Relations Between Urban Form and Health: A Focus on Canadian Evidence

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INTRODUCTION

- In Canada, approximately 34% of adults have at least one of the five major chronic diseases (cancer, cardiovascular diseases, diabetes, chronic respiratory diseases, mood/anxiety disorders).[1]
- Land use patterns, urban design characteristics, and transportation systems are associated with the public health of communities and cities.[2]
- Country-specific literature reviews on the association between urban form and health outcomes are scarce.[3]
- Generating local evidence with stakeholders and decision-makers is just one approach for the development of land use and transportation policies for a health-supportive environment within the Canadian context.[4]

OBJECTIVE

- To synthesize evidence from quantitative studies that have investigated urban form and its associations with modifiable health conditions, self-reported health, quality of life, and injuries in the Canadian adult population.

METHOD

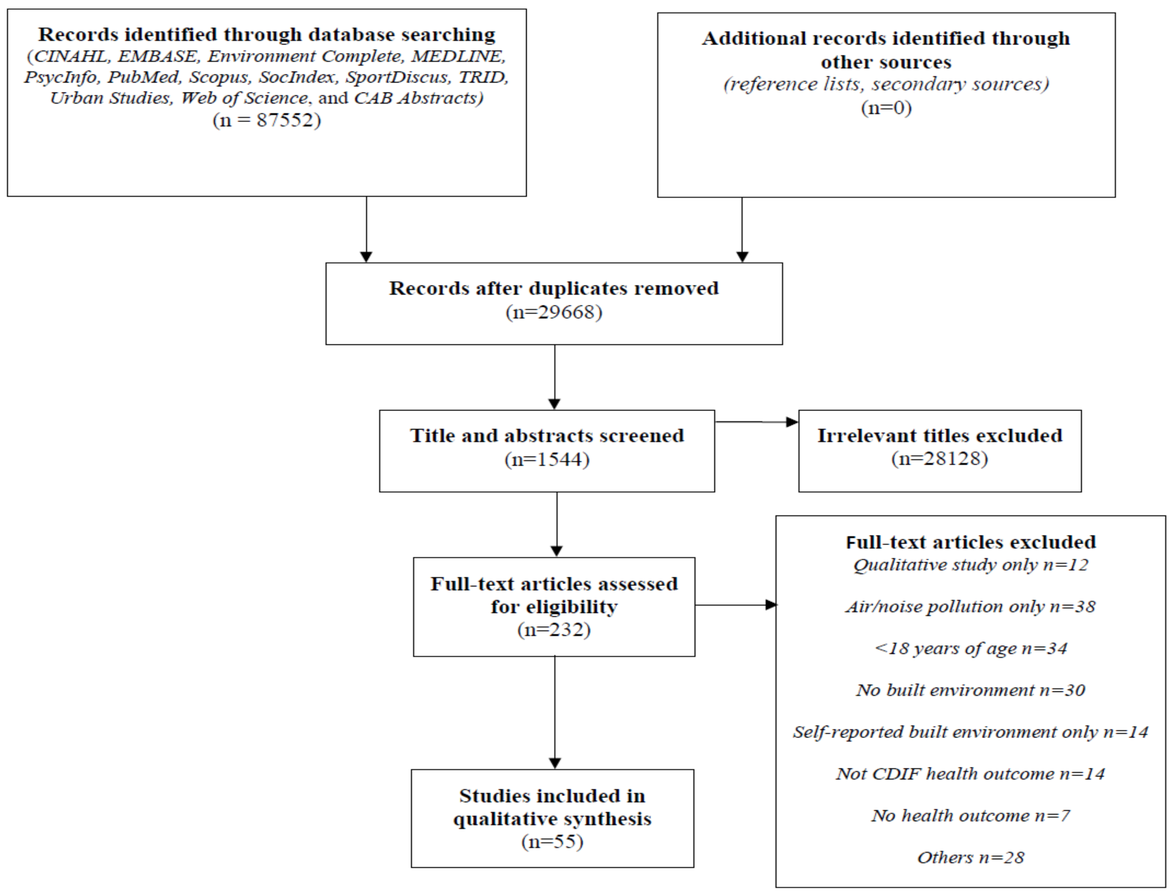
- A Scoping Literature Review.[5 6]
- 28 urban form, 29 health, and 14 Canadian geography search terms were generated.
- 13 scientific databases search (*CINAHL, EMBASE, Environment Complete, MEDLINE, PsycInfo, PubMed, Scopus, SocIndex, SportDiscus, TRID, Urban Studies, Web of Science, CAB Abstracts*).
- **Inclusion criteria:** quantitative or mixed-methods studies; age ≥18 years, Canadian sample, and; estimated an association between an objective measure of the urban form and a health outcome.
- **Exclusion criteria:** rural samples; pollution was the only exposure; self-reported urban form only; children; focus on health behaviours only.
- Article references, literature reviews, and Canadian peer-reviewed journals were screened.
- Article findings were categorized based on 11 health outcomes[7] and 7 groupings of conceptually similar built characteristics.[2]
- Included a narrative qualitative description of study differences and similarities in terms of urban form, chronic disease and injury, methods, and findings.

STUDY COUNT BY URBAN FORM AND HEALTH OUTCOME

BUILT ENVIRONMENT CHARACTERISTIC	Cancer	Cardiovascular Disease	Weight Status	Depression/ Anxiety	Diabetes	Injury	Metabolic Conditions	Mortality	Quality of Life	Self-Rated Health	Aggregate Chronic Conditions
Aggregate index (e.g. walkability)	0	1	8	0	3	1	0	0	1	0	0
Route characteristics	0	0	5	0	1	19	0	0	0	0	0
Traffic	0	3	0	1	0	4	0	0	0	0	0
Greenness, parks, recreation	1	2	2	4	1	2	1	1	0	1	1
Land use and destinations	0	1	4	4	1	4	0	1	0	1	1
Food environment	0	3	9	3	1	0	1	2	0	0	0
Population and dwellings	0	1	5	0	2	3	0	0	0	0	0

Note: A study can investigate more than one built environment characteristic and more than one health outcome

PRISMA-SCR CHART OF STUDY SELECTION



FINDINGS

- The 55 included articles were published between 1998 and 2017, but most (n=52) were published after 2008.
- GIS was the most common approach for estimating urban form (n=37 studies), followed by Walk Score® (n=4 studies), and street audits (n=4 studies).
- The most frequently reported associations were between urban form and injury and weight status.
- Not all provinces and territories were represented – most studies were undertaken in Ontario (n=22), Quebec (n=12), and Alberta (n=7).
- Built environment indices, connectivity and route features, destinations, food environment, population density, greenspace, parks and recreation features were associated with modifiable health conditions.
- In Canada, more rigorous study designs that allow for causal inference are needed.

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