and lived experiences in which we are embedded—networks that shape our social positioning, responsibilities, and shared future (Dwayne, 2010; cf. Todd, 2015, 2016). Ethical relationality offers a valuable perspective from which to challenge entrenched human-nature divisions and explore interactions between climate and health. By foregrounding identity, origin, and responsibility, ethical relationality underscores how histories continue to shape present-day interactions and future imaginaries. Such a perspective also informs a multidimensional understanding of health in the midst of climate change, which involves recognising complex, nonlinear and indirect interactions between human and non-human entities that may involve feedback loops influencing health-related outcomes. It can further help unpack how interactions between human activities, ecological processes and non-living entities (e.g. viruses) influence health outcomes.

The COVID-19 pandemic as a collective experience of entanglement, interdependence, and relationality provides an important opportunity to

¹⁰ Drawing on Indigenous ontologies, post-humanist thinking and science and technology studies, ‘things’ refer to material objects, technologies, infrastructures, non-human and non-living entities that mediate the relationships between humans and nature.

¹¹ For example, Cajete et al. (2020) have outlined the challenge of integrating Indigenous thought in Western thinking in creative ways.

analyse the broken relationships that are at the root of contemporary crises. The interviews conducted in Austria—representing perspectives from the global minority and overrepresenting Austrians with a high income—expressed concern about the unequal global distribution of environmental health risks and the urgent need for political responses. Participants demonstrated an awareness of how global health inequities have been historically shaped by processes of violence, power, and colonialism (Affun-Adegbulu & Adegbulu, 2020; Hommes et al., 2021; King & Koski, 2020). The pandemic illustrated how converging environmental, health, and climate crises transcend geographic boundaries, affecting all of humanity while exposing deep global inequalities. Drawing attention to the disrupted relationality underpinning these intersecting crises invites a critical reflection on how we engage with each other across spatial and historical divides in a present that is intimately linked to the future. In light of today's converging crises, responses must draw on diverse ways of thinking and understanding the world. It is essential to question the relationships that create spatial divides between 'insiders' and 'outsiders' (cf. Dwayne, 2010; Todd, 2015), from the perspective of both the global majority and the global minority.

Our interviews show a great desire among those living in Austria for clear political strategies to respond to converging global crises, reflecting emerging scholarship on climate and health governance (Batawalage et al., 2023; Haas et al., 2023; Jungmann, 2021).¹² The heightened awareness of the interconnectedness between climate change, environmental deterioration, and people's health during the COVID-19 pandemic may act as a catalyst for a more comprehensive approach to addressing climate-health interactions. If the recognition of broken relationships between humans, nature, and things in Austria during the pandemic is connected to meaningful political interventions in the field of climate-health, it could serve as a powerful 'lever'¹³ to protect human health in a changing climate. While quick fixes to complex challenges such as the climate crisis have often been too weak, deep leverage points should target the deeper causes of crises in terms of "structures, values and goals that underpin complex problems at deeper levels" (Abson et al., 2017, p. 31). Identifying deep leverage points for meaningful interventions could substantially influence political strategies in the area of climate and health. Our analysis highlights several of these deep leverage points, including people's relationship with nature, the role of institutions, and processes of knowledge creation (Abson et al., 2017), which could potentially shape the paradigms that influence systemic continuity or change in an increasingly unequal world.

Our findings also speak to the significance of decolonial political action in restoring fractured relationships across time and space. Beyond the immediate scope of our empirical data, they prompt broader questions concerning the role of colonialism shaping European societies and their conditions of existence (Bhambra, 2022a). While the human-nature divide has been discussed as a colonial legacy, Indigenous scholar Dwayne moreover described colonialism as "an extended process of denying relationships" (Dwayne, 2010; Watts, 2013; Todd, 2016). While it may be an overstatement to interpret the growing awareness of the interconnectedness between people, nature, and things

as a form of decolonisation from a global minority perspective, this moment nonetheless calls for deeper reflection. As Mbembe (2021) argues, building a world in which all can live well requires confronting and repairing the ruptures wrought by colonial histories. In light of the entrenched divisions between humans and nature—and their consequences for climate and health—a "decolonial project of and for Europe" (Bhambra, 2022b) would require recognising and taking responsibility for a past that founded European societies at the expense of the lives, livelihoods and environment of others.

Urgent international climate-health action aimed at reducing emissions needs to be complemented by multidimensional strategies that prioritise rewilding, ecological restoration, and equitable land use. From a decolonial perspective, such action must also recognise the enduring significance of colonial histories, by engaging in broader processes of reparation in relation to land and bodies (Bhambra, 2022a, 2022b; Bhambra & Newell, 2023). This includes restoring relationships between humans and nature and supporting the agency of local communities who inhabit and care for affected territories.

5. Conclusion

This article started with an exploration of how people in Austria perceived the root causes of the COVID-19 pandemic. In the initial stages of the pandemic, optimism that the positive environmental changes observed during the COVID-19 Anthropause would pave the way for a more sustainable future was remarkable. But these hopes faded by October 2020 as awareness of the intertwined health challenges of COVID-19, environmental, and climate crises grew. Respondents increasingly pointed to the interdependence of all living and non-living beings. They saw the failure to acknowledge such entanglement, interconnectedness and relationality at the root of today's global crises. This culminated in the view (by October 2021) that their personal health is interconnected with the collective well-being of humans, animals, and the environment.

As respondents described a nuanced interplay of health, climate and politics in their daily lives, a perspective on how broken relationships inform current crises has crystallised among people living in Austria. Indigenous knowledge has long foregrounded the disrupted relationships between people, nature and things as the cause of converging crises. Yet in a situation such as the COVID-19 pandemic, these converging crises affected not mainly populations in global majority contexts but extended across all regions of the world. In a dialogue with conceptual work in environmental health, Planetary Health, and Indigenous scholarship, we discussed how participants framed health as multidimensionally constituted—a state influenced by 'natural', biological, ecological, social, political, economic and previously unknown dimensions across time and space. This broader perspective of health as the central frame of 'risk' can support more integrated political responses that cut across policy sectors to address climate and health challenges together.

Reiterating such a multidimensional perspective on health from a global minority context also speaks to decolonial political action, raising further questions about the need for a fair distribution of benefits and burdens between global majority and global minority countries and the need for reparatory action. Urgent international climate-health action to reduce emissions should include multidimensional strategies that prioritise rewilding, renaturation, and equitable land use—while engaging in broader reparatory processes, restoring human-nature relationships, and empowering local populations who care for these territories. It could support a "decolonial project of and for Europe" (Bhambra 2022b; Bhambra & Newell, 2023) that takes responsibility for a past that founded European societies at the expense of the lives, livelihoods, and environments of others.

¹² In prior research, we also showed how people in Argentina, Austria, Bolivia, Ecuador, Ireland, Italy and Mexico navigated the global nature of the pandemic: they moved away from national containment to an increasing focus on people's unequal socio-spatial situatedness and eventually began to describe a new normal: a growing awareness of global connectedness (Radhuber et al., 2023b).

¹³ In sustainability science, levers or leverage points are recognised as "places within complex systems (...) where a small shift in one thing can produce big changes in everything" (Meadows, 1999, p.1; cf. Abson et al., 2017, p. 30; Lang et al., 2012, p. 32). Similarly, the discussion of social tipping points explores thresholds at which small changes can have profound effects on the system (Armstrong McKay et al., 2022; Winkelmann et al., 2020; Stadelmann-Stellen et al., 2021).

CRediT authorship contribution statement

Isabella M. Radhuber: Writing – review & editing, Writing – original draft, Supervision, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Amelia Fiske:** Writing – review & editing, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Barbara Prainsack:** Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Statement

During the preparation of this work the author(s) used Chat GPT and deepl.com in order to reconfirm the wording in English. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the published article.

Ethical considerations

All procedures were performed in compliance with relevant laws and institutional guidelines and have been approved by the appropriate institutional committee. The study was approved by the ethics committee of the University of Vienna (reference number: 00544).

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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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