COVID-19 impacts on decarceration for Indigenous, Black, and other racialized people in Ontario, Canada: an interrupted time series study

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Summary

Background The COVID-19 pandemic response in many jurisdictions included efforts to depopulate correctional facilities. In the context of the overrepresentation of Indigenous and Black people in Canadian correctional facilities, we aimed to assess COVID-19 impacts on decarceration by race and Indigenous identity in Ontario, Canada.

Methods We accessed correctional administrative data for all people incarcerated in provincial correctional facilities in Ontario, Canada between 2015 and 2022. We categorized people using self-reported data into one of five identity groups: Indigenous, non-Indigenous Black, non-Indigenous non-Black racialized, non-Indigenous white, or missing. We conducted interrupted time series analyses, treating COVID-19 as an event on April 1, 2020, for each of admissions, releases, number of people in custody, and person-time in custody.

Findings Of 148,937 people who experienced incarceration, 85.4% were male and 14.5% were female, the mean age was 35.2 years (SD 12.2), and 11.7% were Indigenous, 12.1% were non-Indigenous Black, 12.1% were non-Indigenous non-Black racialized, and 48.9% were non-Indigenous white. Decarceration in the spring of 2020 benefitted all four race/Indigenous identity groups, with significant decreases in all four decarceration indicators for all groups. There was a significant interaction between COVID-19 decarceration and race/Indigenous identity group for the number of people in custody ($p < 0.0001$) and person-time in custody ($p = 0.042$), with decarceration disproportionately benefitting non-Indigenous white people. Compared with the period prior to April 2020, the relative rates of being in custody and of person-time in custody, respectively, were 0.70 (95% CI 0.68–0.73) and 0.73 (95% CI 0.70–0.76) for non-Indigenous white people, lower than those for Indigenous people: 0.76 (95% CI 0.72–0.81) and 0.82 (95% CI 0.76–0.88), non-Indigenous Black people: 0.76 (95% CI 0.74–0.78) and 0.79 (95% CI 0.76–0.81), and non-Indigenous non-Black racialized people: 0.76 (95% CI 0.73–0.79) and 0.79 (95% CI 0.76–0.83).

Interpretation Decarceration in Ontario in 2020 was inequitable, exacerbating the disproportionate exposure of people who are Indigenous and Black to time in custody and to the adverse health impacts associated with incarceration during the COVID-19 pandemic. These findings emphasize the need for targeted strategies to foster equitable health and justice outcomes, including during public health emergencies.

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Research in context

Evidence before this study

We searched OVID MEDLINE, most recently in September 2024, with the following search terms: (Prisoners/or Prisoners/or Prisons/or (prisoner* or incarcerat* or inmate* or prison* or jail* or inmate* or incarcerat* or imprison* or remand* or sentence* or detain* or detention or offen* or custod*).kw,tw.) AND (exp COVID-19/or (COVID* or pandemic).kw,tw.) AND (exp Racial Groups/or exp Race Factors/or (race or racism or equit* or inequit*).kw,tw.), looking for quantitative analyses of how COVID-19 decarceration impacted incarceration for Indigenous and racialized people. We found one study analysing data for the first year of the pandemic for US state prisons, which found disproportionate benefits of decarceration for white people and an increase in the proportion of Black and Latino people in prisons.

Added value of this study

Our study adds evidence showing that decarceration had inequitable impacts for Indigenous, Black, and other racialized people in Ontario, Canada in terms of the number of people in custody and the time in custody per month.

Implications of all the available evidence

COVID-19 decarceration efforts exacerbated structural inequities, with implications for population health. Public health efforts should foster equitable health and justice outcomes, including during public health emergencies.

Introduction

The COVID-19 pandemic led to unprecedented and alarming effects globally, and proved to disproportionately impact people who were incarcerated. People in correctional facilities were at increased risk of COVID-19 infection and pandemic-related harms compared with others in the general population.[1,2] High rates of staff movement between correctional facilities and the community combined with the continual "churn" of admissions and releases increased the likelihood of infection for people in correctional facilities, while aspects of the correctional environment such as overcrowding and dormitory-style living imposed greater risks of transmission.[1–3] In addition, people who experienced incarceration were especially vulnerable to infection and harms given their poor health status, including higher rates of chronic diseases, mental illness, and communicable diseases such as HIV, compared with others in the general population.[2,4,5]

As a result of concerns regarding high risks of COVID-19 within correctional facilities, many jurisdictions implemented strategies to depopulate correctional facilities in the initial months of the pandemic, representing an unprecedented *decarceration* initiative.[6] Depopulation strategies included limiting new admissions, for example through diversion strategies such as implementing community sentences, and releasing people from custody. Across Latin American countries, the proportion of the incarcerated population released varied substantially, at over 10% for Nicaragua and Colombia, 7% for Honduras, 5% for Chile, 4% for Brazil, 2–3% for Argentina, and 2% or less for Bolivia, Mexico, Panama, and Peru,[7] though data reporting and estimates reported have been inconsistent.[7,8] The U.S. reduced its incarcerated population by 17% within the first 12 months of the pandemic, which was the largest and fastest drop in the carceral population in U.S. history, and decarceration measures favoured white people, i.e., white people were more likely to be released.[9] In the context of systemic discrimination in the U.S. criminal justice system, these measures therefore exacerbated racial inequities in the prison system, leading to disproportionate exposure of Black, Latino, and other racialized people to risks and stresses of COVID-19 in prisons. In Canada, adult admissions decreased by 14% in the federal prison system and by 34% in provincial and territorial correctional facilities from 2020 to 2021,[10] which is a major drop far outside of the range of typical variation over time.[11] Indigenous and Black people are greatly over-represented in correctional facilities in Canada,[12–15] however, there is a lack of information on how the COVID-19 pandemic and decarceration measures impacted these groups of people.

Understanding how decarceration initiatives impacted population subgroups is important for identifying inequitable exposures to COVID-19 through incarceration and to inform future emergency response and decarceration efforts. In this study, we aimed to assess the impact of COVID-19 on decarceration by race and Indigenous identity in provincial correctional facilities in Ontario, Canada.

Methods

Study design

We conducted an interrupted time series (ITS) study.

Setting

The study used whole population data for people in provincial correctional facilities in Ontario, Canada, between January 1, 2015 and December 31, 2022. The Ontario Ministry of the Solicitor General operates all correctional institutions in Ontario for adults who are on remand (i.e., awaiting trial or sentencing), or who have been sentenced to less than two years in custody. Persons sentenced to two years or more in custody serve their sentence in federal prisons, though are often first admitted to a provincial correctional facility during legal proceedings.

Participants

All persons aged 18 and older who were detained or incarcerated in an adult Ontario provincial correctional facility between January 1, 2015, and December 31, 2022.

Data sources and variables

We accessed data from the Ontario Ministry of the Solicitor General for all people detained or incarcerated between 2015 and 2022, including date of birth, sex, self-identified Indigenous identity, marital status, self-identified race, dates of admission to and release from custody, and reasons for release. We accessed data from Statistics Canada on whole population sizes from the 2016 and 2021 Censuses.

We used the term *incarceration* to include people who were detained or incarcerated in provincial correctional facilities, whether remanded or sentenced and including people serving intermittent sentences.

Data on Indigenous identity and race were collected by correctional staff upon each admission to a provincial correctional facility. To support the use of publicly available data for population denominators, we applied rules of assigning people to Indigenous and racial identity categories similar to those used by Statistics Canada, though questions used in data collection varied between Statistics Canada and the Ontario Ministry of the Solicitor General, and we used different category names to reflect current best practices.[16] We categorized race/Indigenous identity into one of five mutually exclusive categories hierarchically based on self-reported data from all admissions to Ontario provincial correctional facilities. We categorized people as *Indigenous* based on the Statistics Canada definition, i.e., any person who reported being Indigenous. In Statistics Canada data collection, once a person identifies as Indigenous, they are not asked about other ethnic or racial identities, and similarly, we categorized people as Indigenous even if they reported any other racial identities. We categorized people as *non-Indigenous Black* if they did not meet the definition of Indigenous and their response or responses included Black. We categorized people as *non-Indigenous white* if they did not meet the definition of Indigenous and they identified as white, Middle Eastern and white, or Latino and white. We categorized people as *non-Indigenous non-Black racialized* if they did not meet the definition of Indigenous, non-Indigenous Black, or non-Indigenous white and they reported any other racialized identity. We categorized people as *missing* for race/Indigenous identity if their only responses were "prefer not to answer" or were completely missing.

We assessed four indicators of decarceration: admissions, releases, number of people who experienced incarceration, and days in custody; we recognize that these indicators reflect changes in police and court policies and procedures, as well as active decarceration strategies[17] such as early release and the use of temporary absences.

Analyses

We conducted analyses using SAS version 9.4 (SAS Institute, Cary, North Carolina). To estimate populations for 2015 to 2022, we used linear interpolation, which assumes that the rate of population growth/decrease was constant over time for each age group/race combination. Population figures from Statistics Canada are rounded and may disagree by ±5 from table to table. Interpolation results in fractional populations which were then rounded to the nearest integer. Therefore, there may be slight differences between the total Ontario population and the sum of the Indigenous, non-Indigenous Black, non-Indigenous non-Black racialized, and non-Indigenous white populations, or between the total population and the sum of the male and female populations, etc.

We assessed the four indicators of decarceration per month for each race/Indigenous identity group (as well as missing for descriptive analyses). Each admission and release reflects a single episode in jail, so a person may be counted more than once in a given month if they were admitted or released multiple times. We graphed indicators of decarceration for each race/Indigenous identity group by month between January 2015 and December 2022.

To determine whether COVID-19 impacted decarceration indicator rates differently for each race/Indigenous identity group, we used an ITS design, a quasi-experimental approach for evaluating effects of interventions that occurs at a specific point in time.[18] In an ITS study, data collected at multiple time points before and after an intervention or event are used to estimate the effects of the intervention or event on the trajectory. The trajectory could change with a sudden one-time shift in the rate (upward or downward) at the time of the event (change in intercept), or with a change in the month-over-month rate of change (change in slope), and there could be changes in both intercept and slope. For the current study, we assessed whether there was an immediate change and whether there was a change in the trend over time for each decarceration

indicator rate, and whether these changes differed between race/Indigenous identity groups. We treated COVID-19 as an event which occurred on April 1, 2020, based on the timing of the emergency declaration in Ontario and provincial correctional decarceration.[10]

As the counts were over-dispersed, we estimated rate ratios for decarceration indicators using negative binomial regression, with population size as the offset, and we obtained p values using robust estimates of the variances. The goodness of fit tests based on the Pearson chi-square were not significant, indicating no evidence that the models did not fit the data, and we calculated the McFadden pseudo R-square for each model.

We included several explanatory variables in the models. Race/Indigenous identity is a categorical variable that allows the intercept to vary by race/Indigenous identity group, and the p value tests the hypothesis that the rate is different for at least one group. Pre-COVIDxrace/Indigenous identity is an interaction term that allows the slope to differ depending on race/Indigenous identity, and the p value tests the hypothesis that at least one race/Indigenous identity group had a rate of change over time before April 2020 that differed from the rate for the other groups. COVID is a binary variable which is equal to 0 prior to and 1 after April 2020, which estimates the size of the immediate shift in April 2020, relative to the rate in the previous month, and the null hypothesis is that there was no sudden shift. Post-COVID is a continuous variable which numbers the months after April 2020. The parameter for post-COVID estimates the change from the original slope, and the null hypothesis is that there was no change in slope, i.e., that the pre-April 2020 trend continued to apply. As we hypothesized that the COVID-19 response would have differential impacts on decarceration indicators by race/Indigenous identity, we also included an interaction term for race/Indigenous identity with COVID: COVIDxrace/Indigenous identity, to identify whether the immediate effect was different for at least one of the race/Indigenous identity groups, and with post-COVID: post-COVIDxrace/Indigenous identity, to identify whether there would be any differences in changes in trends for at least one of the race/Indigenous identity groups. We used non-Indigenous white as the reference group, given that it is the largest group and since people in this group were hypothesized to be least likely to face structural/systemic issues due to their race/Indigenous identity. Two-tailed p values < 0.05 were assumed to indicate statistical significance. We assessed for statistical significance of main effects and interaction terms in the model using likelihood ratio tests, and we retained variables that were significant at the 0.05 level of significance in the final model. We generated p values and 95% confidence intervals for parameter estimates using Wald tests.

In exploratory analyses, we also added age and sex as well as interactions for age and sex with the pre-COVID slope, with the COVID event, and with the post-COVID slope, respectively, to multivariable models for each decarceration indicator, to explore whether differential changes in decarceration for race/Indigenous identity groups may have been attributable to these variables.

Approvals

We obtained approval for this study from the Hamilton Integrated Research Ethics Board (#16319) and from the Ontario Ministry of the Solicitor General. Consistent with Canadian standards for research involving humans,[19] we did not obtain individual consent for the secondary use of these correctional administrative data, as it would have been impracticable.

We partnered with the Native Women's Association of Canada for this research, represented by co-author Raya Semeniuk, consistent with Canadian standards for research involving people who are Indigenous.[19] We documented their interest and partnership in a letter that specified we would share decision-making regarding the work and collaborate regarding the interpretation, framing, and dissemination of the findings.

Role of the funding source

The funder had no role in study design, in the collection, analysis, and interpretation of data, in the writing of the report, or in the decision to submit the paper for publication.

Results

Between 2015 and 2022, a total of 148,937 unique people experienced incarceration in provincial correctional facilities in Ontario. We categorized 11.7% (17,482) people as Indigenous, 12.1% (18,047) people as non-Indigenous Black, 12.1% (17,978) people as non-Indigenous non-Black racialized, 48.9% (72,858) people as non-Indigenous white, and 15.2% (22,572) people as missing race/Indigenous identity (Table 1). The majority of people were male (85.4%), and were single, divorced, separated, or widowed (69.9%), and younger than 45 years old (21.7% 18–24, 32.6% 25–34, and 22.8% 35–44). The mean age was 35.2 years (SD 12.2).

Fig. 1 shows that between March 2020 and April 2020, the number of admissions decreased, followed by a small increase in May 2020 and then relatively stable numbers to the end of 2022. The number of admissions per month was substantially lower after April 2020 than prior to April 2020. Fig. 2 shows that the number of releases spiked higher in March 2020, and then decreased. Figs. 3 and 4 show the number of people in custody by month and the total person-time in custody per month for each race/Indigenous identity group, respectively, and show a similar pattern to the pattern for admissions data. Data for Figs. 1–4 are provided in the Supplementary material.

	Total N = 148,937		Indigenous N = 17,482		Non-Indigenous Black N = 18,047		Non-Indigenous non-Black racialized N = 17,978		Non-Indigenous white N = 72,858		Missing N = 22,572	
	N	%	N	%	N	%	N	%	N	%	N	%
Sex												
Female	21,556	14.5	4341	24.8	1570	8.7	1477	8.2	10,541	14.5	3627	16.1
Male	127,172	85.4	13,096	74.9	16,451	91.2	16,479	91.7	62,215	85.4	18,931	83.9
Missing	209	0.1	45	0.3	26	0.1	22	0.1	102	0.1	14	0.1
Age-years[a]												
18–24	32,241	21.7	4421	25.3	5983	33.2	4115	22.9	11,432	15.7	6290	27.9
25–34	48,588	32.6	6402	36.6	6394	35.4	5972	33.2	22,711	31.2	7109	31.5
35–44	33,962	22.8	4070	23.3	3226	17.9	4150	23.1	18,094	24.8	4422	19.6
45–54	22,012	14.8	1916	11.0	1731	9.6	2537	14.1	13,018	17.9	2810	12.5
55–64	9363	6.3	570	3.3	590	3.3	947	5.3	5899	8.1	1357	6.0
65+	2769	1.9	103	0.6	123	0.7	257	1.4	1703	2.3	583	2.6
Missing	2	0.0	0	0	0	0.0	0	0	1	0.0	1	0.0
Marital status[a]												
Married/common law	33,074	22.2	4391	25.1	3149	17.5	5386	30.0	16,165	22.2	3983	17.7
Single/divorced/separated/widowed	104,076	69.9	12,593	72.0	14,041	77.8	11,568	64.4	54,902	75.4	10,972	48.6
Unknown	11,787	7.9	498	2.9	857	4.8	1024	5.7	1791	2.5	7617	33.8

[a]At the time of first admission to custody between 2015 and 2022, or on January 1st, 2015 for those incarcerated at the start of the study period.

Table 1: **Characteristics of people incarcerated in provincial correctional facilities in Ontario, Canada, 2015–2022, by race/Indigenous identity.**

In the ITS for admission rate, the COVIDxrace/Indigenous identity and post-COVIDxrace/Indigenous identity interaction terms were not statistically significant ($p = 0.68$ and $p = 0.45$, respectively), meaning that neither the relative change in rates attributed to COVID nor the change in trend between the pre-COVID era and the post-COVID era differed by race/Indigenous identity. We therefore removed those variables from the final model (Table 2). The rate of admissions in January 2015 was significantly higher for people who were Indigenous (rate ratio (RR) = 7.42, 95% CI 7.12–7.72, $p < 0.0001$) and non-Indigenous Black (RR = 4.23, 95% CI 4.07–4.40, $p < 0.0001$) compared with people who were non-Indigenous white. Pre-COVID, there were statistically significant decreases in the admission rate per successive 12-month period for each race/Indigenous identity group (all $p < 0.0001$), and significant differences between the race/Indigenous identity groups ($p < 0.0001$). There was a significant decrease in the admission rate from March 2020 to April 2020

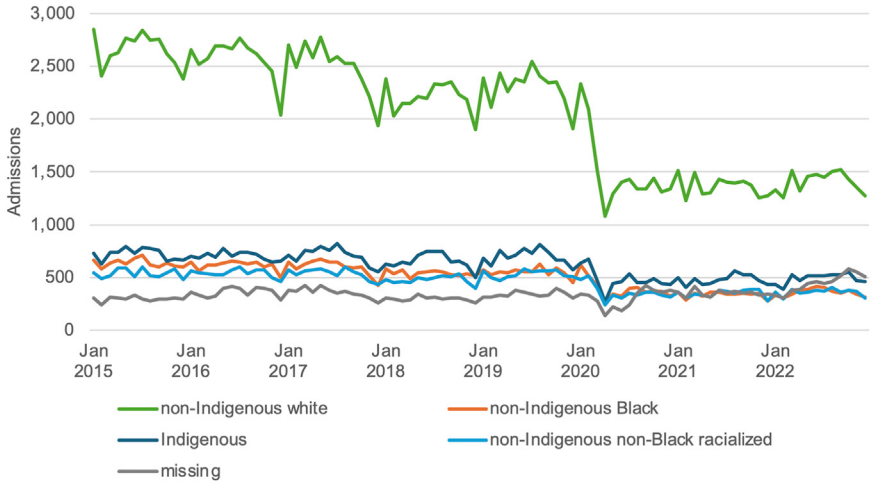

Fig. 1: Number of admissions to provincial correctional facilities in Ontario, by month[a] and race/Indigenous identity group. [a]January 2015 to December 2022.

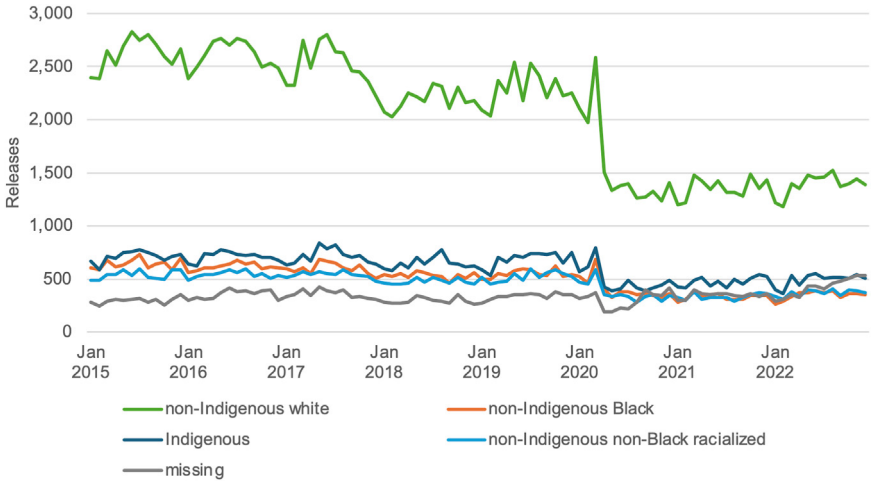

Fig. 2: Number of releases to provincial correctional facilities in Ontario, by month[a] and race/Indigenous identity group. [a]January 2015 to December 2022.

(RR = 0.64, 95% CI 0.61–0.68, p < 0.0001) and a significant increase in the admission rate per 12-month period after April 2020 (RR = 1.08, 95% CI 1.06–1.11, p < 0.0001).

The findings for the model for releases were similar, with the same factors showing statistical significance and similar values for the rate ratios (Table 2).

For the model of the number of people in custody by month (Table 2), the COVIDxrace/Indigenous identity interaction was statistically significant (p < 0.0001), with a lower risk ratio for people who were non-Indigenous white (RR = 0.70, 95% CI 0.68–0.73) compared with each of the three other groups (p = 0.019 vs. Indigenous, p = 0.0002 vs. non-Indigenous Black, and p = 0.004 vs. non-Indigenous non-Black racialized), which each had a RR of 0.76, and were not significantly different from each other (p = 0.90 for non-Indigenous Black vs. Indigenous, p = 0.96 for non-Indigenous Black vs. non-Indigenous non-Black racialized, and p = 0.89 for Indigenous vs. non-Indigenous non-Black racialized). This means that the risk of being in custody decreased more for people who were non-Indigenous white. The post-COVIDxrace/Indigenous identity interaction was also significant (p = 0.025), with a RR of 1.14 (95% CI 1.11–1.16, p < 0.0001) for people in the non-Indigenous non-Black racialized group, 1.10 (95% CI 1.08–1.11, p < 0.0001) for each of the non-Indigenous white and non-Indigenous Black groups, respectively, and 1.09 (95% CI 1.06–1.12, p < 0.0001) for the Indigenous group; in pairwise comparisons, the difference was

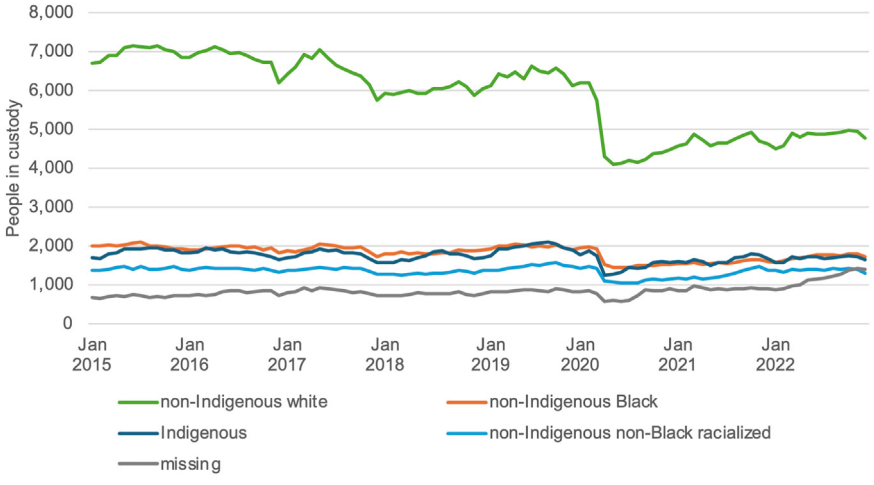

Fig. 3: Number of people who spent any time in custody in provincial correctional facilities in Ontario, by month[a] and race/Indigenous identity group. [a]January 2015 to December 2022.

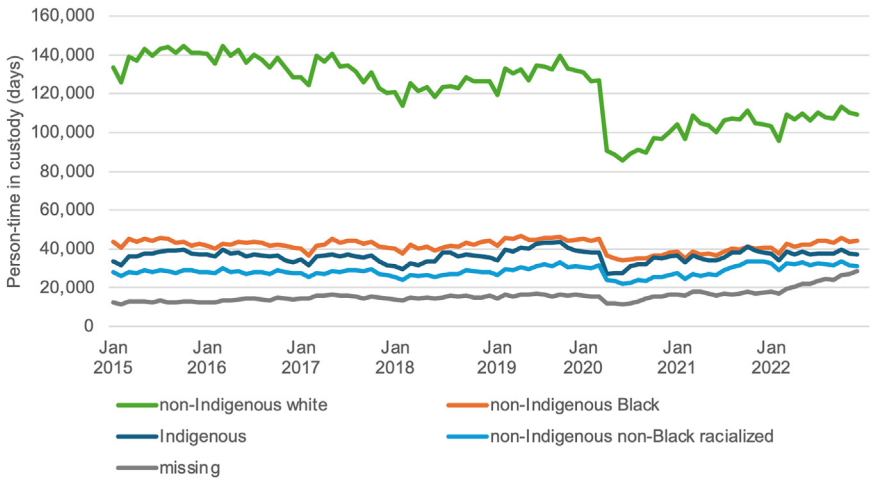

Fig. 4: Person-time spent in custody (days) in provincial correctional facilities in Ontario, by month[a] and race/Indigenous identity group. [a]January 2015 to December 2022.

	Admissions[a]			Releases[a]			People in custody[a]			Days in custody[a]		
	Rate ratio	95% CI	p-value	Rate ratio	95% CI	p-value	Rate ratio	95% CI	p-value	Rate ratio	95% CI	p-value
Race/Indigenous identity[b]			<0.0001[c]			<0.0001[c]			<0.0001[c]			<0.0001[c]
Non-Indigenous white (reference)	1.00			1.00			1.00			1.00		
Non-Indigenous Black	4.23	4.07–4.40	<0.0001	4.27	4.10–4.44	<0.0001	5.04	4.92–5.16	<0.0001	5.47	5.30–5.64	<0.0001
Indigenous	7.42	7.12–7.72	<0.0001	7.37	7.06–7.69	<0.0001	7.12	7.12–7.59	<0.0001	7.30	7.01–7.60	<0.0001
Non-Indigenous non-Black racialized	0.63	0.61–0.63	<0.0001	0.63	0.61–0.66	<0.0001	0.64	0.62–0.65	<0.0001	0.63	0.61–0.65	<0.0001
Pre-COVID × race/Indigenous identity												
Interaction (rate ratio/12 mo period)			<0.0001[d]			<0.0001[d]			<0.0001[d]			<0.0001[d]
Non-Indigenous white	0.95	0.94–0.95	<0.0001	0.95	0.94–0.96	<0.0001	0.97	0.96–0.98	<0.0001	0.98	0.97–0.99	<0.0001
Non-Indigenous Black	0.91	0.90–0.92	<0.0001	0.92	0.91–0.93	<0.0001	0.95	0.94–0.95	<0.0001	0.96	0.95–0.97	<0.0001
Indigenous	0.96	0.95–0.97	<0.0001	0.97	0.96–0.98	<0.0001	0.98	0.97–0.99	0.0005	0.99	0.98–1.00	0.14
Non-Indigenous non-Black racialized	0.93	0.93–0.94	<0.0001	0.94	0.83–0.95	<0.0001	0.95	0.95–0.96	<0.0001	0.96	0.95–0.97	<0.0001
COVID (April 1, 2020)	0.64	0.61–0.68	<0.0001	0.62	0.60–0.65	<0.0001	[e]			[e]		
COVIDxrace/Indigenous identity	[f]			[f]								
Interaction									<0.0001[d]			0.042[d]
Non-Indigenous white							0.70	0.68–0.73	<0.0001	0.73	0.70–0.76	<0.0001
Non-Indigenous Black							0.76	0.74–0.78	<0.0001	0.79	0.76–0.81	<0.0001
Indigenous							0.76	0.72–0.81	<0.0001	0.82	0.76–0.88	<0.0001
Non-Indigenous non-Black racialized							0.76	0.73–0.79	<0.0001	0.79	0.76–0.83	<0.0001
Post-COVID	1.08	1.06–1.11	<0.0001	1.08	1.06–1.10	<0.0001	[e]			[e]		
Post-COVIDxrace/Indigenous identity interaction (rate ratio/12 month period)	[f]			[f]					0.025			0.014
Non-Indigenous white							1.10	1.08–1.11	<0.0001	1.10	1.08–1.13	<0.0001
Non-Indigenous Black							1.10	1.08–1.11	<0.0001	1.10	1.09–1.12	<0.0001
Indigenous							1.09	1.06–1.12	<0.0001	1.09	1.05–1.13	<0.0001
Non-Indigenous non-Black racialized							1.14	1.11–1.16	<0.0001	1.15	1.13–1.19	<0.0001

[a]The McFadden pseudo R-square were 0.307 for admissions, 0.319 for releases, 0.338 for people in custody, and 0.239 for days in custody models. [b]The p-values for all pair-wise comparisons of the races are all <0.0001. [c]The first p-value in this cell is for the overall effect of race, testing the null hypothesis that there is no difference among the 4 groups. Since this hypothesis is rejected ($p < 0.0001$) we proceed to examine the individual group comparisons. [d]The first p-value in this cell tests the null hypothesis that the interaction is not significant, and that the trend over time is the same for all 4 groups. Since this hypothesis was rejected ($p < 0.0001$), we proceeded to estimate a separate trend for each group. [e]Interaction term was significant, and RRs are presented for each race/Indigenous identity group. [f]Not significant in full multivariable model so excluded from final model.

Table 2: **ITS for decarceration indicators by month for people who experienced incarceration in provincial correctional facilities in Ontario, 2015–2022.**

statistically significant between the non-Indigenous non-Black racialized group and each other group (p = 0.025 vs. Indigenous, p = 0.004 vs. non-Indigenous Black, p = 0.007 vs. non-Indigenous white), respectively, which means the risk of being in custody increased at a faster rate for people who were in the non-Indigenous non-Black racialized group compared with the other three groups. The other three groups did not differ significantly from one another, with p = 0.76 for Indigenous vs. non-Indigenous Black, p = 0.74 for Indigenous vs. non-Indigenous white, and p = 0.96 for non-Indigenous Black vs. non-Indigenous white.

The findings for person-time in custody were similar to the findings for the number of people in custody (Table 2). However, there was no significant decrease pre-COVID in the time in custody for people who were Indigenous (RR = 0.99, 95% CI 0.98–1.00, p = 0.14). In pairwise comparisons, there was no significant difference in the pre-COVIDxrace/Indigenous identity RR between people who were Indigenous and people who were non-Indigenous white (p = 0.14) or between people who were non-Indigenous Black and people who were non-Indigenous non-Black racialized (p = 0.49). The COVIDxrace/Indigenous identity interaction was statistically significant (p = 0.042), and the RR for people who were non-Indigenous white was lower than the RR for the other three groups, at 0.73 (95% CI 0.70–0.76) compared with 0.82 (95% CI 0.76–0.88) for people who were Indigenous, 0.79 (95% CI 0.76–0.81) for people who were non-Indigenous Black, and 0.79 (95% CI 0.76–0.83) for people who were non-Indigenous non-Black racialized, which means that amount of days in custody decreased more for people who were non-Indigenous white. The other three groups did not differ significantly from one another, with p = 0.30 for non-Indigenous Black vs. Indigenous, p = 0.44 for Indigenous vs. non-Indigenous non-Black racialized, and p = 0.80 for non-Indigenous Black vs. non-Indigenous non-Black racialized. The post-COVIDxrace/Indigenous identity interaction was significantly higher for the non-Indigenous non-Black racialized group than other groups, and there was no difference between other groups in pairwise comparisons, with p = 0.95 for non-Indigenous white vs. non-Indigenous Black, p = 0.39 for non-Indigenous white vs. Indigenous, and p = 0.42 for non-Indigenous Black vs. Indigenous.

When we included age and sex and interactions with age and sex in the multivariable models (Supplementary material), we found that in the models for each of admissions and releases, interactions between COVID and each of race, age, and sex, respectively, were not significant. For the models for both people in custody and person-time in custody, similar to the models that did not include race or age, the COVIDxrace/Indigenous identity interactions were significant (p < 0.0001), with the lowest RRs for people who were white, at 0.62 (95% CI 0.58–0.66) in the model for people in custody and 0.65 (95% CI 0.59–0.71) in the model of person-time in custody.

Discussion

We aimed to assess whether the impacts of decarceration strategies initiated in the beginning of the COVID-19 pandemic were equitably distributed across individuals of different racial backgrounds and by Indigenous identity. We found that, across indicators, incarceration rates decreased slowly prior to the COVID-19 pandemic, followed by a significant and rapid reduction in the spring of 2020, and subsequently incarceration rates increased from the spring of 2020 to the end of 2022. Incarceration rates were substantially higher for people who were Indigenous and Black at the start of the study period in 2015. Although decarceration in the spring of 2020 benefited all race/Indigenous identity groups across indicators, decarceration disproportionately benefited people who were white in terms of the number of people in custody per month and the person-time in custody per month compared with other groups.

Our findings of inequitable decarceration are concerning, given the long-standing over-representation of Indigenous and Black people in Canadian correctional facilities,[12–14] and recognizing the substantial and inequitable adverse health impacts of the COVID-19 pandemic for people in correctional facilities.[1] Our results align with U.S. research that identified racial disparities in pandemic-related reductions in prison populations,[9,20,21] and similarly highlight persistent structural inequities in incarceration, as described in other papers.[22–25] We could not identify any comparable studies or evidence from Latin American countries indicating whether decarceration may have differentially affected Indigenous or racialized populations. However, given similar histories of structural racism within Latin American carceral systems,[26] including the over-representation of people who are Black and of mixed raced in incarcerated populations in Brazil, Cuba, and Puerto Rico,[26] we hypothesize that our findings regarding inequitable decarceration would be generalizable to other countries in the Americas- and potentially beyond.

Study strengths are that we used whole population data for an eight-year period by leveraging routinely collected correctional administrative data that included self-reported race and Indigenous identity data. We examined several decarceration indicators, each of which has relevance for individual and population health. For example, any admission may be associated with psychological and financial impacts as well as exposure to challenging and risky conditions in custody, while time spent in custody indicates time exposed to these conditions.

Our study also has several limitations. A substantial proportion of people were missing data on race and Indigenous identity. While there are legal obligations to collect data on race and Indigenous identity in provincial correctional facilities,[27] it is unclear whether correctional staff consistently collect this information, and some people may choose to not respond to these questions. Additional efforts may be warranted to assess and optimize adherence to standards for this data collection.[28] We aligned our categories for Indigenous identity and racial identity with those used by Statistics Canada to enable us to use whole population data to calculate rates, however, this categorization has limitations. The Statistics Canada data collection algorithm does not allow for individuals to self-identify as both Indigenous and another racial identity, which may not reflect the complex and diverse histories of many Indigenous people and the intersections between race and Indigeneity. We recommend modification to data collection procedures to enable the appropriate representation of the diversity and multiplicity of identity. In addition, the categorization of people as non-Indigenous white if they reported Middle Eastern and white race or if they reported Latino and white race may not accurately represent experiences of racialization for people in these groups. The data we have do not explain the mechanisms that led to the changes in decarceration indicators over time, e.g., whether the changes resulted from changes in police policies or procedures, or court policies or procedures, such as time to resolving cases, likelihood or length of a custodial sentence, or access to bail,[17] as explored in other research.[29] Analyses incorporating data on factors that may contribute to differential impacts for Indigenous, Black, and other racialized people would also be valuable, such as individual-level data on prior and current criminal justice system involvement, recognizing that structural racism contributes to length of sentence, risk classification, and institutional charges,[15,30,31] each of which could contribute to the decarceration indicators studied. We also lack incarceration data for federal prisons, which would be valuable to understand decarceration indicators for the whole province, such as releases and person-time in custody across groups, and we do not know whether the findings regarding inequitable decarceration for provincial correctional facilities would be generalizable to federal prisons. We recommend future research on decarceration in federal prisons and for other jurisdictions in Canada, as well as for other countries.

We lack data on the specific mechanisms driving inequitable decarceration. Our exploratory analyses indicated that the impacts associated with COVID-19 decarceration did not differ by age or sex. Additional data on factors such as morbidity, prior criminal justice system involvement, and charges or reasons for incarceration would be valuable for understanding the disparities identified in this study, recognizing that people who are Indigenous and Black may have more serious charges and convictions.[12,32] We hypothesize that the disparities in decarceration observed in this study reflect the cumulative effects of systemic and structural inequities embedded in policing, court, and correctional practices.[12,33] These inequities may manifest in differential treatment based on racial and Indigenous identity, either directly or indirectly, through factors such as poverty, housing instability, and prior involvement with the criminal justice system.[12,34] These factors, deeply intertwined with systemic racism and colonial legacies, influence key stages in the criminal justice process, including the likelihood of being sentenced to time in custody, the length of sentences, and the conditions required to access bail.[12,33,35,36] Regardless of the mechanism, the disparities in decarceration during the COVID-19 pandemic likely exacerbated existing health inequities. Incarceration increased risk of exposure to COVID-19,[1–3] and pre-existing health inequities meant racialized and Indigenous populations were at greater risk of adverse sequelae of COVID-19 infection.[5,22,37,38] People in custody also experienced indirect adverse impacts of the pandemic, which include worse all-cause mortality, health care access, mental health, and relationships with staff and family.[1]

This study underscores the need for targeted strategies to foster equitable health and justice outcomes, including during public health emergencies. Comprehensive, community engaged approaches are needed to monitor and reduce inequitable incarceration rates, with an upstream focus on determinants of health and incarceration, including racism and poverty. Downstream interventions should address inequities in policing, prosecutorial and judicial decision-making, and correctional policies and practices that contribute to racial disparities in incarceration and decarceration.[12,34] This includes revising risk assessment tools, ensuring fair access to bail, and implementing decarceration strategies that prioritize Indigenous and racialized populations who face heightened risks of harms while in custody.[24,25] Further, emergency preparedness and response should include an explicit focus on Indigenous and racialized populations and on people in custody, for example, considering whether and how to prevent incarceration (recognizing that risks and harms associated with emergencies are often amplified for people in custody), and developing strategies to mitigate risks for people who are incarcerated.

Conclusion

This study found that decarceration measures in Ontario, Canada during the initial period of the COVID-19 pandemic disproportionately benefitted people who were white. Ongoing efforts are necessary to monitor and address inequitable incarceration rates. It is crucial to take steps to address the changes in incarceration

rates in the post-COVID period, and to mitigate the disproportionate impacts of incarceration on Indigenous and Black people and communities. Further action must ensure a focus on people in custody in emergency preparedness and response, as well as address factors that contribute to high incarceration rates to alleviate the inequitable health and social burden associated with incarceration.

Contributors

AOB and FK were involved in conceptualising the project and planning the manuscript. FK acquired the data. Methods and analytic design plans were co-developed by RC and FK, and were reviewed and approved by co-authors. RC conducted analyses, and FK verified the data. NL, AOB, and FK contributed to drafting the manuscript. All authors contributed to the interpretation of the data, critically revised the manuscript, and approved the final draft, and FK was responsible for the decision to submit the manuscript.

Data sharing statement

Legal data sharing agreements prohibit the investigators from making the dataset publicly available. The data that the authors linked are in the custody of the Ontario Ministry of the Solicitor General, and are subject to statutory confidentiality requirements. In order to access the linked dataset, any interested persons would need to obtain permission from the Ministry of the Solicitor General, and should contact the project Principal Investigator, Dr Fiona Kouyoumdjian.

Declaration of interests

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.lana.2025.101088.

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