

Neighbourhood Marginalization as a Social Determinant of Health for SARS-CoV-2 Outcomes in Canadian Emergency Departments

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Introduction

There have been some studies (Di Girolamo et al., 2020) on the impact of neighbourhood deprivation on SARS-CoV-2 in other countries, but limited (Public Health Ontario, 2022) research has been done in Canada. This study will examine the relationship between neighbourhood deprivation and SARS-CoV-2 outcomes in Canadian emergency departments, including geographical differences.

Objective

Our objective was to describe the relationship between neighbourhood marginalization and COVID-19 outcomes among patients presenting to Canadian emergency departments (ED).

Methods

Observational retrospective cohort study:

Covid positive patients visited to the Canadian COVID-19 ED Rapid Response network (CCEDRRN) site (Hohl et al., 2021)

Canadian Marginalization Index (Can-Marg) Scores (FI et al. 2021)

Patient hospital data with neighbourhood deprivation for univariate analysis

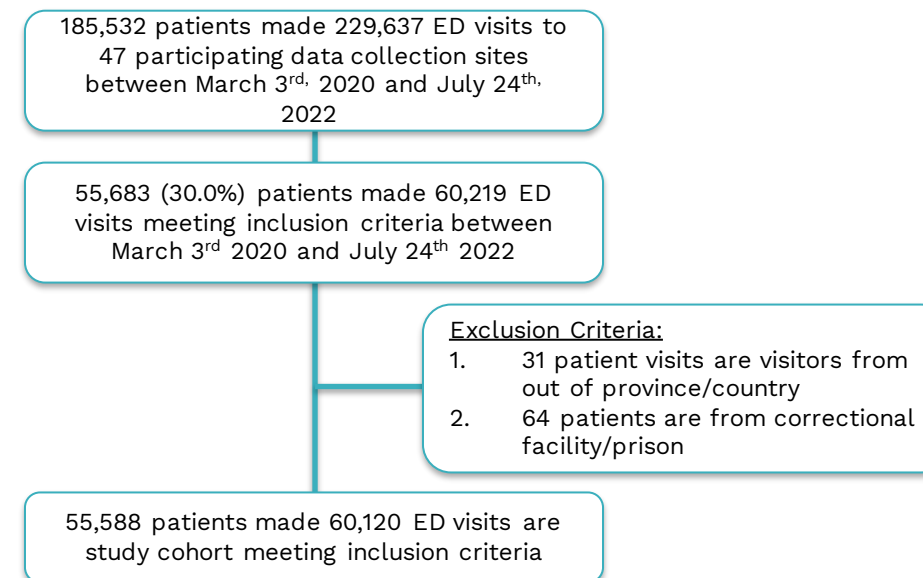
In-hospital mortality rate

Disease severity (COVID-19 Treatment Guidelines Panel, 2022)

ICU characteristics (admission/length of stay)

Results

Figure 1. Patient flow chart



55,588 eligible patients were analyzed in the study. Patients living in the more deprived area in terms of material, household security, and proportions of immigrants appeared to have the worse outcome (Figure 2b and Figure 3). Patients living in the most materially deprived neighbourhoods had more severe disease (28% (95% CI 27-28) vs. 26% (95% CI 25-27)), and longer mean ICU length of stay (25 days (95% CI 21-29) vs. 21 days (95% CI 18-23)) compared to those living in the least deprived neighbourhoods.

Conclusions

Neighbourhood deprivation negatively impacted patients infected with COVID-19 who presented to Canadian EDs. The most marginalized had worse outcomes than those least marginalized. Future research is needed to understand why outcomes are worse, and what factors can be mitigated for improvement.

Figure 2. a) Study Population distribution (left) and b) In-hospital Mortality Rate Comparison with 95% CI between first and fifth quintile (right)

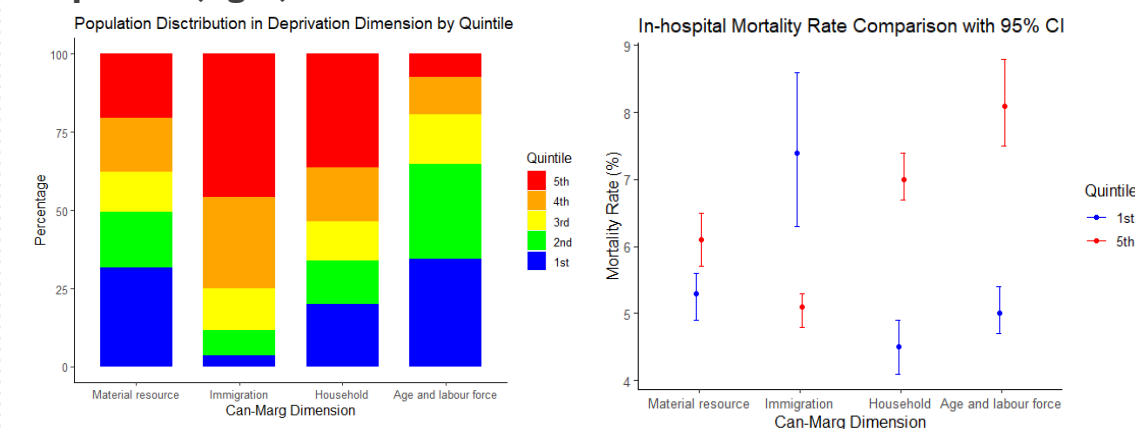
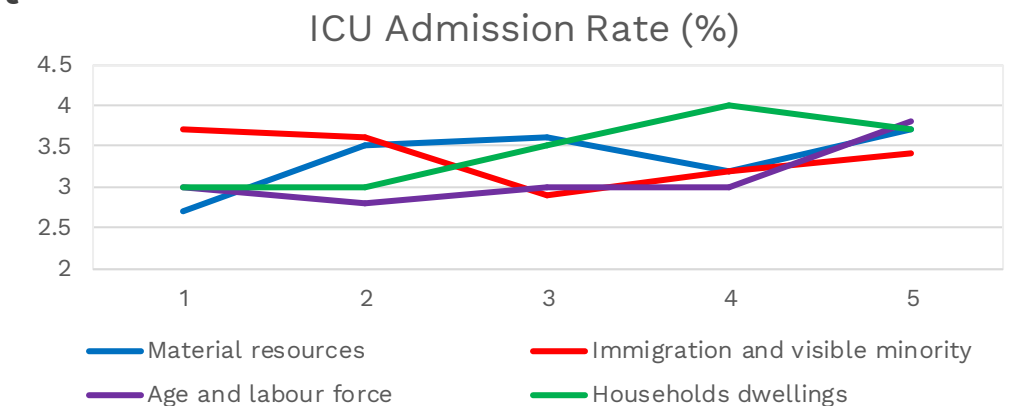


Figure 3. ICU Admission Rate over Can-Marg Dimensions in Quintiles.



References

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Canadian COVID-19 ED Network

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