Income and Health in Canada
Research Gaps and Future Opportunities

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ABSTRACT

Background: The goal of this research project was to identify and suggest means of filling the gaps/needs in Canadian research activity and public policy action on the income and health relationship.

Methods: The research consisted of an environmental scan and analysis of 321 empirical research pieces from Canada (n=241), the United Kingdom (n=40) and Finland (n=40) followed by a systematic gaps/needs analysis of these studies by members of three advisory committees, consisting of researchers and policy advocates. These data were complemented by key informant interviews with researchers from Canada, the UK and Finland. The gaps/needs were then reviewed and assigned priority rankings by members of the three advisory committees.

Findings: Numerous gaps/needs in Canadian research on income and health were apparent. They fell into five main areas: (a) training and capacity building in addressing income as a health determinant; (b) developing adequate data and measures; (c) researching specific substantive health issues; (d) researching specific public policy areas; and (e) developing an understanding of the pathways and mechanisms mediating the income and health relationship. Members of the advisory committees achieved a high level of agreement concerning these gaps/needs and means of reducing them.

Conclusions: The Canadian Institutes of Health Research (CIHR) and the Institute of Population Health should target specific research initiatives to help fill the identified gaps in knowledge. They should also work together with public policy institutes to synthesize findings concerning income, its distribution, and health, and help distribute these findings to the public in general and policy-makers in particular.

MeSH terms: Income; public health; research priorities; public policy

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Canada has been a leader in conceptualizing societal determinants of health such as income and its distribution.¹ Concepts developed by the Canadian Institute for Advanced Research, Health Canada and the Canadian Public Health Association – as three examples – have influenced policy developments around the world.² But there is increasing evidence that Canada is failing to apply its own population health concepts in health research.³ There is also concern that Canada has fallen well behind other nations in applying research findings related to income and its distribution towards policy development.⁴⁻⁵ The result is a deteriorating public policy environment that increasingly focuses on “lifestyle” and biomedical approaches to understanding and promoting health.⁶⁻⁷

These issues were recognized by CIHR’s Institute of Population and Public Health (IPPH), a funding agency for health research in Canada. In response to an IPPH call for analyses of how Canadian researchers were responding to emerging health research and health policy needs, we carried out an environmental scan and analysis of how income is considered in health research. The goals of our research were to (a) identify and evaluate gaps/needs in Canadian research into the role that income and its distribution play in Canadians’ population health; and (b) recommend means of filling these gaps and meeting these needs. To do so, we carried out an environmental scan of current research activity and capacity in Canada related to income and health. This was done in consultation with interested researchers and stakeholders across Canada. Exemplary research activities in the United Kingdom (UK) and Finland – nations with advanced research programs and systematic policy processes in place to apply their research findings – provided a basis for comparison. To further enrich
these analyses, interviews with a sample of renowned population health researchers in Canada, the UK and Finland explored these issues.

The specific findings on how Canadian researchers conceptualize income and its distribution as being relevant to health have been published elsewhere. To summarize, these analyses identified the following specific shortcomings: (a) weak conceptualization of how income and its distribution contribute to population health; (b) few longitudinal studies of the effects of income-related issues upon health across the life-span; (c) little interdisciplinary work in the areas of pathways that create and then mediate the income and health relationship; and (d) general neglect of the policy implications of the income and health relationship that could be used to improve population health. The full, detailed final report is available.

Little evidence was seen of work that addresses the political, economic and social forces that determine how income is distributed within the population. A particularly important area requiring more emphasis is how income and its distribution interact with the presence of social infrastructure, such as public services, to influence health. These are issues that require collaboration with and contribution from social science disciplines such as economics, political science, political economy, sociology and policy studies. Canadian work fell well below the bar established by leading researchers in the UK and Finland, nations where income and its effects on health are on the public policy agenda.

A mandatory component of the IPPH research grant was the establishment of advisory committees consisting of researchers and policy advocates who would assess the relative importance of each gap and need, and place them within the context of IPPH priorities. This process would also provide a validation of the findings obtained by the environmental scan and analysis. As well, the committees would identify means of meeting the research needs and reducing research gaps. In this paper we focus upon the analyses and conclusions of the advisory committees concerning the means by which the gaps/needs in Canadian research into income and its effects upon health can be addressed.

### TABLE I

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### BACKGROUND

Strides are being made in understanding how the organization of societies influences the health of their members. Chief among these characteristics is how a nation, region or municipality chooses to distribute income and wealth among its members. In many European nations, income adequacy is a basic component of national and regional health policy. In Canada, however, such concern is of lower priority. Health researchers in Canada usually include these factors in their research, but how do they conceptualize income and its distribution as influencing health?

At the theoretical level, concepts related to income and its importance to health developed by the Canadian Institute for Advanced Research, Health Canada and the Canadian Public Health Association – as three examples – have influenced research approaches and policy developments around the world. But at the practical level, there is evidence that Canada has fallen well behind other nations in applying these concepts. The results are research and policy environments that increasingly focus on lifestyle and biomedical approaches to understanding and promoting health.

To explore why this might be the case, we carried out an environmental scan and analysis of how income and its distribution are considered in health research in Canada. Advisory committees at each of the three (Eastern, Central and Western) research sites consisted of members from a variety of sectors concerned with income distribution and income-related health issues. They included well-known active researchers, well-regarded representatives of the traditional health care and public health sectors, social development and social welfare sectors, and advocacy and social justice organizations. These individuals guided our research and provided the ratings of current gaps/needs in research activity and policy analysis, and means of addressing the gaps. It is the results of these analyses that we focus on in this paper. Appendix 1 lists both research team and advisory committee members. After providing a brief overview of our methodology, we focus on the gaps/needs and opportunities identified in this research.

### METHODS

#### Environmental scan

In the first part of the study, we identified the total sample of 241 Canadian studies from 1995 to 2002 that applied any one indicator of income, income distribution, socio-economic status, poverty status or other related measure to explain the health outcomes of individuals or populations. We also identified 40 UK and 40 Finnish studies that appeared to us to exemplify the most advanced research in understanding the relationship of income and its distribution to health. Each study was carefully reviewed and coded along a number of conceptual and methodological taxonomies (Table I). Further details on the general methods and reliability of ratings are available. A summary of the findings is provided in Appendix 2.

#### Identification of gaps and opportunities

In the second component of the study, the research team identified needs and gaps (combined into a common category) and opportunities on the basis of the literature review, interviews with informants and input from advisory committee members over the course of the research. These gaps/needs were reviewed, modified, and then rated by advisory committee members. The members reviewed and discussed the findings of the scan, the research team’s comparison of the findings with the exemplary UK and Finnish studies, and the analysis of the interviews with key informants within the context of the prior-
TABLE II

Gaps/Needs Identified Through the Environmental Scan and Informant Interviews, and Validated by the Regional Advisory Committees

### Training/Capacity Building
1. Training in advanced Conceptualizations, critical perspectives and interdisciplinary work.
2. Applying a common language that conceptualizes values and strengthens the political will to action.
3. Addressing poverty and income inequality as part of health care and public health practice.

### Data and Measures
4. Creating longitudinal data and systems for collecting these data.
5. Incorporating measures of socio-economic status, including education and occupational status, into all health research data collection.
   - Including these measures as part of routine data collection related to births, deaths and hospitalizations.
   - Developing and collecting measures of accumulated wealth.
6. Establishing data linkages
   - Routinely linking health data to health-related data sets, such as census and surveys.
   - Data-sharing across provinces.
8. Resolving problems associated with privacy and confidentiality to ensure that there is access to information.
9. Applying research measures such as self-reported health and other measures used in the SF63 (an international health survey).
10. Collecting more surveillance data on health in relation to income and social status.

### Specific Health Research Areas
11. Developing broader understanding of the structural determinants of health.
12. Doing research of the lived experience of people with low incomes and of how income affects other social determinants of health.
   - More qualitative research uncovering shared social values and subjective information.
13. Creating participatory action research projects that address poverty-related issues.
   - i.e., What would happen if we increased people’s incomes?
15. Performing more research on neighbourhood structure and how it interacts with income and the availability of resources for social infrastructure to influence health, e.g., social capital, and strengthening communities.
16. Carrying out interdisciplinary research involving economists and population health researchers, among many other disciplines.
17. Collecting more information on ethno-racial communities with community participation; linguistically and culturally appropriate measures, survey tools and indices; and integration of alternative cultural paradigms (beyond Eurocentric approaches).
18. Carrying out cost-benefit analysis to explain how poverty affects health status and how it is costly to the health care system.
19. Developing attitudinal research: How does the general public (people who are not poor) view poverty and health? This, in turn, affects the way the public and professionals interact with people who live in poverty and the way services are delivered.

### Specific Public Policy Areas
20. Investigating the disconnect between research and health policy (e.g., informing recent initiatives in chronic disease, federal strategies to support “healthy living”, heart health work, diabetes strategies, etc.).
21. Carrying out attitudinal research on policy-makers: How do they react to such research, and when/how has the research had some impact?
22. Investigating the thresholds for poverty.
   - How can we develop policy interventions without understanding the impact of the different dimensions of poverty more broadly?
   - What do people need in order to feel as though they can meaningfully participate in society?
23. Doing critical policy analysis that systematically addresses the context, process and content of policies.
   - Understanding the health impact of the public policy process.
   - Understanding political, social and economic forces that influence policy development.
24. Gaining better understanding of the role of media discourses on poverty, inequality and health in the public understanding of and support for ameliorative policies.
25. Learning what macroeconomic and policy interventions maximize reductions in poverty and income inequality.
   - How do policies influence poverty incidence and the effect of poverty on health?
   - How do changes in tax policy entitlement to public programs and social goods actually change people’s real income rather than command over resources?
26. Gaining better understanding of the role of non-income transfers (tax-funded welfare benefits such as universal health care, education, recreation, etc.) in poverty/health and the income inequality/health relationship.
   - In terms of different income security programs in different countries, what effect do they have on health outcomes across countries/jurisdictions?
   - Look at the associations between measures of income and measures of health at the individual level and how that association differs among countries.

### Pathways/Mechanisms that Mediate the Income and Health Relationship
27. Sorting out the process through which income and socio-economic status (SES) variables are associated with health, i.e., How do behavioral and SES risk factors work together to affect health?
28. Understanding the character of societies that are able to buffer the relationship between low income and poor health.
29. Understanding how the poverty cycle creates habitual behaviours and how much of it is responsive to monetary changes.
30. Gathering more information on the effects of people’s movement in and out of poverty and the effects of poverty on health over time.
31. Doing better theorization of pathways, developing different research methodologies to do so.
   - What are the mechanisms that influence how income influences health?
   - What is the relative contribution of life course factors vs. current factors to producing the gradient?
Step 3: Rating of importance of needs/gaps according to criteria area
Members of each advisory committee then rated each of the 31 gaps/needs for each prioritization area using a 1 (not important) to 5 (very important) scheme. For example, Need/Gap 1 was rated as to its importance for Immediate Relevance to the Health of Canadians, Health Care and Public Health Systems, Contributions to Science, Strategic Importance for Developing Research Capacity and CIHR Organizational Arrangements.

FINDINGS

Table II provides the 31 gaps/needs identified as a result of these activities. The breadth of the list suggests that much can be done to achieve an advanced research agenda of how income and its distribution influence population health in Canada.

Advisory committee members saw little evidence of penetration of emerging population health concepts into most health research in Canada. Instead, emphasis is on traditional risk factor epidemiology with its individualized approach. Social science concepts – concerned with how societal structures shape differential access to health-enhancing opportunities – rarely intrude into most health research, a point noted in the Canadian Journal of Public Health and elsewhere.19-21 Longitudinal data sets allowing analyses of life-course influences upon health are rare. Linked databases are even rarer in Canada. We discuss each cluster of gaps/needs in turn.

Training and capacity building in addressing income as a health determinant

Advisory committee members were not particularly surprised to see how little penetration there had been of population health concepts into health research. Nor were they surprised to see how little emphasis there was on structural aspects of the income and health relationship among these same researchers. The findings from the research review were consistent with their experiences in dealing with public health and health care professionals who saw little role for such concepts in their day-to-day practice. Ways of closing the gaps that reflect members’ experiences would be to identify the need for training in advanced conceptualizations, develop a common language and begin to address these issues in a systematic way.

Developing adequate data and measures

One of the explanations for the current state of Canadian health research into income and health is the lack of well-developed data collection systems that allow complex questions about the determinants of health and illness across the life-span to be answered. There is little consistent effort made to collect socio-demographic data by health authorities, and linkages between health status data and socio-demographic data are virtually non-existent. The profound issues of privacy and confidentiality associated with such data linkages have been recognized, but solutions to the problems need to be developed. The example of the UK and Finland, where such linked databases have been established and used to illuminate the income and health relationship across the life-span, are good models for such practice.

Researching specific substantive health issues

There is limited research being done on understanding the role that broader determinants of health play in population health, and the research that is being done is virtually all quantitative. There is an important need to carry out participatory research studies that can illuminate the lived experiences of Canadians in general and those at risk of poor health in particular. There is also a need for studies that would examine the effects of policy interventions intended to improve the quality of various social determinants of health, such as income. Such studies would require interdisciplinary research involving a range of social scientists.

Little is known about neighbourhoods and how local structures influence health. Also needed are research approaches that are sensitive to the cultural differences that may exist among different ethno-racial communities. Related to this is research into the attitudes of the public towards poverty and low income. Such attitudes are important determinants of how people living on low income are both perceived and treated by the broader public and by policymakers in particular.

Researching specific public policy areas

There is very little research that considers the role that public policy plays in determining health outcomes of Canadians. We need to understand why many current health initiatives are limited to risk factor approaches despite accumulating knowledge of the relatively minor role that lifestyle choices play in health status among populations. There is little critical policy analysis that considers how public policies are created and what impacts they have on the population in general and the vulnerable in particular. Health researchers rarely consider how Canadian public policy compares with the situation in other nations and the specific aspects of public policy that buffer the income and health relationship. We also need to understand the political, economic and social forces that lead policy-makers to favour some approaches over others. Illuminating these processes will help explain why there...
appear to be such profound gaps/needs in our understanding of the income and health relationship.

Developing an understanding of pathways and mechanisms mediating the income and health relationship
As documented in our analyses, explication of the pathways that mediate the income and health relationship is generally undeveloped among health researchers. There are pockets of excellence, but the most striking conclusion is that such analyses are few and far between. These findings are especially surprising considering Canada’s perceived leadership in health promotion and population health. Much needs to be done to improve our ability to understand the sources of health in general, and the role that income and its distribution play in health in particular.

Placing the findings in the context of CIHR priorities
At the final advisory committee meeting of the Central Region, members realigned the CIHR criteria presented to the research team as part of the needs, gaps and opportunities assessment (NGOA) and assigned priority rankings to these criteria groups. This led to the creation of a Health Care and Public Health Systems category (see Table III). The arrangement was agreed to by the other regions. The clusters were then used as a context to provide ratings of importance for each gap/need. Advisory committee members were primarily concerned with seeing research that has as its goal the improvement of the health of Canadians.

All advisory committee members were asked to rate each of the 31 gaps/needs for each prioritization area using a 1 (not important) to 5 (very important) scheme. To illustrate, Gap/Need 1 was rated as to its importance for Immediate Relevance to the Health of Canadians, Health Care and Public Health Systems, and so on. Scores presented are the amalgamation of ratings from each region. The Central and Eastern committees did not feel qualified to assign a rating for the final prioritization area, CIHR Organizational Arrangements. Table IV provides the five highest rated needs/gaps for each area.

Ratings across all five priority areas
Table V provides scores for the top 10 rated gaps/needs based on their average ratings across the five CIHR priority areas. To illustrate, item 25 achieved an average rating close to 4 across all the priority areas, indicating that addressing this would meet all CIHR priorities.

Opportunities
The following opportunities were reviewed and approved by advisory committee members. Opportunities were not rated but are simply noted as follows:
• There is increasing attention being paid to economic and policy measures affecting inequalities (e.g., an Ottawa conference in January 2000 hosted by the Centre for Living Standards). There is increased attention from the multilateral development banks (e.g., World Bank, United Nations Conference on
Trade and Development, United Nations Development Program and others) on the impacts of macroeconomic adjustment policies and trade/investment liberalization on poverty and inequality.

- There is increasing recognition of a deteriorating policy environment in Canada by policy-makers, the media and health researchers.
- Recent reports on health care reform have directed attention to the social determinants of health.
- There are shifting policy environments related to globalization that draw attention to the relationship of aspects of the welfare state to the social determinants of health, including income.
- There is increasing recognition of the failure of traditional health promotion approaches aimed at improving population health.
- The federal government is leading new strategies for addressing healthy living and chronic disease prevention that could benefit from advanced conceptualization of the role that income plays in population health.
- A critical mass of researchers is developing that is able to carry out interdisciplinary work.
- CIHR is supporting the establishment of centres to study these kinds of issues.
- CIHR – at least IPPH – appears to be more open to the benefits of studying socio-structural determinants of health.
- The Canadian Population Health Initiative is funding researchers such as Ross, Dunn, and Wolfson for this kind of work.
- The media may be becoming more receptive to addressing these kinds of issues.

In addition, since our research was completed, the World Health Organization (WHO) has established a Commission on the Social Determinants of Health. Two of its knowledge networks, Globalization and Early Child Development, are centred in Canada (University of Ottawa and University of British Columbia respectively). As well, former Canadian Minister of Public Health, Carolyn Bennett, had instituted a national process to establish Canadian public health goals that addresses broader social determinants of health.

CONCLUSIONS AND RECOMMENDATIONS

In some of our studies, we found that low-income people feel that health and social service professionals don’t understand their issues. There is a need for greater sensitivity to issues faced by poor people. It goes back to what health professionals are learning in their professional education, of course, but we need to take it one step further. Even though you may be socialized in your professional education to be more sensitive, once you get out into the situation, there are a lot of barriers in the organizational environment that prevent you from acting on what you think should be done. - Canadian health researcher

Our research identified numerous areas in which Canadian research on the role that income and its distribution play in population health could be enhanced. The particular areas of weakness include the conceptualization of how income and its distribution contribute to population health, lack of longitudinal studies of the impact of income-related issues upon health across the life-span, and lack of linked databases that would allow complex analyses of how income and related issues contribute to health and well-being. There is also little interdisciplinary work that examines the political and economic forces influencing how income is distributed among Canadians.

A lack of interdisciplinary work on the pathways that mediate the income and health relationship also exists, specifically the biological pathways by which issues such as income and its distribution get “under the skin” to influence health. Little work has considered the policy implications of the income and health relationship to improve population health and how these are related to political and economic processes. Indeed, present Canadian policy directions that emphasize individual lifestyle choices and behavioural changes are profoundly at odds with the findings that income and other social determinants of health influence population health.

Supporting the research themes

The most obvious means of supporting these themes would be direct targeting of requests for research proposals by IPPH to address the issues. Also possible would be a requirement by other CIHR institutes for researchers to consider the role that income, its distribution and other social determinants of health play in the development and progression of numerous diseases in Canada. There is extensive evidence that income and its distribution play a role in the genesis of diseases such as diabetes, arthritis, cancer, heart disease, respiratory disease and others, yet researchers in these fields rarely, if ever, consider such issues. Research is needed into why this is the case in Canada but not elsewhere.

To leave these research questions solely to the IPPH without other CIHR institutes giving them due consideration is not productive in the long term. IPPH must raise the issues with the other institutes and support funding by them.

Collaborative requests for applications (RFAs) among CIHR institutes would be one means of furthering this agenda. Health research that incorporates social science into its conceptualizations and analysis appears more likely to consider the kinds of issues raised here. There is a need to bring such conceptualizations into population health activities that consider income and its distribution as relevant variables. Such participation could be made a requirement in future RFAs issued by the IPPH as well as other CIHR institutes. Collaborations with the Social Sciences and Humanities Research Council would support this as well.

Dissemination of report findings

While Canada has been a leader in conceptualizing the importance of health factors such as income and its distribution, there is ample evidence that governments and policymakers are retreating from using and applying these concepts. The recent Romanow, Mazankowski and Kirby reports all acknowledge the importance of income, its distribution and related concepts but fail to develop the policy implications of these findings. Similarly, the new Healthy Living Initiative of the federal and provincial governments and the Chronic Disease Prevention Alliance of Canada should be encouraged to further address the influences upon population health. These policy directions should be informed by the findings of this and the other NGOA studies reported in this supplement.
It is important that the findings of this NGOA be made available to those who are involved in these activities through well-developed and accessible materials. IPPH could support the production of user- and public-friendly materials from this and other NGOAs to facilitate knowledge transfer. Support to disseminate the substantive content of the articles reviewed in this NGOA would also contribute to knowledge transfer. Findings from the hundreds of studies reviewed showed that income and its distribution have a strong and direct effect upon individual and population health. The focus of this NGOA project and its report, on the other hand, was the structure of research activities and conceptualizations.

The media need to be sensitive to these findings. A review of newspaper stories done as part of the NGOA found that stories involving income and poverty issues in health are usually not based on studies from scientific journals. Rather, they involve coverage of activities by social development or poverty groups that raise the issue in their press releases or press conferences. This is in stark contrast to newspaper stories that report on a daily basis the latest journal findings of how behavioural factors such as diet, physical activity and tobacco use influence health and disease. IPPH should consider an initiative similar to the WHO-EURO’s campaign, Social Determinants of Health: The Solid Facts. IPPH should urge Horizons, Policy Options and other policy-related journals to offer special issues that would report the findings of these NGOAs. This would facilitate dissemination of their results and raise the profile of contextual factors in population health.

The academic, funding and political climate of Canada presents many challenges to researchers pursuing health inequalities research. There is a definite need in Canada for a stronger political will to tackle issues relevant to health inequalities. Political will can be influenced by health researchers who consider the social, political and economic contexts influencing the health of individuals. The primary determinants of political will, however, may be the influence of actions and advocacy by community agencies and various social movements that can draw upon existing bodies of health research focused on these issues.

APPENDIX 1
Research Team and Members of Advisory Committees

**Research Team:**
- Eastern (Genuine Progress Index Atlantic): Ronald Colman and Karen Hayward
- Central (York University): Dennis Raphael and Jennifer Macdonald
- Western (Saskatchewan Population Health and Evaluation Research Unit, SPHEREU): Ronald Labonte and Renee Torgerson

**Advisory Committees** (affiliations were operative at the time of the study and are for identification purposes only)

**Eastern Advisory Committee:**
- Dr. Carol Amatya, Executive Director, Atlantic Centre of Excellence for Women’s Health
- Dr. Richard Gould, Medical Officer of Health, Nova Scotia Department of Health, Public Health Services
- Dr. Andrew S. Harvey, Director, Time-Use Research Program, St. Mary’s University Nova Scotia
- Dr. George Kephart, Director, Population Health Research Unit, Dept. of Community Health and Epidemiology, Dalhousie University
- Dr. Deborah Kiceniuk, Research Coordinator, Healthy Balance Research Program, Nova Scotia Advisory Council on the Status of Women/Atlantic Centre of Excellence for Women’s Health
- Ms. Joanna LaTulippe-Rochon, Director, Cape Breton Family Place Resource Centre
- Ms. Stacey Lewis, Director, Cape Breton Wellness Centre
- Dr. Peter MacIntyre, Associate Professor of Psychology, Department of Behavioural and Life Sciences, University College of Cape Breton
- Mr. Michael Pennock, Research Director, Population Health Research Unit, Dept of Community Health and Epidemiology, Dalhousie University
- Ms. Malcolm Shookner, Regional Development Coordinator, Atlantic Health Promotion Research Centre
- Dr. Merv Ungurain, Visiting Fellow, Population Health and Chronic Disease Prevention Unit, Dept of Community Health and Epidemiology, Dalhousie University

**Central Advisory Committee:**
- Ms. Dianne Patsyduck, Social Epidemiologist, Toronto Public Health, (replacing Betty Burcher)
- Ms. Connie Clement, Executive Director, Ontario Prevention Clearinghouse
- Mr. Michael Cushing, Executive Director, Ontario Social Development Council
- Ms. Jackie Choiniere, Director of Policy & Research, Registered Nurses Association of Ontario
- Mr. David Langille, Co-Director, Centre for Social Justice
- Mr. Jack Lee, Executive Director (Acting), Ontario Public Health Association
- Ms. Carol Amaratunga, Executive Director, Association of Ontario Health Centres
- Ms. Laurel Rothman, National Coordinator, Campaign 2000, & Director, Community Building and Social Reform, Family Services Association of Toronto
- Ms. Katherine Scott, Senior Policy Associate, Canadian Council on Social Development (replacing Andrew Jackson)

**Western Advisory Committee:**
- Dr. Raymond Blake, Director, Saskatchewan Institute for Public Policy, University of Regina
- Ms. Joan Feather, Research Scientist and Coordinator, Department of Community Health and Epidemiology, University of Saskatchewan
- Ms. Louise Simard, CEO and President, Saskatchewan Association of Health Organizations
- Mr. Bill Werry, Executive Director, Human Services Integration Forum, Government of Saskatchewan
- Dr. Nazeem Muhajarine, Research Faculty/Associate Professor, Department of Community Health and Epidemiology, University of Saskatchewan
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- Dr. Michael Pulanyi, Professor, University of Regina

**REFERENCES**

Appendix 2

Summary of Taxonomy Analysis

Conceptualizing the income and health relationship

Of the 241 Canadian studies reviewed, 2/3 have no explicit theoretical conceptualization of why income is an influence on health. Those that did applied materialist (exposures to positive and negative living conditions) and neo-materialist (societal approaches to distributing resources and supporting social infrastructure) conceptualizations.

Theorizing about mediating mechanisms

Fewer than half of the studies provide explicit structural theorization of the income and health relationship. Most studies assume that environments that lead to income influencing health? Forty percent offered individualistic (characteristics or risk behaviours of the person) or no theorization of the relationship. Individualistic perspectives make examination of the interrelationships between structural issues such as employment, education and working, housing, and family conditions, less likely.

Measuring income or its proxies

Few Canadian studies examine the distribution of income within an area, and one-fifth use ecological measures alone or in combination with other measures. Most the common approach is to group individuals on the basis of income into groups such as decimals, quintiles, quartiles or other such measures (e.g., high versus low income) and examine health outcomes.

Measuring health outcomes

Canadian researchers make frequent use of multiple measures. Most studies use physical morbidity measures, but others include employment patterns, family functioning, family status, child behaviour/development, food security/insecurity, literacy, access to resources, socio-cultural effects, literacy, etc., as well as health care utilization and lifestyle. Few use mortality data.

Unit of analysis

The most common unit is the individual level, although Canadian researchers frequently apply household measures. Canadian researchers also engage in neighbourhood-level studies that include comparative ecological studies based on census data. Researchers frequently use a provincial level of analysis but rarely a national level.

Identifying pathways that mediate the income and health relationship

Close to a third of the studies do not explicate any pathways, and the ones that do that identify psychosocial (feelings of stress, lack of control, etc.), materialist (exposures to positive and negative conditions) and behavioural (individual risk factors) pathways. More than one-tenth apply some form of gendered analysis, and one-third apply a political or economic analysis to consider the relationship between income and health.

Close to half of the studies were rated as of intermediate complexity (provide a cursory explication of pathways and simply note the connections of a pathway, e.g., people with little education have worse health than those with higher education) and offer little insight into causal factors or interconnections among pathways. A third are underdeveloped (simply note the relationship with virtually no explication of the means), and only 20% are sophisticated (specify the complex interconnected nature of the pathways).

Research design

Ninety percent of studies are quantitative, and of these only one-tenth use longitudinal designs: the great majority are cross-sectional studies. Few are retrospective. Only one-tenth apply qualitative or mixed method designs. These latter researchers often use a neo-materialist approach concerned with the impacts of resource allocations by governments on programs and services for low-income individuals.

Implications for policy development

While almost two-thirds of Canadian studies provide policy implications of their findings, these are primarily concerned with health care services and lifestyle issues. Policy implications related to income and resource distribution, and the alleviation of poverty are rare.

References

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