Economic and social factors associated with homelessness:

Literature review

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About the authors

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Executive summary

Infrastructure Canada has requested a review of economic and social factors associated with homelessness, as well as the identification and estimation of key factors associated with Canadian homelessness. The present document constitutes a literature review supporting the exercise. Subsequent analysis will include both an assessment of the availability of Canadian data sources and a regression analysis, whereby key factors are identified in the literature to estimate their respective contributions to homelessness in Canada.

The present document focuses on the English-speaking OECD countries, particularly the United States, Canada, and to a lesser extent Australia. It begins by providing an overview of the various causal categories of homelessness, namely structural factors, systems failures, and individual-level risk factors. It then reviews what existing research tells us about factors that are categorized accordingly. Methodological challenges are then discussed, followed by a discussion of research gaps.

Structural factors contributing to homelessness refer to changes that affect entire geographical jurisdictions (e.g., cost of housing, income levels). There is a considerable amount of American research on the structural causes of homelessness, with rent levels consistently found to have strong statistical significance on the local rate of homelessness. There is very little non-American research in this respect.

Systems failures refer to dysfunctional relationships between organizations—e.g., between correctional facilities and emergency shelters, or between child welfare authorities and homelessness officials. Our review of research on systems failures concludes with the following:

- Discharges from hospitals often involve poor communication between hospital and shelter staff. There is also a lack of 'after care' for recently-discharged patients who lack permanent housing.

- Youth are often discharged from child welfare systems too early and without sustainable housing plans.

- Persons discharged from correctional facilities are often subjected to parole and probation rules that can 'set them up' for further housing instability.

- Persons exiting hospital, child welfare and correctional settings benefit from sound housing plans, funding for housing, adequate income assistance and social connections (including with family members).

While researchers frequently acknowledge the importance of systems failures, the impact of these failures on local rates of homelessness is rarely measured quantitatively.

Individual-level risk factors refer to factors that make some specific individuals more vulnerable to homelessness than others. Our review finds the following characteristics help predict homelessness: being in the child welfare system: serious mental health challenges; criminal behaviour; having experienced trauma (especially as a child); unemployment; substance use; being non-heterosexual; and being single. A limited amount of Canadian research has corroborated much of this, while also shedding light on the importance of both head injuries and being male as further predictors.

In terms of research gaps, it is important to note that cross-country, cross-provincial/territorial and cross-municipal comparisons of all three categories of causes is virtually non-existent, with a lack of comparable data being a major barrier to such research. What is more, the studies discussed in this literature review establish only correlation, and not causation. This limitation could potentially be addressed in future research by obtaining more administrative data or by securing additional funding to conduct randomized controlled trial studies.

Introduction

Infrastructure Canada has requested a review of economic and social factors associated with homelessness, as well as the identification and estimation of key factors associated with Canadian homelessness. The present document constitutes an initial literature review whose goal is to support this broader exercise. One of this document's goals is therefore to provide an overview of economic and social factors found to be associated with homelessness. Subsequent analysis for the present exercise will include both an assessment of the availability of Canadian data sources and a regression analysis, whereby key structural factors are identified in the literature to estimate their respective contributions to homelessness in Canada.

The present document focuses on the English-speaking OECD countries, particularly the United States, Canada, and to a lesser extent Australia. It begins by providing an overview of the various causal categories of homelessness, namely structural factors, systems failures, and individual-level risk factors. It then reviews what existing research tells us about these factors. Methodological challenges will then be discussed, followed by a discussion of research gaps.

Causal categories

Researchers group the causes (also known as 'determinants' or 'predictors') of homelessness into three main categories: structural factors; systems failures; and individual-level risk factors. While terminology for these categories varies, they can generally be understood as follows:

- *Structural factors* refer to changes that affect entire geographical jurisdictions (e.g., cost of housing, income levels). Such factors determine whether a community has a small amount of homelessness or a large amount of homelessness, relative to other communities with comparable populations. To alter them, major changes need to be made to spending, regulation or both, and this tends to pit various officials against one another—e.g., private developers against tenant groups, the business community against anti-poverty advocates, etc. These therefore tend to be politically-contentious issues.

- *Systems failures* also affect entire geographical areas, but tend to refer to dysfunctional relationships between organizations—e.g., between correctional facilities and emergency shelters, or between child welfare authorities and homelessness officials. They tend to have a great deal to do with officials and groups working in silos, as well as the misallocation of existing resources. While making changes here involves disrupting the administration of social services, it tends not to be costly to the public treasury (not compared to structural factors).

- *Individual-level risk factors* refer to factors that make some specific individuals more vulnerable to homelessness than others (e.g., having a history in foster care, having serious mental health challenges, etc.). These are crucial to understand, as they can help local officials design: targeted prevention programs; programming for persons already experiencing homelessness; and housing-related support for persons trying to exit homelessness.

Review of structural causes

A considerable amount of research has been undertaken on structural causes of homelessness, with the most sophisticated studies drawing on large datasets from the United States. Results of some of the highest-quality studies are now summarized.

Quigley, J. M., Raphael, S., & Smolensky, E. (2001). Homeless in America, homeless in California. *Review of Economics and Statistics*, *83*(1), 37-51.

The first part of this paper includes a 'thought experiment,' where the authors try to see if each jurisdiction's in-patient hospitalization rate has an impact on homelessness. This is to test the popular belief held by many that the de-institutionalization of the mentally ill led to a large increase in homelessness in the United States. Authors focus on the 1972-1990 period for this part of the analysis. They do a regression, ultimately demonstrating that there is no strong relationship between any of these variables. They ultimately argue that persons with serious mental health challenges went from hospitals into jails, not into homelessness. (The authors further state that the research demonstrates the proposition that there is a strong relationship between drug or alcohol addiction and homelessness, though they do not investigate this relationship.)

The article then focuses on O'Flaherty's work on the impact of housing markets on rates of homelessness. This is the real crux of the article. They use panel data (in this case, they are studying the same jurisdictions over time). To calculate the rate of homelessness in each jurisdiction, they include data at both the metropolitan (i.e., city) level and county level.

Independent variables used here include: the rental vacancy rate in the jurisdiction in question; median rent levels for the jurisdiction in question; household per capita income; local unemployment rates; the ratio of median rent to median household income; temperature (specifically, average January temperature in each jurisdiction); and incidence of federally-provided disability benefits in each jurisdiction.

Several data sources are used to construct the dependent variable. They include a national 'roll up' of US Census and Shelter Counts (compiled by Martha Burt). At the state level, they use administrative data. They stack the data together and undertake one single regression.

Fixed effects are used for both jurisdiction and year (meaning that dummy variables are used to control for each jurisdiction and year). Four different models are used, each using a different combination of independent variables. For all models, rent levels prove to be the strongest predictor of homelessness. Relationship between unemployment and homelessness turns out to be negative, rather than positive—in other words, higher unemployment is correlated with reduced homelessness.

Lee, B. A., Price-Spratlen, T., & Kanan, J. W. (2003). Determinants of homelessness in metropolitan areas. *Journal of Urban Affairs*, *25*(3), 335-356.

This is an OLS regression using cross-sectional analysis. There are 19 independent variables and one dependent variable. The dependent variable is the rate of homelessness, defined as number of people enumerated in the local Point-in-Time Count (PIT Count) per 10,000 population (PIT Count data includes both shelter dwellers and rough sleepers). Authors use data from 1990 for 335 US metropolitan areas.

Median rent levels have the dominant effect; they are positively associated with the rate of homelessness. The percentage of one-person households is also found to have statistical significance and is positively associated with the rate of homelessness.

The relationship between unemployment and the rate of homelessness is negative (but lacks statistical significance).

The authors also try modifying the dependent variable, making it more inclusive by adding both persons in domestic violence shelters and those who are in drug and alcohol treatment programs (in other words, they increased the size of the numerator). This had no major impact on findings. They then tried changing the dependent variable's denominator (i.e., population) by only including persons with incomes less than half of the poverty line. This had no major impact on findings either (though it did make the coefficients larger).

In order to address multicollinearity and eliminate variables not found to be significant in the first model, the authors also ran a reduced form regression. In addition to finding rent levels and the percentage of single-person households to be statistically significant, the reduced form regression also finds both weather (namely, average annual precipitation) and mobility (% of persons living in a different house than in 1985) to have statistical significance.

Early, D. W. (2004). The determinants of homelessness and the targeting of housing assistance. Journal of Urban Economics, 55(1), 195-214.

This paper studies determinants of homelessness in 22 US metropolitan areas. First, it looks at determinants of homelessness (both macroeconomic factors and individual risk factors). This part of the study does *not* look at people already in subsidized housing; rather, it studies people who are either: a) homeless; or b) low-income and not in subsidized housing. The study includes variables related to: income of households studied; housing market characteristics in the local area; household characteristics of households that are surveyed; availability and generosity of social benefits in the local area; weather; levels of education of each household; and whether each household receives various forms of social benefits.

Data for the homelessness rate comes from the 1996 National Survey of Homeless Assistance Providers and Clients (NSHAPC), which is "a collection of surveys that obtained data from homeless assistance providers and the clients using their services."

Part 1 of the study involves a logit regression—with dependent variable, person is either homeless (1), or not homeless (0). *Total observations*: 3,487 of which 1,418 are homeless and 2,069 are low income. These data are cross-sectional, i.e., providing one snapshot in time.

In Part 2 of the paper, the author uses results of Part 1 to see what would happen if housing assistance were not provided to people—specifically, what would happen if those in subsidized housing were not in subsidized housing? *Total observations in the second part*: 540 families placed in subsidized housing. It is cross sectional (i.e., one snapshot in time).

Most of the paper focuses on its first part. The impact of the price of substandard housing is found to be modest and insignificant. As a measure, the authors constructed their own price index focused on the price of very low-cost housing in the local jurisdiction in question. Except for the coefficients on vacancy rates for substandard housing units, none of the variables describing conditions of the local housing markets had coefficients that were statistically significant. The study finds that employed people are less likely to be homelessness, but the magnitude is found to be close to zero and there is no statistical significance.

Ji, E. G. (2006). A study of the structural risk factors of homelessness in 52 metropolitan areas in the United States. *International Social Work*, *49*(1), 107-117.

This study uses cross-sectional data for one year only (1996). This is in contrast to panel data, which would have involved a study of the same jurisdictions over several years.

For the dependent variable, the authors calculate a homelessness rate, which appears to look at occupied emergency beds per population (however, the wording on how an occupied bed is defined is vague).

Authors could not get data for all jurisdictions, so they got data from 52 jurisdictions instead of the 76 they would have liked. They look at regions (i.e., metropolitan areas).

Independent variables capture: availability of low-cost housing (using three different variables); percent of local population below the poverty line; local unemployment rate; percent of local population receiving SSI benefits (federally-administered disability benefits); generosity of SSI benefits in the local jurisdiction; AFDC benefit levels (federally-administered child benefits); and dollar gap between Fair Market Rent and TANF benefit levels (Fair Market Rents refer to monthly rent a particular property type is likely to receive; TANF refers to federally-administered child benefits).

There was a high degree of multicollinearity between the AFDC and the TANF variables, so the authors dropped the AFDC variable.

The poverty rate is the only independent variable found to be statistically significant. The strength of relationship is strong compared to the rest of the variables.

Byrne, T., Munley, E. A., Fargo, J. D., Montgomery, A. E., & Culhane, D. P. (2013). New perspectives on community-level determinants of homelessness. *Journal of Urban Affairs*, *35*(5), 607-625.

This study is based on January 2009 PIT Count data in 447 Continuums of Care (CoCs) in the US, covering 99% of the US population).

The dependent variable is the number of homeless people as defined by PIT Counts. The authors actually do two specifications of the dependent variable. With one, the denominator is the general population in that CoC. With the other, the denominator is the number of people living in poverty in that jurisdiction. These approaches parallel the approaches used by Lee et al. (2003) discussed above. The authors further disaggregate each of those dependent variables according to whether the CoC in question is a metropolitan area or not. So the authors ultimately run four regressions.

Independent variables used in the present study are very similar to those used by Lee et al. (2003) in the following categories: housing market; economic conditions; demographics; safety net; and transience. This study, however, does not use climate data, as there is considerable climate variation within each CoC.

The major finding of this study is that median rent levels matter a great deal to homelessness. They are positively associated with the rate of homelessness in all four regressions, with both statistical significance and a strong relationship. The unemployment rate only meets the 5% threshold for statistical significance with one of the four regressions (namely, the one with non-metropolitan areas and where the general population is the numerator of the dependent variable).

Fargo, J. D., Munley, E. A., Byrne, T. H., Montgomery, A. E., & Culhane, D. P. (2013). Community-level characteristics associated with variation in rates of homelessness among families and single adults. *American Journal of Public Health*, *103*(S2), S340-S347.

This study uses various regressions. The authors look at both metropolitan and non-metropolitan areas (245 metropolitan CoCs; 124 non-metropolitan CoCs). They look at both families and singles. They have a dependent variable where the denominator is the general population, and another where the denominator is the local population living in poverty. So eight regressions in total.

For the dependent variable's numerator, they use PIT Count data from January 2009.

The study uses the following these categories of independent variables: 1) demographic, behaviour, public health; 2) economic; 3) safety net. Table 1 in the article lists them all.

The local unemployment rate is found not to be statistically significant for any of the metropolitan areas (for all of the regressions). But it does have statistical significance with families in non-metropolitan areas with both denominators (however, it is a negative association).

The study finds no statistical significance for singles in non-metropolitan areas, regardless of denominator.

There is an independent variable for households paying rent that is more than 30% of income. This is found to be statistically significant in metropolitan areas when the dependent variable's denominator is the general population (but not when poverty is the denominator). This holds for both single adults and families. In non-metropolitan areas, the variable is statistically significant for families across all regressions, but not statistically significant for singles.

The percentage of subsidized housing units per households in poverty is another independent variable used. It is always found to be statistically significant in metropolitan areas, for both singles and families (in all of the regressions). But for non-metropolitan areas, there is no statistical significance found in any of the regressions.

Hanratty, M. (2017). Do local economic conditions affect homelessness? Impact of area housing market factors, unemployment, and poverty on community homeless rates. *Housing Policy Debate*, *27*(4), 640-655.

This study looks at determinants of the homelessness rate in 381 US communities. It uses panel data over an eight-year period (2007 to 2014). There are more than 3,000 observations in total (381 observations per year).

The author does both OLS regression and Weighted OLS regression (with the latter, communities with larger populations are given more weight).

Table 1 in the article provides a literature review showing results of past studies that used the following independent variables as predictors of the homelessness rate: rent levels; vacancy rate; unemployment rate; and poverty rate. That literature review finds rent levels consistently showing positive associations with the homelessness rate, but unemployment shows little association.

Two sorts of independent variables are used in this study: housing market data and labour market data.

Dependent variables. PIT Count data is used to construct the dependent variable. The author ran five different types of regressions, each using a different type of dependent variable. For the dependent variable, they first look at "total homeless" persons per 10,000 population. Then, they look at "family homeless" (homeless persons in families with children) per 10,000 population. Then, "individual homeless" (singles without dependants) per 10,000 population. Then "sheltered homeless" per 10,000 population. And finally, "unsheltered homeless" per 10,000 population.

Independent variables. The following independent variables are used: vacancy rate; median rent; unemployment rate; poverty rate; each community's Black population (as % of total); each community's Hispanic population (as % of total); Baby Boomers (as % of population); "individuals not living with family" as percentage of community's total population; single-parent

families as percentage of total population in each community; veterans as percentage of community's total population; SSI recipient as percentage of each community's total population; number of persons in supportive housing per 10,000 population; and number of people in supportive housing for families per 10,000 population.

As part of the sensitivity analysis, the author removed communities that experienced sudden large changes in the homelessness rate (which they attributed to either changes in methodology for PIT Counts or reporting errors). That left them with 2,440 observations (from the original 3,048).

The author also tried different specifications with alternative data sources for both the unemployment rate and the poverty rate.

Throughout the specifications, median rent is consistently (positively) correlated with the homelessness rate. After sensitivity analysis, unemployment is almost never found to be statistically significant.

As a form of sensitivity analysis, the author then uses "presence of right to shelter laws" as a dummy variable (fewer than 10% of communities have such laws in the US).

The author also did specifications with state-level data. Each of these specifications included approximately 400 observations. Here, the author used different data sources, looking at state-level data for 2007 to 2014. The dependent variable is student homelessness.

The most important finding in the study overall is that median rent and poverty rate are consistently found to be statistically significant. They both have positive relationships with the rate of homelessness.

Johnson, G., Scutella, R., Tseng, Y. P., & Wood, G. (2019). How do housing and labour markets affect individual homelessness? *Housing Studies*, *34*(7), 1089-1116.

This study uses individual-level panel data. Its focus in on the unemployment rate and rents, both with respect to entering into homelessness and exiting out of homelessness.

It uses a well-known Australian survey called the Journeys Home Survey. Many academic articles have been written with this data. It is administered to individuals who receive social assistance and are either already homeless or are prone to be homeless (so they are flagged and then followed over time). About 3% of social assistance recipients are flagged in this way. About 62% of those individuals agreed to a 'wave 1' interview. Ultimately, 1,682 persons agreed to a 'wave 1' interview conducted in 2011. This was followed by five additional interviews at six-month intervals. "Fully 91 per cent (wave 2), 88 per cent (wave 3), 86 per cent (wave 4), 85 per cent (wave 5), and 83 per cent (wave 6) of wave 1 respondents were re-interviewed."

Researchers disaggregated Australia into 87 areas for the purpose of this study.

Independent variables. For rental housing costs, they look at the impact of 20th percentile rent (believing it better reflects rent paid than median rent levels). They also use monthly area unemployment rates, and 34 individual-level variables.

Dependent variables. There are two dependent variables: 1) entry into homelessness (change in status between interview waves); and 2) exit from homelessness (change in status between interview waves). Authors use a joint random effect profit specification, so the dependent variable takes on a value of 0 or 1.

Results

Rent. A A$100 increase in an area's 20th percentile weekly market rent lifts risk of entry into homelessness by roughly 2.9 percentage points. However, rent levels are not found to significantly affect a person's exit from homelessness.

Unemployment. The unemployment rate has a modest positive impact on entry into homelessness. A 1 percentage point increase in a region's unemployment rate increases the likelihood of entry into homelessness by roughly 0.9 percentage points. Unemployment is not found to significantly affect exit from homelessness.

Further disaggregation of results

Authors further disaggregate findings, showing which subgroups are more impacted by changes in rent levels (at entry). One interesting finding here is that those who do not use drugs are more sensitive to rental market factors.

The authors do the same for unemployment rates, finding that Indigenous people are more sensitive to unemployment rate (in terms of entry into homelessness). Persons who have never been diagnosed with mental illness are more sensitive to unemployment rate than those who have been.

The authors suggest that because they have controlled for 34 individual-level factors, the strength of the relationship with their variables of interest (i.e., rent levels and unemployment) is weaker.

Kneebone, R. D., & Wilkins, M. (2016). Shrinking the need for homeless shelter spaces. *SPP Research Papers***,** *9***(21).**

This study utilizes ordinary least squares regressions for cross-sectional data to investigate the impact of housing market conditions on emergency shelter bed provision in 51 Canadian cities during 2011.

The dependent variable is the number of shelter beds in each city as a fraction of that city's total population.

Independent variables:

- The ratio of income to rent for low-income singles (i.e., the social assistance benefit level for a single employable adult in the city in question, divided by the average rent for a one-bedroom rental unit in the local community)

- Average overnight low temperature for each city during the month of January

- The fraction of each city's adult population self-identifying as Indigenous

- The number of people residing in each city on the date of the national census who resided outside of Canada one year previously

In specifications using all four independent variables, housing affordability, average temperatures and the fraction of each city's population self-identifying as Indigenous all predict homelessness in the expected direction. The main policy implication is that one should expect more homelessness in cities that lack affordable housing, have low temperatures and have a large percentage of Indigenous persons.

Kneebone, R. D., & Wilkins, M. (2021). Local Conditions and the Prevalence of Homelessness in Canada. *The School of Public Policy Publications.*

This study utilizes cross-sectional data from 49 of 61 Point-in-Time Counts conducted across Canada in 2018 to investigate the impact of community-level conditions on the prevalence of both sheltered and unsheltered homelessness. The models are estimated using weighted least squares regression, with population weights employed to give more weight to observations from larger communities that have a greater supply of homeless shelter beds and potentially more precise estimates of homelessness.

The dependent variable in this study is the number of persons enumerated as homeless by the 2018 PIT Count, as a fraction of the local population aged 15 and older. The study considers the total prevalence of homelessness, as well as the prevalence of unsheltered homelessness (i.e., rough sleeping) and the prevalence of sheltered homelessness (i.e., persons sleeping in emergency accommodation).

Independent variables include:

- The social assistance income available to a single person deemed able to engage in full-time employment. Singles are chosen because, in the words of the authors, "[m]ost people living in deep poverty are single…"

- Data on the rent charged for "relatively low-quality, purpose-built, one-bedroom rental unit priced at the top of the first quintile of rents available" in each community—both as a

rent-to-income ratio for social assistance recipients, and separately as its own independent variable

- The average local vacancy rate for all one-bedroom units

- The percentage of the local population living below Statistics Canada's low income cut-off (formerly Canada's unofficial poverty measure)

- The percentage of the local population, aged 15 or older, self-identifying as Indigenous

- The average local overnight low temperature during the month of January, measured in degrees Celsius

The study finds the following factors to be important predictors of total homelessness: the availability of low-cost rental housing units (negative relationship), the percentage of the local population identifying as Indigenous (positive relationship), the percentage of the local population living in poverty (positive relationship), and the local climate (warmer climate predicts more homelessness).

For rough sleepers only, only the following independent variables are found to have statistical significance: the percentage of the local population identifying as Indigenous (positive relationship), and the local climate (warmer climate predicts more homelessness).

And for persons sleeping in emergency facilities: the rent-to-income ratio described above is found to have a negative relationship; rent levels are found to have a positive relationship; the percentage of the local population identifying as Indigenous is found to have a positive relationship; and the percentage of the local population living in poverty is found to have a positive relationship.

Key takeaways of reviews of structural causes

- Local rent levels are consistently found to have a positive association with homelessness, typically with high degrees of statistical significance.

- Other factors—e.g., rates of poverty, the percentage of single-person households, weather, rates of mobility, the amount of subsidized housing—are sometimes found to have a statistically-significant association as well, but not consistently across multiple studies.

- The relationship between unemployment and homelessness is rarely found to have statistical significance.

- Recent Canadian research has found the percentage of the local population identifying as Indigenous to have a positive relationship with homelessness.

Review of systems failures

Very little research has been undertaken on systems failures as causes of homelessness, and almost none have tried to measure the scale of impact. What follows are summaries of 12 recent articles that speak to these matters.

Metraux, S., Byrne, T., & Culhane, D. P. (2010). Institutional discharges and subsequent shelter use among unaccompanied adults in New York City. *Journal of Community Psychology*, *38*(1), 28-38.

This study, focused on New York City, looks at discharges from various correctional and health care settings into homelessness. It draws on the administrative records of 9,247 single adults who entered shelters administered by New York City's Department of Homeless Services (DHS), for the first time in 1997 (that year, the DHS operated more than 80% of the NYC shelter beds designated for unaccompanied adults). The study used data on shelter use for three years following initial shelter entry. These records were then linked to each client's administrative records from six other public systems that provided services related to either hospital or corrections.

The researchers utilized the well-established cluster analysis technique of k-mean clustering to analyze 9,247 DHS records of emergency shelter users. The aim was to determine the shelter utilization patterns of individuals and categorize each person into one of three distinct homeless trajectories: transitional, chronic, or episodic. Subsequently, a multinomial logistic regression model was fit to investigate the relationship between the categorization and institutional discharges.

This article finds that among the cohort, 28% had been "discharged from institutional care in one of six systems within 90 days of their first shelter entry." The study also finds that persons entering shelter "from jail or prison were more likely than others in the cohort to make lasting shelter exits relatively quickly." By contrast, persons entering shelter from "hospital stays reimbursed by Medicaid…were more likely than others in the cohort to subsequently experience an extended or episodic pattern of shelter use."

The authors note that their findings that just over one-quarter of recent admissions to shelter had recently been discharged from a public institution is conservative, as they were only able to assess the systems for which they had data, and they lacked data for various child welfare settings.

Dworsky, A., Napolitano, L., & Courtney, M. (2013). Homelessness during the transition from foster care to adulthood. *American Journal of Public Health*, *103*(S2), S318-S323.

This quantitative study looks at the incidence of homelessness as youth transition to adulthood, while also identifying predictors of homelessness during this transition. It uses data from the Midwest Evaluation of the Adult Functioning of Former Foster Youth (known as 'the Midwest

Study'), a longitudinal study of youth 'aging out' of foster care in three American states. The Midwest Study followed a sample of youth from Iowa, Wisconsin, and Illinois for 10 years beginning in 2002. According to the authors:

> The sampling frame included all the Iowa and Wisconsin youths and two thirds of the Illinois youths who had entered foster care before their 16th birthday, were still in foster care at age 17 years, and had been removed from home for reasons other than delinquency… Follow-up data were collected at ages 19, 21, 23 or 24, and 26 years, with response rates ranging between 81% and 83%.

The authors find that, relative to other youth, those 'aging out' of foster care are at high risk for becoming homeless during the transition to adulthood. They find that 36% of study participants became homeless at least once by age 26 years. Factors that made youth more likely to become homeless include: running away at some point while in foster care; frequent placement changes while in foster care; being male; having a history of physical abuse; engaging in more delinquent behaviours (not defined in the study); and having symptoms of a mental health challenge.

One of the study's policy recommendations is that foster care be extended to age 21. Other policy recommendations include: child welfare agencies having better housing plans for youth leaving care; youth having financial assets as they leave foster care; and helping youth in foster care to build better relationships with family members (e.g., parents, grandparents).

Forchuk, C., Godin, M., Hoch, J. S., Kingston-MacClure, S., Jeng, M. S., Puddy, L., Vann R., & Jensen, E. (2013). Preventing psychiatric discharge to homelessness. *Canadian Journal of Community Mental Health*, *32*(3), 17-28.

This randomized controlled study looks at the impact of on-site, predischarge housing-related assistance for psychiatric clients in London, Ontario. Study participants consisted of patients at several hospitals.

With the treatment group, a manager with the provincial social assistance program was able to fast-track social assistance funds for first and last month's rent, while a well-connected housing worker was assigned almost immediately to the individual. The housing worker could help members of the treatment group call the landlord, and sometimes visit the housing unit with the prospective tenant. Social assistance staff were able to then provide the fast-tracked funds directly to landlords. "The housing [worker] would also assist in setting up payments to landlords if the client wished this, reviewing lease arrangements, and helping to arrange utility payments if needed."

The intervention reduced the number of persons discharged into homelessness, with more than 90% of members of the intervention group acquiring housing.

Herbert, C. W., Morenoff, J. D., & Harding, D. J. (2015). Homelessness and housing insecurity among former prisoners. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, *1*(2), 44-79.

Using longitudinal, administrative data, this study assesses patterns of housing insecurity and homelessness among Michigan parolees released in 2003. The data are based on administrative records on more than 11,000 Michigan prisoners, from which a random sample was gathered consisting of one-third of the larger group sample (n = 3,681) for whom more detailed data was collected with respect to post-prison living arrangements. In order to create this richer subsample, researchers coded the narrative case notes kept by parole agents, which are updated regularly.

The study employs two discrete-time event history models to analyze housing insecurity. The first model uses a binary dependent variable that measures the probability of a household moving in a given week and uses logistic regression to estimate the hazard. The second model utilizes a multinomial logit approach to estimate the hazard function, where the dependent variable represents different states of housing insecurity.

Spells of absolute homelessness were found to occur in just 2% of the sample. Having said that, rates of housing instability were found to be rather high, with most residential episodes lasting just a few months. According to the study, "over 50 percent of the episodes ended at or before week 8, and 75 percent ended by week 27. The median spell length was seventeen weeks." The likelihood of a residential move "decreased dramatically after the early weeks at a particular residence…"

Mental health challenges, substance use, prior incarcerations, prior experiences of homelessness and lower wages were all found to increase the likelihood of residential instability. These can all be considered individual-risk factors.

Having said that, certain rules in Michigan's criminal justice system may be seen as systems failures. For example, results of this study suggest that penalties levied for 'bad behaviour' while inmates are on parole appear to create further residential instability. Indeed, after failing a drug test, inmates were more likely to return to prison or flee authorities, both of which contribute to residential instability. Many of the rules being broken may be arbitrary. Some of the more innocuous ones include: alcohol use, curfew violations, failure to report to one's parole officer, and association with other parolees. A 'loosening up' of some of some of these rules, as well as the provision of more housing support (i.e., wrapround support) in the first several months of post-release tenancy, could potentially result in greater residential stability.

Buccieri, K., Oudshoorn, A., Frederick, T., Schiff, R., Abramovich, A., Gaetz, S., & Forchuk, C. (2019). Hospital discharge planning for Canadians experiencing homelessness. *Housing, Care and Support*, *22*(1), 4-14.

This mixed methods study is based on results from an online survey conducted in 2017, drawn from a convenience sample of 660 stakeholders in Canada. It was completed by professionals in health care, non-profit, government, law enforcement, and academia.

The study sought to answer the following question: "What are the barriers and system gaps to timely discharge for people experiencing homelessness from hospital to community in Canada?"

According to the study: "The majority of [survey] participants were employed in the social service or non-profit sector and worked predominantly in non-managerial positions that involved direct contact with persons experiencing homelessness."

The study identifies the following barriers to appropriate discharges of persons experiencing homelessness: insufficient communication between hospital staff and community (both throughout the year and at the time of a patient's discharge); a lack of information sharing between hospital and community; and pressure on hospital staff to discharge patients quickly.

Treglia, D., Johns, E. L., Schretzman, M., Berman, J., Culhane, D. P., Lee, D. C., & Doran, K. M. (2019). When crises converge: hospital visits before and after shelter use among homeless New Yorkers. *Health Affairs*, *38*(9), 1458-1467.

Using linked health care and shelter administrative databases, this New York City study follows persons in the year before their first entry into an emergency shelter, and the year following their first exit. The study draws on an emergency shelter database capturing nearly 90% shelter use in the city. This study included persons aged 18 and older who were first-time shelter users during the period 2008–15.

In the words of the authors:

> We examined the timing of hospital visits relative to the onset and conclusion of shelter episodes. Variables of interest included the proportion of adults who had an ED visit or inpatient hospitalization in the year before the beginning of a shelter episode or the year following the end of one. Rates were calculated separately by race, sex, ethnicity, age, shelter type, and year of shelter entry or exit. We used chi-square tests to examine bivariate associations and logistic regression to examine multivariable associations.

According to the article: "Hospital visits—particularly ED visits—began to increase several months before shelter entry and declined over several months after shelter exit, with spikes in ED visits and hospitalizations in the days immediately before shelter entry and following shelter exit." One specific finding is "that pregnancy complications were among the top diagnoses for hospital visits before and after shelter use for members of homeless families…"

One implication of this research is that "hospital use preceding homelessness presents an opportunity for interventions to prevent homelessness." Emergency Departments in particular may be locations where risk screening can be done for homelessness, and where persons can be connected to prevention and housing programs.

Halushka, J. M. (2020). The runaround: Punishment, welfare, and poverty survival after prison. *Social Problems*, *67*(2), 233-250.

This qualitative study draws on results from 45 in-depth interviews with formerly incarcerated men in New York City. Among other things, the research uncovers how time-consuming reporting to parole officers can be. For example: "Study participants reported that it was not uncommon to wait there for two to five hours for a routine 20-minute parole appointment." This does not include travel time to and from the appointment. Sometimes parolees had to report weekly.

According to the article, such reporting can interrupt stable routines and aggravate both physical and mental stress. In some cases, this can increase recidivism and result in reduced housing stability, which can lead to homelessness.

One policy consideration offered by the study is to encourage "more 'one-stop' service centers. Locating multiple agencies under one roof could improve service coordination and continuity-of-care, allowing former prisoners to access resources and supportive services without having to juggle conflicting appointments."

Jenkinson, J., Wheeler, A., Wong, C., & Pires, L. M. (2020). Hospital discharge planning for people experiencing homelessness leaving acute care: a neglected issue. *Healthcare Policy*, *16*(1), 14.

This is a commentary piece about hospital discharge policies, focusing on Ontario. The article seeks to bring attention to the challenges involved with current discharge policies, and also propose possible ways of addressing current challenges.

While short and high-level, the piece does offer the reader this helpful quote:

> Discharge planning aims to effectively transition a patient's care from the hospital to the community, addressing the interdisciplinary care needs for a patient's recovery. Individuals experiencing homelessness are most commonly discharged to emergency shelters or the streets. These destinations lack resources to support critical follow-up care and can exacerbate existing mental and physical health issues.

The article also identifies the current "dearth of post-discharge outcome data for people experiencing homelessness." Policy recommendations made in the piece, while very board, point to the need for: both evaluative and exploratory research; prioritizing hospital discharge policies; generating more post-discharge outcome data for persons experiencing homelessness; and more collaboration between the health and social services sectors.

Kelly, P. (2020). Risk and protective factors contributing to homelessness among foster care youth: An analysis of the National Youth in Transition Database. *Children and Youth Services Review*, *108*, **104589.**

This study assesses risk and protective factors for homelessness among youth 'aging out' of foster care in the United States. It uses data from both the National Youth in Transition Database (NYTD) and the Adoption and Foster Care Analysis Reporting System (AFCARS). This includes data from all 50 US states. In total, 7,082 youth are included in the analysis. This study's methodological approach was binary logistic regression.

The study finds the strongest risk factors contributing to homelessness among these youth are past incarceration and referral for substance abuse. Other significant factors include a history of running away, receiving public food assistance, and being "emotionally disturbed."

The study finds the strongest factors protecting against homelessness are "having a connection to an adult and remaining in foster care until age 21." Other protective factors include having high school education or more, still being enrolled in school, and having full-time employment."

One the one hand, many of the factors listed above are viewed as individual-level risk factors. However, noteworthy for the present section of this report, remaining in foster care until age 21 is very dependent on legislation governing how long youth are allowed to remain in care. This study's results suggest that government should allow and encourage youth to remain in foster care until at least the age of 21. The results also suggest that one 'systems failure' in the United States has been not allowing youth to remain in foster care sufficiently long.

Jenkinson, J. I., Strike, C., Hwang, S. W., & Di Ruggiero, E. (2021). Nowhere to go: Exploring the social and economic influences on discharging people experiencing homelessness to appropriate destinations in Toronto, Canada. *Canadian Journal of Public Health*, *112*(6), **992-1001.**

This study sheds light on constraints faced by hospital workers in discharging persons experiencing homelessness to appropriate destinations. It is based on results of 33 semi-structured interviews in Toronto with: hospital staff; shelter workers; researchers, policy advisors; and advocates.

The research found that a lack of hospital resources (namely, an insufficient number of beds) put pressure on hospital staff to discharge patients faster than staff would like. Similarly, and in the case of persons with complex health needs, shelter policies limited discharge options for hospital staff.

The study also found that most shelter workers are not trained medical professionals, "yet they still received patients who can have complex health issues."

Augustine, D., & Kushel, M. (2022). Community supervision, housing insecurity, and homelessness. *The ANNALS of the American Academy of Political and Social Science*, *701*(1), 152-171.

This article, consisting largely of a review of existing research, includes a consideration of various possible approaches to improving housing strategies for persons leaving corrections.

Staff in correctional facilities are encouraged to assess the housing needs of all incarcerated persons that they expect to be released, "including, at minimum, options for the first 24 hours following release, as well as long-term housing." This may require the creation of new staffing positions, as well as short-term funding to help recently released inmates with initial housing costs (e.g., damage deposit, first and last month's rent, etc.).

Correctional officials and policymakers are also encouraged to consider moving away from very rules-based halfway houses towards more of a Housing First approach for persons recently released from corrections. The rules in halfway houses may set persons up for failure and reduce their likelihood of remaining housed for an extended period.

Lawmakers and policymakers are also encouraged to revisit conditions pertaining to probation and parole so as not to disrupt the housing stability of recently released inmates (an approach discussed extensively by Herbert et al. 2015, as outlined above).

Jenkinson, J. I., Hwang, S. W., Strike, C., & Di Ruggiero, E. (2022). "We don't have a good system for people who don't have a home and don't need a hospital": Contextualizing the hospital discharge process for people experiencing homelessness in Toronto, Canada. *SSM-Qualitative Research in Health*, *2*, 100056.

This study looks at discharges from hospitals into homelessness, with a focus on Toronto. Specifically, the article looks at "the discharge process from the general internal medicine services of three urban hospitals in Toronto's downtown core, as told through the experiences of hospital workers involved in the discharge process and shelter workers receiving discharged patients."

Toronto-based hospital and shelter workers were interviewed about hospital discharges directly into homelessness. There were 33 interviews in total.

Findings include the following:

- There are limited resources available in community post-discharge. This includes community-based health care, a lack of which often results in readmissions to hospital shortly after discharge.

- Emergency facilities are often not physically accessible, which is problematic for some recently discharged patients.

- There is a lack of 'after care'—i.e., the ability of staff to provide additional health-related services to recently discharged patients—available at emergency facilities, and a lack of awareness of these limitations by hospital staff during the discharge process.

Key takeaways of reviews of systems failures

- Discharges from hospitals often involve poor communication between hospital and shelter staff. There is also a lack of 'after care' for recently discharged patients who lack permanent housing.

- Youth are often discharged from child welfare systems too early and without sustainable housing plans.

- Persons discharged from correctional facilities are often subjected to parole and probation requirements/rules that can be overly strict and can 'set them up' for further housing instability.

- Persons exiting hospital, child welfare and correctional settings benefit from sound housing plans, funding for housing, adequate income assistance, and social connections (including with family members).

Review of individual-level risk factors

A considerable amount of research has been undertaken on individual-level risk factors that make some persons more vulnerable to homelessness than others.

Table 1 presents some of the individual-level risk factors associated with an increased likelihood of a person being homeless. The odds ratios presented here refer to how many times more likely such a person is to experience homelessness than somebody without the characteristic in question (based on the cited study).

Table 1	
Risk Factors that Increase Likelihood of a Person Becoming Homeless	
Factors	**Odds ratio**
History in foster care	3.7
Having previously attempted suicide	3.6
History of running away	3.3
History of criminal behaviour	3.0
Physically abused as a child	2.9
Having experienced unemployment	2.6
Having been emotionally abused as a child	2.4
Non-heterosexual identity	2.3
Substance use challenge	2.3
Victim of violence	2.2
Having moved a lot	2.1
Psychotic disorder	2.1
Veteran	2.0
Being single	2.0

Source. Nilsson, S. F., Nordentoft, M., & Hjorthøj, C. (2019). Individual-level predictors for becoming homeless and exiting homelessness: A systematic review and meta-analysis. *Journal of Urban Health*, *96*(5), 741-750.

There were seven studies with Canadian content that met the inclusion criteria for the above meta-analysis. They will now be summarized in the order in which they are discussed in the meta-analysis. At the end of this section, we have included relevant findings from the Final Report of the At Home/Chez Soi study.

**Cheng, T., Wood, E., Feng, C., Mathias, S., Montaner, J., Kerr, T., & DeBeck, K. (2013).
Transitions into and out of homelessness among street-involved youth in a Canadian
setting.** *Health & Place*, *23*, 122-127.

This Vancouver study looks at factors associated with "transitions into and out of homelessness
among a prospective cohort of 685 drug-using street-involved youth aged 14–26." Data was
gathered between September 2005 and May 2012.

The study analyzes various factors associated with transitions into and out of homelessness,
including socio-demographic variables such as gender, age, ethnicity, stable relationships, and
regular employment, as well as drug use and behavioural variables such as sex work, drug
dealing, and access to addiction treatment and housing services. Generalized linear mixed-effects
methods (GLMM) are used to model these transitions, and both univariate and multivariate
logistic GLMM analyses are conducted to identify factors that independently contribute to the
outcomes of interest while accounting for potential confounding.

The following factors were found to predict transitions into homelessness: recent incarceration;
difficulty accessing housing; not being in a stable relationship; being Caucasian; engaging in
substance use; being younger; and being male.

The following factors were found to predict the transition out of homelessness: not having been
recently incarcerated; being able to access housing; being in a stable relationship; not engaging in
problematic substance use; and engagement in sex work.

**Rachlis, B. S., Wood, E., Zhang, R., Montaner, J. S., & Kerr, T. (2009). High rates of
homelessness among a cohort of street-involved youth. Health & Place, *15*(1), 10-17.**

This Vancouver study gathered data on 478 at-risk youth between September 2005 and October
2006. Slightly more than half of participants were homeless at baseline. "Eligibility for the study
included age 14–26 years at baseline and use of illicit drugs other than marijuana in the past 30
days."

The aim of this study was to determine the prevalence of homelessness among Vancouver street-
involved youth, and to explore the links between homelessness and various socio-demographic
characteristics, drug use, and risk behaviours. Homelessness was defined as having no fixed
address, living on the street, in a shelter or hostel, or couch-surfing at baseline. The study
employed univariate and logistic regression analyses to compare homeless youth to marginally
housed youth, and to identify predictors of homelessness at baseline. The study considered
variables such as gender, age, Aboriginal ethnicity, drug use, and history of abuse and
victimization. Behavioural variables referred to the six-month period before the interview, while
history of abuse referred to any time in the past. The study used an *a priori* defined model-
building protocol to identify statistically significant variables for multivariate logistic regression
analysis.

"Factors associated with homelessness included public injecting, frequent crack use, experienced violence, having less than a high-school education, and not having been in any addiction treatment."

Rokach A. The lonely and homeless: Causes and consequences. *Social Indicators Research* 2004, 37-50.

This study, based in an undisclosed Canadian city, involved a 30-question survey completed by 266 persons experiencing homelessness and 595 members of the general population.

The questionnaire data was analyzed using principal component factor analysis with varimax rotation, revealing five factors associated with loneliness: personal inadequacies, developmental deficits, unfulfilling intimate relationships, relocation/significant separations, and social marginality, which were classified into two clusters: characterological and historical causes, and experiential and situational ones. Understanding the causes of loneliness was found to require taking into account individual experiences, attitudes, and personality characteristics, as well as the impact of significant life events such as changes and losses. Subsequently, statistical tests, including Chi Square, ANOVA, and MANCOVAs, were performed to compare the mean subscale scores of the five factors between the homeless and general population samples.

The results of the study found that, for all five factors, persons experiencing homelessness had lower scores than did members of the general population.

Smith, O. M., Chant, C., Burns, K. E., Kaur, M., Ashraf, S., DosSantos, C. C., Hwang, S. W., & Friedrich, J. O. (2017). Characteristics, clinical course, and outcomes of homeless and non-homeless patients admitted to ICU: A retrospective cohort study. *PLoS One*, *12*(6), e0179207.

This Toronto study compares homeless to non-homeless patients admitted to a large inner-city academic hospital. In total, 63 randomly-selected patients experiencing homelessness were compared to 63 non-homeless patients—matched according to reason for admission to ICU, age and sex (characteristics most commonly used by clinicians).

The study involved a retrospective chart review of homeless patients in four intensive care units at a Toronto hospital between 2009 and 2011. The researchers used Fisher's exact test for categorical variables and unpaired t-test or Wilcoxon-Mann-Whitney test for continuous variables for comparisons between homeless and non-homeless patients. Paired analyses were conducted where appropriate, but the results for unpaired analyses were presented because they were virtually identical. The study also used multivariable logistic regression analysis to determine if homelessness was an independent predictor of hospital mortality.

Patients experiencing homelessness were more likely to die upon admission to the ICU, despite similar medical conditions upon admission. Having said that, patients experiencing homelessness had "were much more likely to have a history of substance use."

Svoboda, T., & Ramsay, J. T. (2014). High rates of head injury among homeless and low-income housed men: a retrospective cohort study. *Emergency Medicine Journal, 31*(7), 571-575.

This Toronto study, focused on men only, looks at the predictors and patterns of head injury (HI) among homeless and low-income male patients seeking care at emergency departments.

The study uses a retrospective cohort approach to examine the impact of a shelter-based alcohol harm reduction program for men who were chronically homeless with drinking problems. The study sample included 50 men from the shelter program, 61 men from a hostel for men in the general homeless population, and 59 men from three low-income housing sites. Validated instruments are used to determine multiple measures of health and social status, and hospital records are hand-searched and matched to interviews using matching probabilities. Head injuries were recorded and inferred using specified rules. Statistical analyses including chi-square and analyses of variance are used to determine group differences in demographic characteristics. Paired t-tests and simple multivariate linear regression are used to compare rates of head injuries for each subject in the year prior to the interview date and the year prior to the reference year. Logistic and simple linear regression were used to model any head injury and the rate of head injury in the previous year, and a linear regression is performed of time interval versus head injury order score. Mean rates were calculated by fitting to Poisson distributions corrected for overdispersion.

The study finds that strong predictors of head injuries include previous head injuries, drug dependence and seizure disorders. It also finds that annual rates of head injury are 17 times higher among those who are "chronically homeless with drinking problems" than those who are homeless and low-income housed.

This study further finds that the "general homeless population" and persons who are "low-income housed" had rates of head injury 14 times greater than the general population. By contrast, persons who are chronically homeless and have drinking problems have had injuries approximately 400 times higher than in in the general population.

To, M. J., Palepu, A., Aubry, T., Nisenbaum, R., Gogosis, E., Gadermann, A., Cherner, R., Farrell, S., Misir V., & Hwang, S. W. (2016). Predictors of homelessness among vulnerably housed adults in 3 Canadian cities: a prospective cohort study. BMC Public Health, *16*, 1-12.

In this three-city study (Ottawa, Toronto, Vancouver) the housing trajectories of vulnerably housed adults were followed over three years—nearly one-third of participants experienced absolute homelessness at least once during this period. Risk factors for homelessness were identified, including being male, having previously spent a larger percentage of time homeless, and having substance use challenges. By contrast, having higher quality housing reduced the likelihood of a participant becoming homeless during the three-year period.

The study used various statistical methods, including t-tests, Wilcoxon rank-sum tests, chi-square tests, and Fisher's exact tests to compare vulnerable participants who experienced homelessness to those who did not. The study assessed several demographic, health, and housing variables for association with homelessness using generalized estimating equations (GEE) with the logit link. The GEE model was developed in two steps, with fixed predictors in step 1 and time-varying predictors in step 2. The study used the quasi-likelihood information criteria and the Rotnitzky and Jewell approach to determine correlation structures for fixed and time-varying predictors, respectively.

Tucker, D., Hayashi, K., Milloy, M. J., Nolan, S., Dong, H., Kerr, T., & Wood, E. (2016). Risk factors associated with benzodiazepine use among people who inject drugs in an urban Canadian setting. *Addictive Behaviors*, *52*, 103-107.

This Vancouver study, focusing exclusively on people who inject drugs (PWID), assessed predictors of benzodiazepine use by following a group of PWIDS over time. This study tapped into two existing studies: 1) the Vancouver Injection Drug Users Study; and 2) the AIDS Care Cohort to Evaluate access to Survival Services. In the words of the authors: "The present study was restricted to individuals from the VIDUS and ACCESS cohorts with a history of drug injecting and who were recruited between May 1996 and November 2013."

The statistical approach used in this study was generalized estimating equations (GEE) with a logit-link function and exchangeable working correlation structure. Bivariable associations were examined between each explanatory variable and benzodiazepine (BZD) use. A multivariable model was fitted considering all variables with $p < 0.10$ in bivariable GEE analyses as the full model. A backward model selection procedure was used to construct the final model, indicated by the lowest quasi-likelihood under the independence model criterion (QIC) value. Baseline characteristics of participants were summarized, stratified by baseline BZD use in the past six months, with comparisons made using Pearson's Chi-square test for categorical variables and the Wilcoxon rank-sum test for continuous variables.

At baseline, homelessness status among participants made them more likely to report use of benzodiazepine. By the end of the study, homelessness made a participant less likely to report using benzodiazepine. The study does not attempt to explain this change over time, but one might

suggest that a person experiencing homelessness in Vancouver might switch to a different drug over time.

Goering, P., Veldhuizen, S., Watson, A., Adair, C., Kopp, B., Latimer, E., Nelson, G., MacNaughton, E., Streiner, D., & Aubry, T. (2014). *National At Home/Chez Soi Final Report*. **Calgary, AB: Mental Health Commission of Canada.**

While not part of the meta-analysis discussed above, the At Home/Chez Soi study was one of the most ambitious randomized controlled trials in Canadian history. The study followed more than 2,000 participants in five Canadian cities. All were either sleeping in emergency shelters or sleeping outside when the study began. On average, each study participant had experienced a lifetime total of five years of homelessness upon enrollment in the study. Data—gathered from national and provincial administrative data sources, as well as from study participants themselves—was collected from 2009 until 2013. Several dozen academic articles using the data have been released; some continue to be released.

Participants were assigned randomly to either a Housing First intervention or a treatment as usual group, with a control group used to ensure that any changes observed were due to the intervention. The study was conducted in multiple sites and involved individuals who would ordinarily present for a Housing First service in practice, with services received varying as they would in real-world circumstances.

All participants also had one or more serious mental health diagnosis, which was one of the eligibility criteria for participating in the study; it also means that this was not a representative sample of persons experiencing homelessness (nor was it intended to be). Also at baseline: 38% of participants reported having been sexually abused in childhood; 55% reported having been physically abused as children; almost two-thirds reported "a history of one or more traumatic head injuries involving unconsciousness;" 56% had not completed high school; 96% were "single, separated, divorced or widowed;" 36% "reported involvement with the criminal justice system in the six months prior to the study;" 37% reported having been physically assaulted in the six months prior to the start of the study; and more than 90% "had at least one chronic physical health problem."

Key takeaways of reviews of individual-level risk factors

Internationally, the following risk factors are found to predict homelessness in individuals:

- Being in the child welfare system
- Having serious mental health challenges
- Criminal behaviour
- Having experienced trauma (especially as a child)
- Unemployment
- Substance use
- Being non-heterosexual
- Being single

A limited amount of Canadian research has generally corroborated these findings, while also shedding light on the importance of both head injuries and being male as further important predictors.

Methodological challenges

The following limitations of quantitative research can introduce bias into the results when attempting to identify the relationship between the dependent and independent variables.

The dependent variable. The degree of true homelessness in a city at any given time is challenging to measure. Shelter data tells us how many persons are in shelter beds, which itself is determined in part by political and community will to create said shelter beds. What is more, PIT Counts are notoriously unreliable as measures of homelessness—while they tend to make for helpful public-facing documents, they are ripe with methodological challenges.

Multicollinearity. Multicollinearity refers to the phenomenon whereby two independent variables have a strong relationship with each other, making it challenging to estimate the true strength of the relationship between each independent variable and the dependent variable—in this case, homelessness.[1]

Ongoing interplay between independent variables. A 2015 Canadian study on homelessness finds that predictors often interplay with each other over time, often exacerbating one another. For example: being a victim of child abuse might cause further substance use; and mental health symptoms can contribute to losing friends and social support, which can then exacerbate substance use further.[2]

Difficulty in measuring some factors. Some causes of homelessness are hard to quantify. For example, it would be very challenging for researchers to measure the impact of colonialism, systemic racism, homophobia, or transphobia on homelessness. It would also be challenging to measure the impact of changes to the following on homelessness: rules and procedures at emergency facilities; approaches to bylaw enforcement; or discharge practices at correctional facilities or hospitals.

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[1] Studenmund, A. H. (2006). *Using econometrics: A practical guide* (5th ed.). Boston: Pearson Education, Inc.

[2] Piat, M., Polvere, L., Kirst, M., Voronka, J., Zabkiewicz, D., Plante, M. C., Isaak C., Nolin D., Nelson, G., & Goering, P. (2015). Pathways into homelessness: Understanding how both individual and structural factors contribute to and sustain homelessness in Canada. *Urban Studies*, *52*(13), 2366-2382.

Research gaps

The limitations discussed in the preceding section are the sources of various forms of bias in the coefficients. They highlight the fact that the studies discussed in this literature review establish only correlation, and not causation. This, a gap itself, could potentially be addressed in future research by obtaining more administrative data or by securing additional funding to conduct randomized controlled trial studies.

Additional research gaps include the following:

Structural factors. When it comes to structural causes, there appears to be a relatively large amount of research from the United States. By contrast, there is a relatively small amount of such research in other OECD countries, including in Canada. It would be helpful to see research done in this respect that compares relationships across countries, across provinces and territories, and across municipalities. It is also the view of the present authors that the unemployment rate, as an independent variable, should be studied with a lag of 3-5 years.

Systems failures. Research on systems failures is very much in its infancy. While researchers often make reference to them, it is not clear if any concerted efforts have been made to quantify their impact—for example, the impact of inappropriate discharge policies from child welfare systems, correctional facilities, or hospitals. A lack of information can make this even more challenging—for example, important changes can be made to rules, regulations, or practices to various public systems without researchers even being aware that they have occurred. Quantifying the impact would be helpful, including in comparative ways across countries, provinces and territories, and municipalities.

Individual-level risk factors. The most obvious gap in research on individual-level risk factors pertains to the lack of comparative research across countries, provinces and territories, and municipalities.

Conclusion

Structural factors predicting homelessness refer to changes that affect entire geographical jurisdictions (e.g., cost of housing, income levels). There is a considerable amount of American research on the structural causes of homelessness, with rent levels consistently found to have strong statistical significance on the local rate of homelessness. Having said that, there is very little non-American research in this respect.

Systems failures refer to dysfunctional relationships between organizations—e.g., between correctional facilities and emergency shelters, or between child welfare authorities and homelessness officials. Our review of research on systems failures concludes with the following:

- Discharges from hospitals often involve poor communication between hospital and shelter staff. There is also a lack of 'after care' for recently discharged patients who lack permanent housing.

- Youth are often discharged from child welfare systems too early and without sustainable housing plans.

- Persons discharged from correctional facilities are often subjected to parole and probation roles that can be overly strict and can 'set them up' for further housing instability.

- Persons exiting hospital, child welfare and correctional settings benefit from sound housing plans, funding for housing, income assistance in general and social connections (including with family members).

While researchers frequently acknowledge the importance of systems failures, their impact on local rates of homelessness are rarely if ever measured quantitatively.

Individual-level risk factors refer to factors that make some specific individuals more vulnerable to homelessness than others. Our review finds the following characteristics help predict homelessness: being in the child welfare system: having serious mental health challenges; criminal behaviour; having experienced trauma (especially as a child); unemployment; substance use; being non-heterosexual; and being single. A limited amount of Canadian research has generally corroborated these findings, while also shedding light on the importance of both head injuries and being male as further important predictors.

Cross-country, cross-provincial/territorial and cross-municipal comparisons of all of the causes of homelessness is virtually non-existent, with a lack of comparable (i.e., apples to apples) data being a major barrier to such research.