

Research gaps exist in links between Indigenous health and climate change

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Though matters of climate change, biodiversity loss and Indigenous Peoples' health and well-being are often considered separately, the three are linked in innumerable ways.

While people worldwide are experiencing the impacts of climate change and biodiversity losses, Indigenous Peoples are most disproportionately and acutely affected.

Recently reported [ecosystem changes](#) and impacts on biodiversity are described as extensive, severe and dramatically declining, including aquatic, atmospheric, terrestrial and most notably, cryospheric changes.

Recognizing that Indigenous Peoples' pathways to wellness exist through relationality, responsibility and kinship with the land, a team of University of Waterloo researchers set out to examine the extent, range and nature of literature on the subject.

The team's findings are [published](#) in the journal *PLOS Global Public Health*.

Identifying the threats

"A recurring thread we saw woven throughout this literature was that these impacts of climate change, they are rooted in these deep and abiding connections to places that Indigenous Peoples have," says Dr. Laura Jane Brubacher, a School of Public Health Sciences postdoctoral research fellow.

Changes to the land, as a result of climate change, include differences in species that are important for Indigenous food systems, medicines and livelihoods, with a disruption to abundance, distribution, migratory patterns and predator-prey balance. It includes marine mammals like seals, Rangifer species like reindeer and caribou, birds and fish, some of which are considered keystone species.

Records also report on micronutrient deficiencies across geographies and reveal an increase in susceptibility, and the presence of infectious and

foodborne diseases among Indigenous populations globally.

"When that place is changing so profoundly as it is with climate change, it's inextricably linked to all aspects of health and well-being—physically, mentally, emotionally, spiritually and psychologically," Brubacher says.

Overall, across geographic regions reviewed in the literature, ecological degradation contributes to changes in community dynamics and disruption of knowledge-sharing practices. Emotional and psychological challenges were also attributed to landscape changes that affect the necessary ways in which Indigenous Peoples sustain their mental, emotional and spiritual well-being—by engaging with the land.

"The literature identified the need for future climate-health research approaches to be trans- and interdisciplinary, and strengths-based, reflective of Indigenous concepts of health and well-being," says Tara Chen, a Ph.D. candidate in the Faculty of Environment. "Indigenous Peoples' pathways to wellness are place-based, inextricably tied to their lived experiences with the land and place."

What's missing?

A majority of the literature reviewed was from the Circumpolar North, though the project cast a broad, global net.

"There are a lot of geographic regions that are underrepresented in this literature, which wasn't so surprising," Brubacher says.

This indicates a need for additional studies that have a global scope, or are focused on areas beyond the Circumpolar North. There is also limited research on the health and well-being of Indigenous Peoples living within city environments.

"One of the research gaps highlighted that the gendered impacts of climate change on Indigenous Peoples' health and well-being were not discussed in-depth," Chen says. "Sex and/or gender were broadly mentioned but were not a primary focus of the research or results in our review. More research is needed that conducts in-depth gendered analyses of climate-health impacts., Particularly, considering the perspectives and experiences of gender diverse individuals as within certain cultural and community contexts, gender norms can influence different outcomes."

These differences could include the psychosocial impacts resulting from a loss of pride among men whose hunting activities are limited, or the ways in which women are at higher risk for metabolic conditions like obesity or Type 2 diabetes.

"Bringing gender and/or sex variables into the research focus will provide more depth and context to the available literature," Chen says.

The researchers urge for climate research that is embedded in partnership with Indigenous Peoples. Among the reviewed literature, only about 16% reported a high degree of involvement of Indigenous Peoples throughout the research process.

"When we think about responses to [climate change](#) and [biodiversity loss](#), engaging Indigenous knowledge systems should be considered on equal footing to the western framework," Brubacher says. "There's also a need to continue to support community-driven efforts, recognizing that there are these broader social and political constraints that affect the ability of communities to adapt and to respond."

The review suggests that broader global movements may well serve to focus on community-led efforts to address the climate crisis, using an informed, bottom-up approach.

"There are broader social and political constraints that affect the community's ability to adapt and respond," Brubacher says. "Let's elevate the voices of communities who are saying 'our place is changing.'"

More information: Laura Jane Brubacher et al, Climate change, biodiversity loss, and Indigenous Peoples' health and wellbeing: A systematic umbrella review, *PLOS Global Public Health* (2024). [DOI: 10.1371/journal.pgph.0002995](https://doi.org/10.1371/journal.pgph.0002995)

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