Building Community Climate Change Knowledge and Resilience in Older Adults and Immigrants

2019 North American Partnership for Environmental Community Action (NAPECA)

University of Alberta, Research Services Office

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FollowUp Form

Project Title*

Building Community Climate Change Knowledge and Resilience in Older Adults and Immigrants

Quick Analysis

1) What was the single best thing that happened during the project?*

The team agreed that the collaborations between researchers, students, organizations, and communities as well as the creation of the index were some of the best things to happen during the project.

2) What was the single worst thing that happened during the project?*

It was agreed that the COVID-19 pandemic was the worst thing that happened. This resulted in unplanned study changes and delays.

3) What was the single most unexpected thing that happened during the project?*

The delay in the work related to the pandemic was the most unexpected event to occur during the project.

4) What was the single thing that could have been done to make the project more effective?*

A few different ideas were discussed, including engaging with the team and collaborators in-person, having more time for activities, and broader access to data.

5) What will happen as a result of this project during the next five years?*

We will continue to build on this work, engaging in training and research opportunities with the aim of reducing climate change health impacts.

6) Is there anything else that is important to say about the project?*

This work emphasized the need to treat climate change as a critical, time sensitive problem that requires interdisciplinary and innovative solutions.

Project Evaluation

Results of the monitoring and evaluation activities*

Please see final report (attached).

Project Summary - Part I. Description

Participating organizations and geographic location(s) of the project (a small map can be included*

Please see final report (attached).

A one paragraph background or problem statement (why was the project carried out?)*

Please see final report (attached).

A one-paragraph general description of the project (what was done?)*

Please see final report (attached).

A one-paragraph description of outcomes and follow-up (what did the project achieve?*

Please see final report (attached).

Project Summary - Part II. Analysis

Successes*

Please see final report (attached).

Challenges*

Please see final report (attached).

Lessons Learned*

Please see final report (attached).

What next?*

Please see final report (attached).

Financial Report

Financial Report*

Please see financial report (attached).

Project Products

CEC Summary and final report.pdf

Links to our online map:
https://uofa.maps.arcgis.com/apps/webappviewer/index.html?id=011ecab08e294c4d8d11b037036012bd
Link to the StoryMap: https://storymaps.arcgis.com/stories/2676a0d561ea45b681ccaa596850e570
Link to Technical report:
https://static1.squarespace.com/static/5f0e2593c3beed220e86a3d4/t/612ecb29f56b292307f94700/1630
456645221/Technical+Report_Final_SmallSize_31-08-21+%281%29.pdf
Link to User manual:
https://static1.squarespace.com/static/5f0e2593c3beed220e86a3d4/t/612e4c9cf206b708117e9d61/1630
424230653/User+Manual_Final_31-08-21.pdf

File Attachment Summary

Applicant File Uploads

- CEC Summary and final report.pdf

Project summary
August 31, 2021

Researchers:

Shelby Yamamoto, Okan Bulut, Lihani Du Pleissis, Markus Gaenzle, Preetha Gopalakrishnan, Allyson Jones, Alvaro Osornio Vargas, Charlene Nielsen, Heather Nixdorff, Haleema Pannu, Jordana Salma, Savera, McKenzie Tilstra, Ishwar Tiwari, Kyle Whitfield

North American Partnership for Environmental Community Action

Building Community Climate Change Knowledge and Resilience in Older Adults and Immigrants

About the project

Canada continues to experience warming at a greater rate than the global average (EC 2014). Edmonton, Alberta, Canada (Figure 1), located on the Prairies, typically experiences large weather swings and will likely experience an increasing number of warm nights and hot days (City of Edmonton, 2019, Smoyer-Tomic et al. 2003). Climate change is also having critical impacts on health ranging from heat-related effects to air pollution to storms. Groups such as older adults, the homeless/housing insecure, and some immigrant communities may be particularly affected for several reasons such as underlying conditions, social isolation, and hampered access to services (Hanson et al 2013, Cheng & Newbold 2010).

Figure 1: Study site Edmonton, Alberta, Canada (Awmcphee 2019)

For this project, we aimed to assess factors that contribute to experiences of health-related vulnerability in older adult and immigrant communities as a result of weather and air pollution; create an interactive community-focused mapping platform related to weather and air pollution health events, and co-design weather and air pollution knowledge mobilization tools targeted to older adults and immigrants.

Outcomes

- Development of an interactive map that illustrates potential areas of vulnerability (derived from the domains of exposure, sensitivity, and adaptive capacity) across Edmonton (Figure 2)
- Development of an accompanying user manual for the mapping platform and a technical report that presents our statistical and spatial methods
- Creation of a StoryMap that discusses the project and findings

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Collaborators

Alberta Health Services

Catholic Social Services

City of Edmonton

Canadian Islamic Centre

Edmonton Mennonite Centre for Newcomers

Edmonton Seniors Coordinating Council

Refugee Health Coalition

SAGE Seniors Association

- Exploration of climate change and air pollution knowledge and concerns among older adult and immigrant communities in Edmonton
- Establishment and fostering of community collaborations
- Development of an extreme weather and air pollution photo exhibit discussing health effects and climate change adaptation with English, Urdu, and Hindi captions and voice recordings
- Creation of an infographic on climate change adaptation aimed at homeless/housing insecure populations
- Development of a video discussing the weather in Edmonton, air pollution, how to dress appropriately for the weather, health concerns related to weather and air pollution, and tips on how to safely enjoy outdoor activities
- Generation of reports and presentations for various audiences
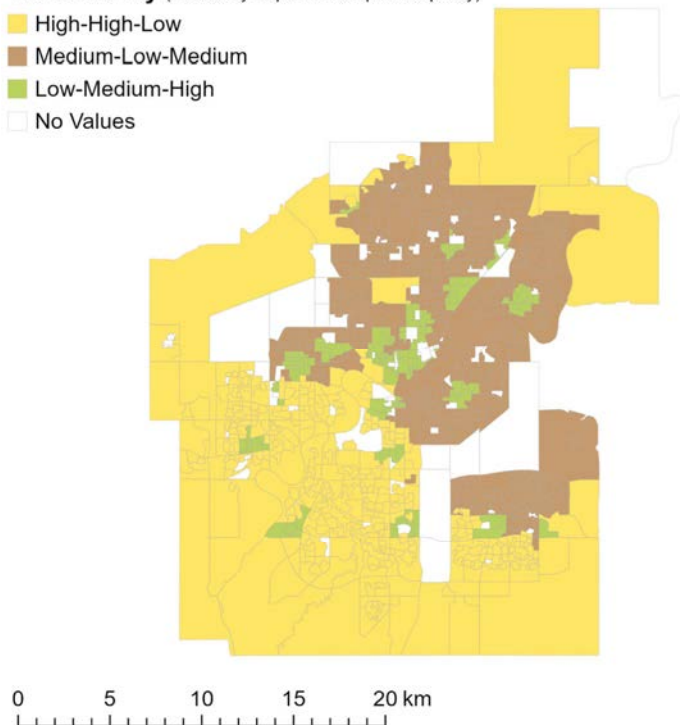

Figure 2: Vulnerability index map of Edmonton for older adults and immigrants (Yellow: high sensitivity, high exposure, low adaptive capacity; Brown: medium sensitivity, low exposure, medium adaptive capacity; Green: low sensitivity, medium exposure, high adaptive capacity; White: no values)

Successes, challenges, and lessons learned

Several successes emerged in relation to this project:

1. Engagement with participants, researchers, the City of Edmonton, community organizations, and other

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stakeholders around the issue of climate change, air quality, and health

2. Generation of research at a local level that identifies potential areas of health-related vulnerability to climate change, which can inform public policy
3. Fostering of ideas around the mitigation and adaption of climate change health effects, particularly in higher risk populations such as older adults and some immigrant communities (Figure 3)
4. Promotion of the issue of climate change and health and the need to consider differing risks across populations
5. Expansion of this work through further collaborations, ideas, feedback, and funding

One of the most critical challenges faced during this project was the emergence of the COVID-19 pandemic. The uncertainty and diversion of resources delayed aspects of our project and restricted some of our planned in-person activities. This led to several lessons learned for future work, including the:

- Importance of establishing and maintaining connections with older adults and immigrant populations through creative means
- Significance of regular team meetings and communication in maintaining project momentum, achieving milestones, and overcoming challenges
- Importance of building onto existing infrastructure to promote project continuance and growth

Figure 3: Prior work: Walking program established with immigrant seniors (Photo: Yamamoto 2019)

What's next

The next steps for this project involve its scale-up to the rest of the province. The team received funding from the Public Health Agency of Canada to develop this work into a climate change and health surveillance tool for Alberta that will also include other potentially higher risk groups, including pregnant women, children, and those with dementia.

BUILDING COMMUNITY CLIMATE CHANGE KNOWLEDGE AND RESILIENCE IN OLDER ADULTS AND IMMIGRANTS

FINAL REPORT

QUICK ANALYSIS

What was the single best thing that happened during the project?

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What was the single worst thing that happened during the project?

It was agreed the COVID-19 pandemic was the worst thing that happened. This resulted in unplanned study changes and delays.

What was the single most unexpected thing that happened during the project?

The delay in the work related to the pandemic was the most unexpected event to occur during the project.

QUICK ANALYSIS

What was the single thing that could have been done to make the project more effective?

A few different ideas were discussed, including engaging with the team and collaborators in-person, having more time for activities, and broader access to data.

What will happen as a result of this project during the next five years?

We will continue to build on this work, engaging in training and research opportunities with the aim of reducing climate change health impacts.

Is there anything else that is important to say about the project?

This work emphasized the need to treat climate change as a critical, time-sensitive problem that requires interdisciplinary and innovative solutions.

PROJECT EVALUATION

Objective 1.1

Create a secure, user-friendly, updatable, accessible, interactive, anonymized web-based platform ArcGIS Online (cloud-based) to host maps of vulnerability indices

An interactive, secure, web-based platform to host maps based on a vulnerability index (comprised of the domains sensitivity, exposure, and adaptive capacity) has been created. The platform has been pilot tested by stakeholders from the City of Edmonton and feedback has been provided. A challenge that arose during the development of the project was facilitating updates to the platform. Several different approaches were trialed to build the index. Unfortunately, replication of the analyses needed to update the index is not as straightforward as had originally hoped. The team continues to work on this issue and will update the user and technical manuals as new approaches emerge.

Objective 1.2

Develop a query function for the web-based platform for community-level vulnerability indices and individual components of community-level vulnerability index.

A query approach was developed using ArcGIS online, which allows the user to view the composite vulnerability index and individual domains of the index (exposure, sensitivity, adaptive capacity) by clicking on different map layers in the platform. Color gradations represent variations across the city. The finest spatial resolution used in the mapping is the dissemination area, geographic units of approximately 400 to 700 people used by Census Canada. Users can zoom out of the maps to visualize index values by neighborhoods, which can include several dissemination areas.

Objective 1.3

Generate descriptive statistics (e.g. scatterplots, bar charts) associated with the vulnerability index and individual components of the vulnerability index, based on current data

A comprehensive set of descriptive statistics has been generated on the individual components of the domains of the index (e.g., proportion of green space), the domains (exposure, sensitivity, adaptive capacity), and the composite vulnerability index. Graphs, figures, and tables with descriptive statistics can be found in the appendix of the Technical Report.

Objective 1.4

Create user manual for interactive, web-based platform for stakeholders

A user manual has been created to accompany the index and platform. The user manual was circulated to the team and the City of Edmonton. The user manual contains a brief introduction to the platform, a link to the StoryMap that describes our work and findings, and map navigation instructions.

Objective 2.1

Form knowledge mobilization team built from existing and new collaborations

We were able to form a knowledge mobilization team that kicked off activities in December (2019). Representatives from the University of Alberta, Seniors Coordinating Council, Al Rashid Mosque, and the City of Edmonton were in attendance. However, a challenge during the pandemic was the continued engagement of stakeholders, including older adult and immigrant participants. Representatives from older adult and immigrant communities were consulted during the development of the the knowledge mobilization tools (see Objective 2.3).

Objective 2.2

Perform knowledge-gap assessments and evaluate knowledge mobilization preferences with selected, diverse stakeholders and communities.

Six recorded focus group discussions (two in-person and four online) with 36 older adult and/or immigrant participants were conducted. Focus group data has been analyzed and themes extracted. It was determined that additional follow-up data to validate the results is needed. Additional focus group discussions will be held in September (2021). Data will be written up as a manuscript and submitted for publication. Ideas for knowledge mobilization tools were generated through literature searches and discussions with immigrant, homeless, and older adult communities. Three knowledge mobilizations tools were generated that targeted these populations.

Objective 2.3

Co-develop (with knowledge mobilization team) fact sheets and videos on adaptation to extreme weather and air pollution events in older adults and immigrants. Include community level/individual level strategies to mitigate impacts on health and safety.

Three knowledge mobilization tools were developed for this project. The tools are in different formats to increase dissemination, accessibility, and reach. They include a photo exhibit, an infographic, and a video. The photo exhibit is aimed at older adults and members of the South Asian community. The photo exhibit includes written captions in English, Hindi, and Urdu as well as English audio. The photo exhibit was co-designed with an older adult member of the South Asian community and piloted by two other members of our South Asian community. The photo exhibit is also available on Facebook as this was mentioned as a medium accessed by older adults.

An infographic was developed to summarize adaptation measures for homeless and housing insecure populations in Edmonton. The work was developed with feedback from an organization that works with homeless populations and a researcher from the Centre for Addiction and Mental Health (Toronto) who focuses on housing insecure populations. We are currently revising the tool and plan to pilot it with different organizations.

A video was developed around coping and enjoying the weather in Edmonton. Video topic ideas were solicited from older adult and recent immigrant community organizations. The video includes a discussion about issues around weather in Edmonton, air pollution, how to dress appropriately for the weather, health issues related to weather and air pollution, and tips on how to safely enjoy outdoor activities. The video was circulated to the team and other stakeholders for feedback.

Objective 2.4

Pilot knowledge mobilization tools using focus groups and surveys among older adult and immigrant groups in Edmonton during the scheduled Stakeholder Engagement Day

The team invited stakeholders from several community organizations to participate in the Stakeholder Engagement Days workshops held on April 28th and 29th, 2021. Representatives from non-profits and City of Edmonton departments attended and provided valuable feedback on the knowledge mobilizations tools and the early results from our analyses. Feedback on the tools was also solicited at different time points during development. Stakeholders provided critical information about clarity, accessibility, and usefulness of the content. Feedback was incorporated into the tools.

Objective 2.5

Dissemination of findings to funders and selected stakeholders

Final reports have been shared with funders, stakeholders, and shared on our website. This work has been presented at several national and international conferences, during the Stakeholder Engagement Days, and at the Alberta EcoTrust Conference.

Final financial report for Building Community Climate Change Knowledge and Resilience in Older Adults and Immigrants

Table 1. For the payment period of July 1, 2021 to August 31, 2021

	Current amount ($ CAN)	Cumulative amount to date ($ CAN)
Advance payment received from the Commission	0.00	141,000.00
Expenses		
Salaries and benefit	32,460.43	131,035.58
Meetings	0.00	290.00
Travel	2,102.75	2,102.75
Equipment and supplies	224.36	643.72
Consultants	0.00	711.00
Communications/Publications	0.00	0.00
Administrative expenses	1,825.64	20,216.95
Total expenses:	**36,613.18**	**155,000.00**
Balance (cumulative advance payment less total expenses)		**-14,000.00**