



Effect of the COVID-19 pandemic on the socioeconomic composition of emergency department presentations

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Abstract

Objectives This study highlights how socioeconomic trends in the emergency department (ED) for low-acuity visits change with the onset of COVID-19, identifies societal inequities exacerbated by the pandemic, and demonstrates the geographical regions where these inequities occur.

Methods We accessed 1,285,000 ED visits from 12 different facilities across New Brunswick from January 2017 to October 2020. Using a deprivation index developed by Statistics Canada as a measure of socioeconomic status, and controlling for additional factors, we perform a logistic regression to determine the influence of the COVID-19 pandemic on low-acuity visits of individuals from the most deprived quintile (Q5). We constructed a heat map of New Brunswick to highlight regions of high deprivation.

Results The proportion of Q5 individuals in the ethnocultural composition domain accessing the ED for low-acuity visits increased from 22.91% to 24.72% with the onset of the pandemic. Our logistic regression showed the log odds of being considered Q5 in the ethnocultural composition domain when visiting the ED for a low-acuity reason increased by 6.3% if the visit occurred during the pandemic, and increased by 101.6% if the visit occurred in one of the 3 major regions of New Brunswick.

Conclusion Individuals visiting EDs for low-acuity reasons during the COVID-19 pandemic were more likely to be from the most diverse quintile in the ethnocultural domain, and the inequities were concentrated in the most urban regions in New Brunswick. This demonstrates that urban areas are where inequities are disproportionately faced for ethnically diverse individuals and demonstrates where policies could be focused.

Résumé

Objectifs Notre étude montre l'évolution des tendances socioéconomiques des visites aux services d'urgence (SU) pour des affections mineures avec l'apparition de la COVID-19 et indique les iniquités sociétales exacerbées par la pandémie et les régions géographiques où ces iniquités se manifestent.

Méthode Nous avons eu accès à 1 285 000 visites aux SU de 12 établissements du Nouveau-Brunswick entre janvier 2017 et octobre 2020. À l'aide d'un indice de défavorisation élaboré par Statistique Canada pour mesurer le statut socioéconomique et après avoir apporté des ajustements pour tenir compte des effets d'autres facteurs, nous avons effectué une analyse de régression logistique pour déterminer l'influence de la pandémie de COVID-19 sur les visites de personnes du quintile le plus défavorisé (Q5) pour des affections mineures. Nous avons construit une carte de densité du Nouveau-Brunswick pour représenter les régions très défavorisées.

Résultats La proportion de personnes du Q5 dans le domaine de la composition ethnoculturelle ayant visité les SU pour des affections mineures est passée de 22,91 % à 24,72 % après le début de la pandémie. Selon notre analyse de régression logistique,

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la probabilité logarithmique pour une personne ayant visité les SU pour une affection mineure d'être considérée comme faisant partie du Q5 dans le domaine de la composition ethnoculturelle augmentait de 6,3 % si la visite avait eu lieu durant la pandémie, et elle augmentait de 101,6 % si la visite avait eu lieu dans l'une des trois grandes régions du Nouveau-Brunswick.

Conclusion Les personnes ayant visité les SU pour des affections mineures durant la pandémie de COVID-19 étaient plus susceptibles d'appartenir au quintile le plus diversifié dans le domaine ethnoculturel, et les iniquités étaient concentrées dans les régions les plus urbaines du Nouveau-Brunswick. L'étude démontre que c'est dans les agglomérations urbaines que les personnes d'origines ethniques diverses font face à des iniquités démesurées, et elle indique où les politiques pourraient être ciblées.

Keywords Social determinants of health · Socioeconomic status · Emergency department · COVID-19 · Canada

Mots-clés Déterminants sociaux de la santé · statut socioéconomique · service des urgences · COVID-19 · Canada

Introduction

On March 11, 2020, the World Health Organization (WHO) declared the COVID-19 virus outbreak a pandemic (World Health Organization, 2020). Since then, research has identified many examples of pre-existing inequities in society being exacerbated by the pandemic. For example, patients of a lower socioeconomic status (SES) are faced with higher rates of mortality, infections, and hospitalizations due to COVID-19 (Karmakar et al., 2021; Oh et al., 2021; Patel et al., 2020). In particular, individuals classified as a visible minority have been disproportionately impacted by the COVID-19 pandemic throughout multiple sectors; for instance, there have been reports that neighbourhoods in Ontario with a higher concentration of visible minorities experienced COVID-19 infection rates three times higher than neighbourhoods with a lower concentration, and faced worse outcomes upon contracting the virus (Thompson et al., 2021). COVID-19-related ED visits are disproportionately borne by individuals living in the most deprived areas as measured by quintile of deprivation index (Canadian Institute for Health Information, 2021). Additionally, ethnic groups who were already disproportionately burdened financially experienced increased rates of unemployment and financial burdens, and represent an even higher proportion of low-income employment (Statistics Canada, 2020a). Understanding the equity consequences of the pandemic is a national public health priority (Tam, 2020).

Ethnographically diverse neighbourhoods (regions with a higher concentration of visible minorities, immigrants, and Indigenous individuals) have known disadvantages in access to healthcare and therein lies a potential avenue to explore how COVID-19 and the myriad public policy changes meant to control its spread differentially impacted these people. For example, lower emergency department (ED) use throughout Canada was a concern for care providers during the pandemic who imagined people were deferring important care (CTV News, 2021). Low-acuity visits to the ED are for issues typically better addressed in a primary care setting and low-acuity ED visits have been shown to be more prevalent among

individuals from high deprivation areas (VanStone et al., 2014), emphasizing a potential lack of primary care access.

There is little evidence of the impact of COVID-19 on individuals experiencing deprivation in Canada with respect to their healthcare access or health. Those living in an environment that allows them to abide by public health recommendations without suffering health consequences will likely not need to rely on alternative measures, such as EDs, for primary care. It is possible there are those who may live in an environment where public health policies are not as accommodating, and may suffer health consequences as a result. ED visits are a potential source of data to underline the impact that COVID-19 has had on low-income communities or communities otherwise marginalized, and since data on ED visits are regularly gathered, these can tell us whether inequities in use have been exacerbated during the pandemic.

Most provinces in Canada try to control inefficient use of the ED, that is, non-urgent issues that could be treated in primary care. For example, 59% of the visits to New Brunswick EDs in 2009–2010 were non-urgent (New Brunswick Health Council, 2018). In New Brunswick, roughly 10.2% of the population reported not having a regular healthcare provider, meaning adequate primary care is not easily accessible for many (Statistics Canada, 2020b). Further, non-urgent visits nation-wide are also more likely to be from patients with low SES (e.g., those of lower income, education) (Khan et al., 2011; VanStone et al., 2014). Accessing the ED in most provinces during the pandemic was inconvenient, time-consuming, and frightening due to the increased infection control procedures and risk of COVID-19 infection.

The goal of our study is to investigate the impact of the COVID-19 pandemic on the socioeconomic composition of emergency department visits, in particular for low-acuity visits, to further highlight any inequities exacerbated by the pandemic. We elect for low-acuity visits as they represent visits that are unlikely to be considered an emergency, and more likely to represent visits that would be handled by a primary care provider if one were available. Thus, low-

acuity visits interest us as they may indicate visits that occur due to lack of a primary care provider, or due to the presence of other barriers to primary care. If the COVID-19 pandemic increased the proportion of low-acuity ED visits by those who are already deprived compared to the rest of the population, that implies they had no other choice to access healthcare other than the ED. We investigate whether this is the case in the province of New Brunswick, a province that experienced a lower rate of COVID-19 infections compared to the rest of Canada (Public Health Agency of Canada, 2021) but still instituted harsh infection control procedures to control the potential spread of the virus. We establish this relationship by studying the change in deprivation status for low-acuity visits before and after the onset of the pandemic using a logistic regression, and by highlighting the geographical distribution of the index across the province of New Brunswick to understand where inequities may occur.

Methods

Data

We accessed administrative data on 1,285,000 ED visits across 12 facilities in New Brunswick from January 1, 2017 to October 1, 2020. For each ED visit, we observe the date of the visit, facility used, and patient characteristics of sex, age, marital status, and postal code, as well as their triage level according to the Canadian Triage and Acuity Scale (CTAS) criteria (Murray, 2003). When patients present to the ED in Canada, they are triaged into one of five levels based on their presenting illness. CTAS 1 are the most ill patients, while CTAS 5 are those least ill. Visits were excluded from our study if they were missing a registration date or postal code, had an invalid postal code, or lacked a triage level. This resulted in an analytical sample size of 1,216,198 ED visits. Visits triaged as levels 4 and 5 were labeled as “low acuity” and visits triaged as levels 1–3 were considered “high acuity” in correspondence with similar studies that investigated the SES of ED visits (VanStone et al., 2014).

To address our objectives, we required a measure of SES for each ED visit. To represent SES, we selected the Canadian Index of Multiple Deprivation (CIMD) developed by Statistics Canada (Statistics Canada, 2019a). The CIMD includes 4 domains of deprivation, which include ethnocultural composition, economic dependency, situation vulnerability, and residential instability. For our study, we selected ethnocultural composition (which includes the proportion of population who identify as a visible minority, proportion who are foreign born, proportion who are linguistically isolated, and proportion who immigrated in the last 5 years) and economic dependency (which includes proportion of population aged 65 and older, proportion of population participating in

labour force, dependency ratio, ratio of employment to the population, and proportion of the population receiving government transfer payments).

The deprivation index provides deprivation at the level of dissemination areas (DAs), which are small regional areas used for statistical sampling. For each DA, the index has provided a quintile measurement indicating the level of deprivation in each area for each domain. A quintile of 5 (Q5) represents the DA being among the 20% most deprived in that domain, while a quintile of 1 (Q1) represents the DA being among the 20% least deprived in that domain. As the deprivation index was created at the level of a DA, postal code conversion was required to link our database to the index. Using Postal Code Conversion File+ 7C (Statistics Canada, 2019c), postal codes were converted to DAs, allowing us to merge our data with the deprivation index scores for Atlantic provinces.

Statistical analysis

All statistical analyses, graphs, and figures were created using R version 4.0.4 (R Core Team, Vienna, Austria). To determine the effect of the COVID-19 pandemic on the socioeconomic composition of ED visits, we conducted a logistic regression to isolate the effect of the COVID-19 pandemic on predicting Q5 status for low-acuity ED visits. Our regression analysis was conducted on a subset of our sample that included all low-acuity (triage levels 4 and 5) visits. We filtered out triage levels 1–3, and ran a logistic regression for each domain of deprivation (ethnocultural composition and economic dependency) to determine the factors that predict a visit being from a Q5 postal code or not. Another set of regressions was run using the same variables, but for higher-acuity visits (triage levels 1–3). Our models controlled for whether the facility used was in an urban (Fredericton, Moncton, and Saint John) or rural setting, sex, age categories, day of the week, month of the year, and statutory holidays.

We constructed maps of New Brunswick highlighting the level of deprivation across different postal codes. We used a shapefile of the province of New Brunswick provided by Statistics Canada (Statistics Canada, 2019b). The regional boundaries used are forward sortation areas (FSAs), which are geographical units corresponding to the first three digits of Canadian postal codes. We used quintile score measurements of deprivation for each domain to construct heat maps demonstrating the deprivation for both the ethnocultural composition and economic dependency domains across New Brunswick.

Results

Our final sample size includes 1,216,198 emergency department visits (Table 1). Of the total number of visits, 345,932 were in 2017, 339,336 were in 2018, 330,235 were in 2019,

Table 1 Summary statistics for all visits by triage level. Percentages in brackets represent the percentage relative to the total number of visits

	Triage level					Total
	CTAS 1	CTAS 2	CTAS 3	CTAS 4	CTAS 5	
No. of visits	6195 (0.51%)	142,807 (11.74%)	385,101 (31.66%)	563,497 (46.33%)	118,598 (9.75%)	1,216,198
Female (%)	40.68	49.36	54.85	55.75	53.09	54.38
Aged 65 and over (%)	40.86	33.17	28.25	18.07	19.18	23.29
Ethnocultural composition						
Q1 (%)	10.54	10.88	10.07	9.97	9.44	10.06
Q2 (%)	18.74	18.02	17.83	18.55	17.24	18.13
Q3 (%)	24.04	22.26	22.98	23.71	25.67	23.50
Q4 (%)	23.33	23.64	23.96	24.40	25.81	24.30
Q5 (%)	23.36	25.21	25.16	23.37	21.83	24.00
Economic dependency						
Q1 (%)	21.02	23.79	24.61	25.06	21.76	24.42
Q2 (%)	26.31	26.76	26.43	25.23	23.88	25.66
Q3 (%)	20.48	19.07	19.46	21.00	24.53	20.63
Q4 (%)	18.82	17.74	17.84	18.15	20.56	18.24
Q5 (%)	13.37	12.64	11.66	10.56	9.26	11.04

and 200,695 were in 2020. Across our sample, 56.08% of the ED visits were made up of low-acuity visits (triage levels 4 and 5), and 54.38% of the visits were from females. Triage level 4 visits made up the bulk of ED visits at 46.33% of total ED visits, while triage level 1 was the least common at 0.51% of visits (Table 1). Across our data, Q5 individuals (those with the highest deprivation scores) in the ethnocultural composition domain made up 23.1% of low-acuity visits, and Q5 individuals in the economic dependency domain comprised 10.33% of low-acuity visits (Table 1).

Pre- versus post-COVID-19 outbreak

Using the date of the first confirmed case of COVID-19 in New Brunswick on March 11, 2020 (Government of New Brunswick, 2020), Table 2 shows the comparison of visit characteristics before and after the onset of the pandemic in New Brunswick. Of the total number of visits in our study, 1,077,445 occurred “pre-COVID-19 outbreak”, while the remaining 138,753 occurred “during the COVID-19 outbreak” (Table 2). With the onset of the pandemic, the proportion of low-acuity visits decreased, while the proportion of older adults presenting to the ED increased. In general, the proportion of Q5 ethnocultural composition visits increased with the onset of the pandemic, while there was no observable trend for the economic dependency domain (Fig. 1). For the ethnocultural domain, the proportion of Q5 visits for low-acuity reasons prior to the pandemic was 22.91%, which increased to 24.72% after the onset of the pandemic (Table 2). For our economic dependency domain, the proportion of low-acuity visits comprised of Q5

individuals was 10.3% prior to the pandemic and decreased to a comparable 10.2% with the onset of the pandemic. The proportion of visits from females decreased from 55.45% to 53.97% with the onset of the pandemic, and percentage of individuals aged 65 and older increased from 17.98% to 20.65%.

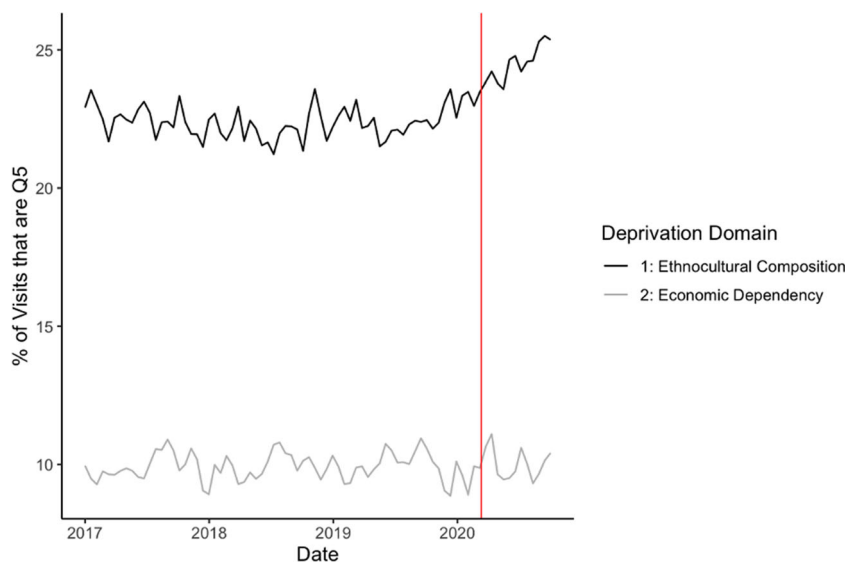
Logistic regression

Our logistic regression adjusts for each facility, age groups, sex, every month, day of the week, all statutory holidays in New Brunswick, as well as whether the visit occurred before or after the onset of the pandemic in New Brunswick. For the

Table 2 Summary statistics visits before and after the onset of the pandemic. Percentages in brackets represent the percent of visitors relative to the total number of visitors before or after the onset of the pandemic

	Pre-COVID	Post-COVID
No. of visitors	1,077,445	138,753
No. of low-acuity visitors	609,527 (56.57%)	72,568 (52.3%)
Female (%)	55.45%	53.97%
Aged 65 and over (%)	17.98%	20.65%
Ethnocultural composition		
Q1 (%)	9.92%	9.57%
Q5 (%)	22.91%	24.72%
Economic dependency		
Q1 (%)	24.38%	25.35%
Q5 (%)	10.35%	10.20%

Fig. 1 Percentage of low-acuity Q5 visits (triage levels 4 and 5) over time for each domain of deprivation. The red vertical line represents March 11, 2020, the date considered the beginning of the COVID-19 pandemic in New Brunswick



ethnocultural composition domain, our logistic regression model showed that visiting the ED for a low-acuity reason during the pandemic was a significant predictor (p -value < 0.05) for being considered Q5 (see Table 3) with a 6.4% increase in the log odds of having a Q5 identity. Similarly, whether the visit occurred in one of the 3 city facilities was a significant predictor by a 101.6% increase in the log odds of having a Q5 status. Most months, days of the week, and holidays exhibited no important pattern (Table 3).

Table 3 Results from our logistic regression for the ethnocultural composition domain for low-acuity visits (triage levels 4 and 5). Coefficients represent the magnitude of increased/decreased log odds of being a Q5 visit for a low-acuity reason

Variable	Coefficient
February	-0.023 (-0.051, 0.004)
March	-0.028** (-0.055, -0.0004)
April	-0.038*** (-0.066, -0.010)
May	-0.034** (-0.062, -0.006)
June	-0.046*** (-0.074, -0.018)
July	-0.033** (-0.061, -0.006)
August	-0.035** (-0.063, -0.007)
September	-0.034** (-0.062, -0.006)
October	-0.019 (-0.048, 0.010)
November	-0.001 (-0.031, 0.029)
December	-0.026* (-0.056, 0.004)
Male	-0.057*** (-0.069, -0.045)
Ages 0–14	0.172*** (0.152, 0.192)
Ages 15–64	0.172*** (0.156, 0.187)
City facility	1.016*** (1.004, 1.027)
Post-COVID	0.063*** (0.044, 0.082)

Note: * p < 0.1; ** p < 0.05; *** p < 0.01. Day of the week and statutory holidays were all controlled for with this model

For CTAS 1–3, visiting the ED during the pandemic was a non-significant predictor for being considered Q5 (results not reported). Similarly, our logistic regression analysis for the economic dependency domain produced non-significant findings for both categories of acuity.

We constructed a heat map highlighting the distribution of ethnocultural composition scores across New Brunswick in terms of the proportion of Q5s at each FSA (Fig. 2). In general, the ethnocultural composition scores are highest around the most urban regions of New Brunswick. Regions including Fredericton, Saint John, and Moncton represent regions with the highest proportion of Q5 individuals for the ethnocultural composition domain. The remaining, more rural regions tend to have a lower proportion of Q5 individuals.

Discussion

The main result of our study was identifying COVID-19's impact on the likelihood of individuals from areas with the highest level of ethnocultural diversity visiting the emergency department for low-acuity problems. Our study found that individuals living in the most ethnoculturally diverse areas disproportionately used the ED for low-acuity visits, potentially highlighting the negative impact the pandemic has had on ethnic minorities, recent immigrants, or those who report linguistic isolation. Our study demonstrates that using the ED for a low-acuity reason during the pandemic was associated with an increase in the odds of being considered Q5 in the ethnocultural domain. The strongest predictor of a low-acuity Q5 visit, however, was the type of facility used. If the facility being used was in one of the 3 largest urban centres (Fredericton, Moncton, and Saint John), it was associated with the

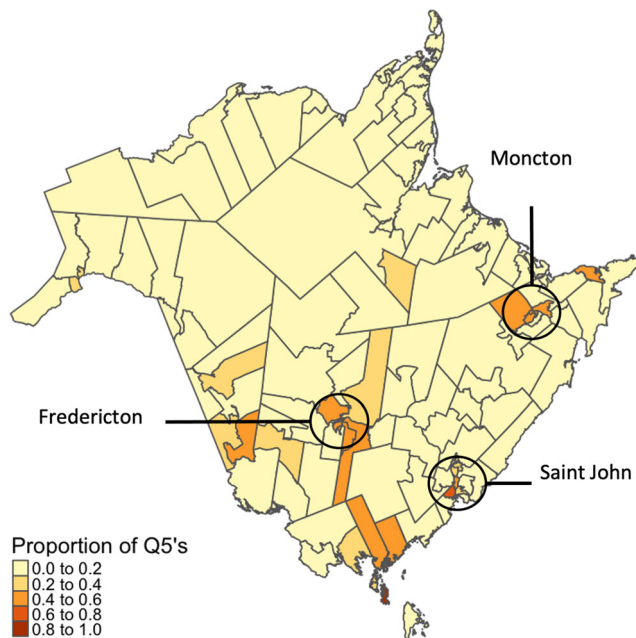


Fig. 2 Map of New Brunswick with a scale representing the proportion of ethnocultural composition Q5 emergency department visits of that region for all triage levels. Regions are represented by forward sortation areas (FSAs), the first 3 digits of a postal code. Circled regions represent the 3 major urban areas in New Brunswick

largest increase in the odds of being considered Q5 for low-acuity visits (Table 3).

This is important because it shows that during the COVID-19 pandemic, individuals living in areas of higher immigration or visible minorities had to use the ED as a source of primary care to a higher degree than other groups, who in turn were more likely to avoid the ED. This could reflect a lack of primary care providers or a lack of access to primary care providers for ethnoculturally diverse individuals (Ahmed et al., 2016) even prior to the pandemic beginning, or the higher burden of illness on those who are considered an ethnic minority. It is also plausible that there was a concern for these individuals that the symptoms that led them to present to the ED were caused by COVID-19; however, further research is required to investigate this. This is evidence that our pandemic control policies may not adequately accommodate diverse populations, especially those in ethnoculturally diverse areas. Governments have an incentive to address this lack of primary care options for identifiable populations; a visit to the ED is much more costly than a visit to a primary care provider (Mehta et al., 2017). This phenomenon seems to be specific to urban facilities, which serve urban-dwelling individuals, and those regions were shown to have the most Q5 individuals in the ethnocultural domain.

Compared to the rest of Canada, New Brunswick is mostly white. According to the 2016 Canadian census, 3.28% of the New Brunswick population is considered a visible minority, while across Canada it increases to 21.83% (Statistics Canada,

2017). Our map shows that the most diverse regions represent the largest cities in New Brunswick (Fig. 2), which is consistent with the results from our logistic regression. The inequity in access is thus an urban phenomenon, and tactics to address COVID-19 in urban settings should have this inequity in mind. Such intervention can be targeted and need not require a complete change to pandemic-control policies.

For higher-acuity presentations (triage scores 1–3), COVID-19 was not a significant predictor of visits from Q5 individuals. Visits triaged as levels 1–3 likely have a higher perceived acuity to patients, and thus the pandemic would be less likely to discourage anyone from seeking care at the ED, explaining why our high-acuity presentations did not change. The lack of significance across both categories of acuity with our economic dependency domain tells us the pandemic did not alter the trends for economically deprived individuals. Individuals who are economically deprived might face barriers to accessing care that are independent of the pandemic. For example, other domains that impact access to care such as transportation, technological competency, and geographic location might have remained as persistent barriers such that policies to address COVID-19 had no observable effect on low-acuity visits.

One of the major innovations in healthcare made during the pandemic has been the push to virtual care formats. Many primary care providers began to incorporate or transition to virtual care formats with the onset of the pandemic (Glazier et al., 2021; Schipper, 2020). Consequently, individuals with less access to technology or less comfort with technology could have less access to their primary care providers. In the United States, ethnic minorities were identified as a group that experienced disparities in regard to accessing virtual care (Nouri et al., 2020). Thus, even if they had a primary care provider, access to providers may have still been limited for ethnoculturally diverse groups. While virtual care may increase access for some, it may also be exacerbating certain inequities in society, causing certain groups to seek care through other means such as the ED for primary care. Further research to investigate barriers to virtual care, the role these barriers had in the pandemic, and how to address any that exist is crucial. Furthermore, newcomers to Canada face many barriers when accessing primary care in Canada, including health-system, socioeconomic, and cultural factors (Ahmed et al., 2016). The reliance on the ED for ethnoculturally diverse groups during the pandemic could speak to the significance of these barriers, and investigating them further could work to address the inequities experienced by these individuals.

The fact that individuals living in ethnoculturally diverse regions rely on the ED for care during the pandemic is evidence that their ability to adopt infection control behaviours is limited by their environment. In other words, relying on people to bear the cost of infection control policies means that

some simply will not have the capacity to prioritize infection control. Policies like the Canada Emergency Response Benefit (CERB) are useful interventions to address their needs, but even in the face of these universal interventions inequities persist. This underlines the importance of ongoing monitoring of inequitable trends during a pandemic and flexibility on the part of government to mitigate them. ED visits are one potential sentinel measure to determine whether specific groups are differentially unable to take up the encouraged infection control behaviours (e.g., avoiding the ED for low-acuity issues).

Our study has limitations. Our data are limited to English-speaking facilities in New Brunswick, and as a result may not accurately reflect trends across Canada, requiring more work to be done nationally to identify the degree to which pandemic policies have potentially exacerbated pre-existing inequities in other regions. We used an indicator of socioeconomic status that labels individuals based on their dissemination area rather than on individual characteristics; assuming that all individuals in a Q5 region are equally deprived is an ecological fallacy, so we are careful to interpret our results with this in mind. Finally, there are several factors which can influence an individual's decision to access an ED, and if we had more information on medical history, socioeconomic characteristics of patients, or the environment they live within, we would have had a more fulsome picture of what was driving access issues. Regardless, we were able to identify that individuals living in areas of high ethnocultural diversity had a higher likelihood of making a low-acuity ED visit during a time when most people were actively avoiding the ED for minor issues, which points to a potential structural source for this difference. If this difference is driven by factors that governments could act on but choose not to, then it is a health inequity driven by government policy; thus, further study is required to prevent future universal policies from having unexpected and undesirable consequences.

Conclusion

Addressing this urban–rural phenomenon in regard to ethnoculturally diverse individuals with improved policy could promote health equity in society and decrease healthcare costs. Specific interventions could include policy that ensures newcomers have adequate access to primary care and receive direction on how to navigate the Canadian healthcare system, or policy to address cultural barriers to primary care. Further, it is unclear whether this issue is a provincial (healthcare system) issue or a municipal issue, as most of the Q5 low-acuity visits occur in a city. Like many barriers faced by ethnoculturally diverse people in Canada, the reliance on the ED for primary care during the pandemic is likely at the intersection of multiple inequities (Gkiouleka et al., 2018). The COVID-19 pandemic

has highlighted these inequities, which, by their nature, are not amenable to a single health policy change. The challenge for policymakers is to understand when these issues stop being healthcare access problems and are more adequately addressed through other policies, as increased spending on healthcare will likely not address the health needs of those already needing access (Liu & Dutton, 2021).

Contributions to knowledge

What does this study add to existing knowledge?

- Our study has demonstrated that with the onset of COVID-19, individuals who are in the 5th quintile of the ethnocultural composition domain used the emergency department (ED) for low-acuity visits disproportionately more compared to individuals living in areas of less diversity.
- We have highlighted a group that uses the ED disproportionately more than others, which may speak to lack of access, barriers to alternative means of care, or issues navigating our healthcare system.
- We have highlighted the major regions where these inequities occur. Specifically, major urban areas tend to have higher indices of ethnocultural composition.

What are the key implications for public health interventions, practice, or policy?

- Improved policy to help increase access to alternative and more efficient methods of low-acuity care outside of the ED can help reduce inequities faced by ethnoculturally diverse groups, and even reduce healthcare costs.
- Policies, such as those that may allow for more efficient methods of low-acuity care outside of the ED for ethnoculturally diverse groups, will be more fruitful in urban areas where these inequities appear to exist.

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Code availability As the dataset cannot be shared, we cannot distribute the code.

Author contributions Both authors contributed to the study conception and design. Data analysis was conducted by DH. The manuscript was written by DH and DJD and both authors commented on previous versions of the manuscript. Both authors read and approved the final manuscript.

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Data availability This is a confidential administrative dataset from the government, and thus cannot be shared by the authors.

Declarations

Ethics approval Ethics approval was received from the Horizon Health Network Research Ethics Board, file number 100957.

Consent to participate Not applicable.

Consent for publication Not applicable.

Conflict of interest The authors declare no competing interests.

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