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Original Research

Civil society organizations and adaptation to the health effects of climate change in Canada

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SUMMARY

Background: Adaptation will be necessary to cope with the impacts of climate change on the health of Canadians. Civil society organizations (CSOs) have an important role in health adaptation, but it is unknown what actions they are undertaking.

Objectives: To identify and examine what adaptations are being developed by CSOs to adapt to the health effects of climate change based on a systematic review of the activities of 190 organizations and 1196 reported adaptation actions.

Results: There were six key findings: (1) health adaptation actions are predominantly led by environmental CSOs; (2) most actions are occurring at national and regional levels; (3) food and/or water contamination and air quality are dominant climate change stimuli for action; (4) responses predominantly reflect awareness and research activities, with limited evidence of substantive intervention; (5) consideration of vulnerable groups is limited; and (6) climate change is usually considered alongside other factors, if at all.

Conclusions: The results indicate a deficit in terms of what needs to be done for health adaptation and what is being done; part of a broader adaptation deficit in Canada. Coordinated adaptation planning at federal and provincial level is needed, involving collaboration between CSOs and public health bodies.

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Introduction

Climate change has been identified as one of the greatest health threats of the 21st Century.[1,2] Canada, as a northern latitude nation, is expected to experience pronounced climate changes with implications for health.[3,4] Changing temperature and precipitation regimes will increase the probability and severity of extreme events, including heat waves, storms and floods.[5–9] Warmer, wetter summers will affect the distribution and survival of pathogens and some disease vectors (e.g. mosquitoes, ticks),[10–18] and rising temperatures will increase the incidence of temperature-dependant food-borne diseases. Indirect effects on climate-sensitive economic sectors and more complex causal pathways will also be important, although difficult to predict or quantify.

Adaptation is an essential public health response if people are to prevent, reduce and manage climate-change-related risks.[19–22] Without such intervention, the burden of climate-

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sensitive health outcomes is projected to increase.[1,23,24] Studies on health adaptation in Canada have typically focused on government institutions with a jurisdictional responsibility for health, examining adaptations that are being implemented, barriers to responding, and policy responses needed.[25] The role of physicians has also been explored.[26,27] Unexamined in Canada and more generally, yet critically important, civil society organizations (CSOs) are also likely to have a key role in adaptation by developing social capital, promoting health and providing social services.[19,28] For example, the Canadian Red Cross provides relief to people coping with weather-related emergencies, including clothing, shelter and family reunification services;[29] and community groups collaborate with public health officials to support vulnerable populations during heat alerts.[30] This study aimed to identify and characterize actions taken by Canadian CSOs in promoting health adaptation to climate change, and examine the importance of collaboration between CSOs and public health institutions for future adaptation.

Methods

Information on adaptation actions being developed by CSOs was obtained and analysed. Civil society was defined as the separate sphere of associations existing outside of the individual, the government and business,[31,32] and organizations were deemed relevant for this study if they met this definition and had accessible online (in French or English) information on adaptation actions in which they were engaged. A three-stage process was used to identify relevant CSOs engaging in adaptation.

First, a list of potential organizations for review was compiled using expert recommendations, climate change reports,[30,33] callouts through electronic bulletins of the Canadian Network for Human Health and the Environment and the Canadian Environmental Network, and lists of organizations found during scoping searches. These sources were used to develop a broad and diverse list of potential organizations working in both health and environmental domains, working at various scales from national (e.g. membership list of Climate Action Network Canada) to local (e.g. recipient list of EcoAction Community Funding Program), and including Francophone groups (membership list of Secrétariat des organismes environnementaux du Québec) and professional associations (listed by Canadian Information Centre for International Credentials). Saturation in organizations identified by these multiple searches indicates the comprehensiveness of the database of CSOs created. Overall, 639 organizations were identified.

Second, websites of the 639 selected CSOs were screened to identify those organizations profiling health adaptation actions. Herein, health was defined as 'a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity'.[34] As per the Intergovernmental Panel on Climate Change (IPCC), climate change was defined as any change in climate over time, whether due to natural variability or anthropogenic factors.[35] Adaptation was defined consistent with Tompkins et al.[36] as adjustments by actors and institutions to real or perceived climate change impacts that enhance or reduce the ability to cope with or adapt to climate change, whether or not motivated by climate change. Following Health Canada,[4] health adaptations were defined as occurring in response to six climate change impacts: extreme temperatures, air quality, ultraviolet radiation, extreme weather events, vector- and rodent-borne infectious disease, and food- and water-borne disease. Importantly, adaptation actions did not have to be labelled 'adaptation' or explicitly recognize climate change or health; actions have the same outcome on health regardless of their description or motivation. Rather, organizations were included for analysis if at least one initiative met the criteria for relevance to climate-sensitive health stimuli and an eligible domain of health adaptation.

Finally, the websites of CSOs meeting the inclusion criteria ($n = 190$, 30%) were examined to identify and characterize specific adaptation actions. To characterize interventions being developed/implemented, each reported action was coded according to the health stimulus and response type, involvement of vulnerable groups, recognition of climate change and, if recognized, the importance of climate change in motivating the action. Coding draws upon, and further develops in a CSO context, classification typologies developed in the general adaptation scholarship.[37–39] Data on the organizational mandate and activities, level of operation and region of operation within Canada were also recorded. Descriptive and inferential statistics were conducted using Stata Version 11 (StataCorp, College Station, TX, USA). Chi-squared analysis and Fisher's exact test were used for bivariate comparison of categorical data. A detailed list of sources for determining the CSOs examined, detailed descriptions of inclusion and exclusion criteria, and further details on definitions used in the analyses are available as Supplementary online material.

Results

One hundred and ninety Canadian CSOs were identified as reporting on health adaptations. Within these CSOs, 1196 initiatives were identified. Table 1 summarizes the results.

Actions are predominantly led by environmental organizations

Active CSOs are those with a predominantly environmental mandate (79%), such as conservation and sustainable energy. Fewer than 10% of actions were associated with CSOs with an explicit health mandate (e.g. lung and dermatology associations).

Most actions are occurring at national or regional (e.g. watershed) levels

Thirty-five percent of programmes were implemented at national level, with high representation from Ontario and Quebec. These results are consistent with the population distribution across Canada, with the exception of notable action in the Atlantic provinces. Health-mandated organizations were more likely to act at the national level, while

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