



Urban Physical Environments and Health Inequalities

Literature Search Methodology Paper

Factors Influencing Health



Canadian Institute
for Health Information

Institut canadien
d'information sur la santé



Who We Are

Established in 1994, CIHI is an independent, not-for-profit corporation that provides essential information on Canada's health system and the health of Canadians. Funded by federal, provincial and territorial governments, we are guided by a Board of Directors made up of health leaders across the country.

Our Vision

To help improve Canada's health system and the well-being of Canadians by being a leading source of unbiased, credible and comparable information that will enable health leaders to make better-informed decisions.

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Process Overview

A search protocol was developed to identify studies in the areas of social and economic inequalities in health and the urban physical environment. The protocol identified databases, search terms and web-based literature sources. Searches were conducted in English and were limited to documents published in English or French and to documents that were released within the last 10 years (1999 to 2009, inclusive), except where the search options did not permit these restrictions.

Search strategies were developed for Medline and PsycInfo databases, which are accessible through CIHI's OVID e-journal database. These searches identified peer-reviewed journal articles as well as dissertations that were not peer-reviewed. The search of Medline and PsycInfo databases resulted in 13,078 results. Duplicate results were removed, as were those related to topics and geographical areas considered out of scope for the report. This reduced the pool to 7,748 articles. The articles were screened for relevance by title, leaving 1,921 articles. The abstracts of those articles underwent a second relevance review. This left a pool of 498 journal articles and dissertations.

Web-based resources were searched to supplement the journal articles and dissertations with books, systematic reviews, government reports and other grey literature. The following websites were searched: Amicus (Library and Archives Canada), Canada Mortgage and Housing Corporation (CMHC) library, Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre), Google, health-evidence.ca, Statistics Canada and WHOLIS (World Health Organization library).

The website searches resulted in 1,675 results that were screened for relevance based on title and date, again limiting the results to those documents that appeared in the literature within the last 10 years. The remaining 273 results underwent a second stage of relevancy review by title, and 151 were selected to be reviewed in full.

Combining the selected results from Medline, PsycInfo and web-based resources yielded a pool of 649 peer-reviewed and grey literature publications, which were reviewed in their entirety. This final pool of articles was categorized by study type, research focus, year of publication, location of study, research hypothesis, sample descriptors, measures, outcomes and study strengths and limitations.

During the research and writing of the two reports, additional sources were identified through reference lists of articles, conferences attended by staff, expert recommendations and ad hoc searches.

Introduction

The literature search and review procedures were designed to be both comprehensive and transparent. However, they were not intended to generate a systematic review of the numerous topics that are related to inequalities and urban environments.

1 Identification of Studies

This literature search and synthesis plan was developed to identify studies in the areas of social and economic inequalities in health and the urban physical environment. This plan outlined the databases searched and appropriate search terms.

Search strategies were developed for PsycInfo and Medline. Both databases were available through CIHI's OVID e-journal database. Searches were restricted to articles published within the last 10 years (1999 to 2009, inclusive).

The following web-based resources were searched for books, systematic reviews, online reports and other grey literature:

- Amicus (Library and Archives Canada)
- Canada Mortgage and Housing Corporation (CMHC) library
- Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre), including Bibliomap and DoPHER
- Google (www.google.ca)
- health-evidence.ca
- Statistics Canada
- WHOLIS (World Health Organization library)

1.1 Search Strategies: Journal Literature

Index terms were identified using each database's catalogue, thesaurus and exploding term function, where applicable, for key words related to urban health and the urban physical environment.

Database	Date Searched	Terms	Notes or Conditions	Results
Medline	March 18, 2009	<p>Urban terms: urban health, urban population, suburban population, cities, developed countries <i>in combination with the following five sets of terms, for a total of five Medline searches:</i></p> <p>Community belonging terms: social environment (explode: community networks, social support), crime</p> <p>Urban form terms: social planning (explode: city planning, environment design, urban renewal), urbanization, population density</p> <p>Green space terms: play and playthings, environment design, conservation of natural resources, nature</p> <p>Traffic and pollution terms: accidents traffic, vehicle emissions, air pollutants (explode: gas, hydrogen sulphide, particulate matter, sulphur dioxide, vehicle emissions), particulate matter (explode: dust, smog, smoke), environmental exposure (explode: environmental monitoring, inhalation exposure, maternal exposure, maximum allowable concentration, occupational exposure, paternal exposure), automobile driving, environmental pollutants (explode: air pollutants, carcinogens, endocrine disruptors, hazardous substances, industrial waste, soil pollutants, water pollutants), tobacco smoke pollution, noise, bicycling, walking, motor vehicles, automobiles, environmental illness (explode: multiple chemical sensitivities, sick building syndrome), environmental pollution (explode: air pollution, body burden, environmental exposure, environmental remediation, food contamination, noise, waste production, water pollution)</p> <p>Housing terms: housing (explode: housing for the elderly, public housing), residence characteristics, residential mobility</p>	Limited to articles in English and French, 1999–2009	<p>956</p> <p>703</p> <p>629</p> <p>4,973</p> <p>1,413</p>

Database	Date Searched	Terms	Notes or Conditions	Results
PsycInfo	March 23, 2009	<p>Urban terms: community development, urban environments, social environments, urban planning, communities, home environment, suburban environment, towns, environmental effects, social density, built environment <i>in combination with the following four sets of terms, plus a modified search related to community belonging, for a total of five searches:</i></p> <p>Urban form terms: social density, neighbourhoods</p> <p>Green space terms: environmental planning, recreation, recreation areas, playgrounds, nature, natural resources</p> <p>Traffic and pollution terms: motor traffic accidents, pedestrian accidents, public transportation, pollution, climate change (explode: global warming), noise effects, passive smoking, environmental effects</p> <p>Housing terms: housing, crowding</p> <p>Search for community belonging theme: Urban terms (community belonging search): urban environments, urban planning, suburban environment, towns, built environment AND Community belonging terms: crime, social networks, neighbourhoods, community development, social environments, communities, social density</p>	Limited to articles in English and French, 1999–2009	<p>810</p> <p>219</p> <p>2,193</p> <p>214</p> <p>968</p>

1.2 Search Strategies: Grey Literature

Search strategies were tailored to each website, accounting for the characteristics of the search interfaces and the areas of focus (if any) of the host organization. Where possible, the results were restricted to documents dated no earlier than 1999. The searches were conducted between June 3 and June 23, 2009. Individual staff members reviewed the search results and, based on relevance, retrieved full results (for example, documents available for download) for a subset of results (indicated in the final column of the table below).

Database	Terms	Total Results	Retrieved Results
Amicus (Library and Archives Canada, Entire Amicus Database)	Any keyword “urban” AND any keyword “health” AND subject keyword “pollution”	19	3
	Any keyword “SES” AND any keyword “health” AND subject keyword “inequalities”	2	1
	Any keyword “urban” AND any keyword “Canada” AND subject keyword “socio-economic”	38	7
	Any keyword “green space” AND any keyword “Canada” AND subject keyword “urban”	2	1
	Any keyword “sprawl” AND any keyword “urban” AND subject keyword “Canada”	5	1
	Any keyword “urban” AND any keyword “health” and subject keyword “environment”	41	9
	Any keyword “health” AND any keyword “urban” AND subject keyword “housing”	49	2
	Any keyword “health” AND any keyword “urban” AND subject keyword “housing density”	1	0
	Any keyword “health” AND any keyword “urban” AND subject keyword “transport”	9	1
	Any keyword “health” AND any keyword “urban” AND subject keyword “transportation”	10	3
	Any keyword “health” AND any keyword “urban” AND subject keyword “neighbourhood”	6	1
	Any keyword “health” AND any keyword “urban” AND subject keyword “neighborhood”	2	0
	Any keyword “health” AND any keyword “urban” AND subject keyword “city planning”	6	0
Canada Mortgage and Housing Corporation (CMHC) Library	“urban health”	17	13
	“sprawl”	73	42
	“urban transport”	23	2
	“neighbourhood health”	2	1

Database	Terms	Total Results	Retrieved Results
Evidence for Policy and Practice Information and Coordinating Centre (EPPI-Centre)	1. Evidence Library		
	Health promotion—general	19	1
	Health promotion—mental and emotional	8	1
	Health research—policy and practice	6	0
	2. Database of Promoting Health Effectiveness Reviews (DoPHER)		
Free-text search: “urban” and “health”	21	9	
3. EPPI-Centre database of health promotion research (Bibliomap)			
Free-text search: “urban” and “health”	137	24	
health-evidence.ca	“urban” or “city”	45	11
Statistics Canada (Publications Search Only)	“urban and health”	48	8
	“air pollution”	35	6
	“population density”	40	9
	“housing density”	3	3
	“tobacco exposure”	7	5
	“second hand smoke”	11	1
	“community belonging”	9	3
	“spatial distribution”	51	2
	“traffic and health”	11	2
	“urban commuting”	45	8
“natural resources”	139	1	
WHOLIS (World Health Organization Library) (English Language Only, 1999–2009)	Advanced search, selecting “subject” to search by MeSH terms		
	Subject “urban health or cities” AND subject “health or well-being or morbidity or mortality” AND subject “accidents, traffic’ or air pollutants or environmental pollution or vehicle emissions”	25	2
	Subject “urban health or cities” AND subject “health or well-being or morbidity or mortality” AND subject “housing or ‘residence characteristics”	20	6
	Subject “urban health or cities” AND subject “health or well-being or morbidity or mortality” AND subject “transportation”	7	5
	Subject “urban health or cities” AND subject “health or well-being or morbidity or mortality” AND subject “play and playthings”	1	1
	Subject “urban health or cities” AND subject “health or well-being or morbidity or mortality” AND subject “city planning”	82	18

In addition to the above grey literature databases, Google was searched for relevant publications and unpublished literature.

Google (www.google.ca)

Restricted to Canadian pages only.

Results: Only the first 100 hits were retained for each search (that is, 600 in total).

Search	Terms
1	Built environment AND (urban OR city OR cities OR metropolitan OR neighbourhood OR neighborhood OR community) AND (health OR illness OR disease OR well being OR well-being OR acute OR chronic OR mortality OR morbidity)
2	Green space AND (urban OR city OR cities OR metropolitan OR neighbourhood OR neighborhood OR community) AND (health OR illness OR disease OR well being OR well-being OR acute OR chronic OR mortality OR morbidity)
3	Pollution AND (urban OR city OR cities OR metropolitan OR neighbourhood OR neighborhood OR community) AND (health OR illness OR disease OR well being OR well-being OR acute OR chronic OR mortality OR morbidity)
4	“urban form” or sprawl AND (urban OR city OR cities OR metropolitan OR neighbourhood OR neighborhood OR community) AND (health OR illness OR disease OR well being OR well-being OR acute OR chronic OR mortality OR morbidity)
5	Housing AND (urban OR city OR cities OR metropolitan OR neighbourhood OR neighborhood OR community) AND (health OR illness OR disease OR well being OR well-being OR acute OR chronic OR mortality OR morbidity)
6	Active transport AND (urban OR city OR cities OR metropolitan OR neighbourhood OR neighborhood OR community) AND (health OR illness OR disease OR well being OR well-being OR acute OR chronic OR mortality OR morbidity)

2 Screening

Two steps were undertaken to screen the records retrieved through the search strategy described above: relevance screening and critical appraisal.

2.1 Screening for Journal Literature

The Medline and PsycInfo searches yielded 13,078 results that were stored in separate databases for each of the searches described in Section 1.1. Of these results, 2,178 were duplicates that were retrieved in both Medline and PsycInfo; these were deleted.

The databases were cleaned to remove 3,152 articles with the following terms in the title or keywords, as these topics and geographical areas were considered out of scope:

Asia	Hong Kong
China	Poland
Russia	Turkey
Taiwan	Africa
Singapore	Niger/Nigeria
Japan	Egypt
Brazil	Iran
India	HIV
Mexico	AIDS
Spain	Portugal
Israel	Water

2.1.1 Title Screening

Reference Manager was then used to generate reports listing basic bibliographic data (such as title, authors and journal name) for the remaining 7,748 records. Pairs of staff independently reviewed the titles, screening them on the basis of broad relevance criteria. The relevance criteria evolved as the review proceeded and as the reviewers compared their knowledge of the literature. The criteria for inclusion, broadly speaking, were as follows:

- Articles that addressed aspects of the urban built and physical environments
- Evaluation research
- Studies that included Canadian urban areas
- Articles addressing methodological issues relating to the list of indicators chosen for the project

Records pertaining to the following topics were excluded:

- Water pollution
- Terrorism
- Hurricane Katrina
- 9/11 attacks
- Domestic violence
- Foster care
- Institutionalized populations (such as people staying in hospitals, nursing homes and prisons)
- Gun violence
- Racial conflict
- Health insurance in the United States or countries other than Canada
- U.S.-based welfare programs
- Homeless population
- Studies conducted on animals
- HIV/AIDS and SARS
- Historical articles, articles published more than 10 years ago or articles that used data collected more than 20 years ago (unless longitudinal)
- Any immigrant group settled in a country other than Canada, the U.S., the U.K. or Australia

The lists of the two reviewers were compared. Where there was agreement to exclude, records were excluded. In instances where only one reviewer recommended exclusion, a brief discussion was followed by a decision to exclude or include on a case-by-case basis.

2.1.2 Abstract Screening

After the initial title screen, 1,921 records remained. Reports were generated that included abstracts, in addition to basic bibliographic information. Individual staff members reviewed the records using a process similar to that used for the title screen. The availability of the abstracts provided more information on which to make decisions about inclusion, but the criteria remained the same.

As a result of the title and abstract reviews, the total number of records remaining in the journal database was reduced to 498. Full-text versions of all 498 documents were acquired and reviewed.

2.2 Screening for Grey Literature

The website searches yielded a total of 1,675 results. These were screened for relevance based on title, and 273 records were selected for further review. Based on an additional relevancy review, 151 records were selected for addition to the journal article database.

3 Article Sorting

An article-sorting form (Appendix A) was used to categorize the final pool of articles. This form shows the topics that were included in the working table of contents for the report, which was originally proposed as a multi-topic report.

There were several reasons for sorting the literature:

- To organize the materials by topic so articles on a particular subject could be easily located;
- To determine whether the working table of contents was supported by the literature base, and to identify gaps in the table of contents;
- To further refine some sections into subtopics, if one area was too broad; and
- To identify Canadian studies and ensure they were given priority.

4 Summary

Multiple databases and web-based sources were searched to identify literature on urban health, health inequalities and the urban physical environment. Some of the topic areas targeted by the search strategy were pollution, green space, transportation, neighbourhoods and urban design. Documents were screened and excluded or included based on relevance, quality, recentness and geographic coverage. The total pool of literature (more than 14,000 results) was reduced to approximately 650 documents that were reviewed in full. These documents were supplemented by additional sources identified through ongoing research scanning, reference lists of articles, searches to address gaps in the initial searches and expert recommendations.

Appendix A: Article-Sorting Form

↓ = low priority

Article Ref Man Number: _____

* or circle = main priority

Article-Sorting Form (Based on Working Table of Contents)

Please tick all that apply.

Canadian Study/Content Appears Most Relevant (Put to Top of the Pile)

Year published: _____ Year of data collection: _____

Type of study: Quantitative Qualitative Literature review/meta analysis

Sample size: _____ Sample descriptors: _____

Variables/outcomes: _____

Where it fits:

Setting the Context: The Urban Physical Environment, Health and Health Inequalities

Demographic and socio-economic characteristics of urban Canada

Patterns and trends in urban Canada Methodological overview

The Environment Around Us: Urban Places and Spaces

Green space Parks and playgrounds Outdoor air quality

Urban heat islands

How We Plan Communities: Urban Design

Urban sprawl Neighbourhood satisfaction Neighbourhood stress

How We Get Around: Urban Transportation

Commuting patterns Public transportation networks

Traffic-related exposures Active transport

Policy

Conclusions

Other—if so, please specify: _____

Not specifically urban (specify level, e.g. national): _____

Methods only or good framework

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