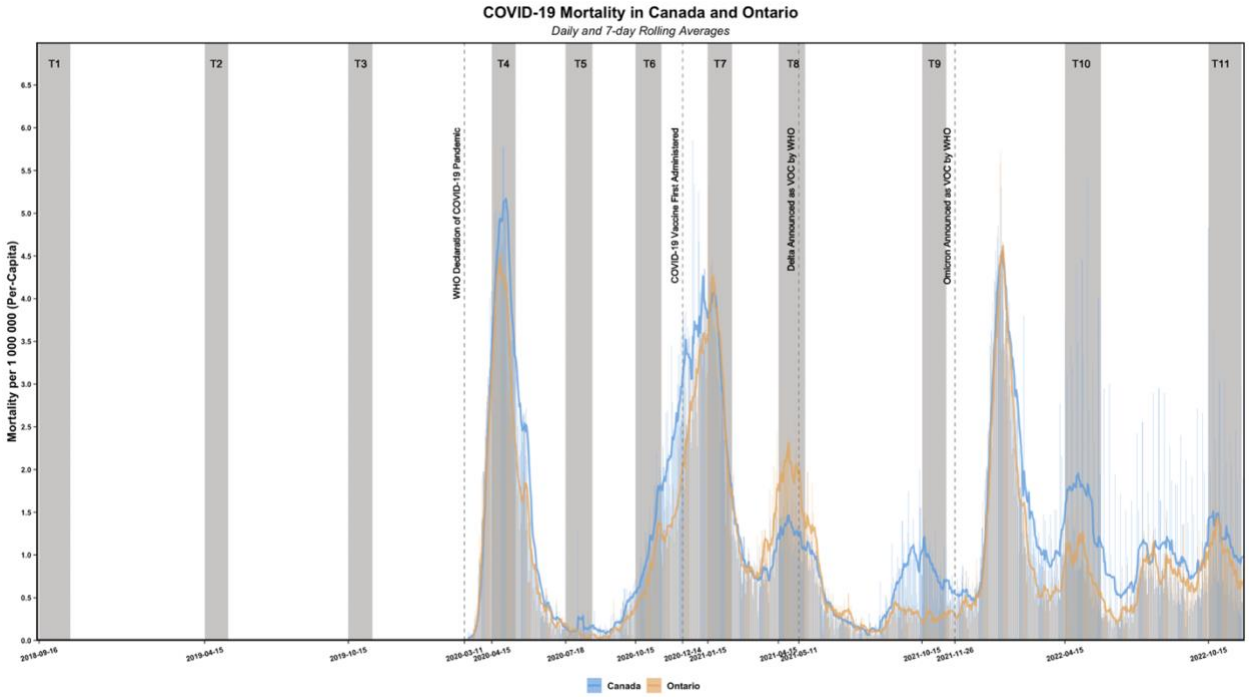
SUPPLEMENTARY METHODS

Study timeline and COVID-19 pandemic mortality

Supplementary Figure 1 shows the waves of the study as well as COVID-19-associated mortality in Ontario and Canada throughout the study period. Mortality allows us to examine impact of COVID-19 since case-testing varied wildly throughout the pandemic and was not accessible to the majority of the population in the later waves; nevertheless, mortality rates are still thought to be under-estimated. Vaccination mandates were issued in September 2021 [1] and the omicron variant announced after timepoint 9 in November 2021 and questions on COVID-19 infection and vaccination were posed at timepoints 10 and 11.



Supplementary Figure 1: Study timeline and COVID-19 mortality. Assessment waves (grey shaded bars) and per capita COVID-19 mortality for Ontario (orange) and Canada (blue). Mortality data collected from Berry et al. (2021) [2]

References

1. O. Reg. 645/21 - Rules for Areas at Step 3 and the Roadmap Exit Step. c 17, 2021.

2. Berry I, O'Neill M, Sturrock SL, Wright JE, Acharya K, Brankston G, Harish V, Kornas K, Maani N, Naganathan T, Obress L, Rossi T, Simmons AE, Van Camp M, Xie X, Tuite AR, Greer AL, Fisman DN, Soucy JR. A sub-national real-time epidemiological and vaccination database for the COVID-19 pandemic in Canada. *Sci Data* 2021: 8(1): 173.

COVID-19 Survey and Quality Control

To analyze risk of COVID-19 infection, participants were included in the final sample if they had data at either T10 (April 2022) or T11 (October 2022), as these waves captured the Omicron strain of the COVID-19 pandemic, as well as lessened mitigation measures by public health, which resulted in a large majority of participants endorsing a prior COVID-19 infection for the first time. It is also in these waves that we administered for the first time a question asking about all prior COVID-19 infections as well as long-COVID symptomatology. This meant that if a participant was missing data from an earlier intra-COVID wave, their prior infection status could still be captured. Attention/adequate effort checks were placed throughout the online assessment. There were 5 in total, whereby participants needed to answer at least 3 out of the 5 correctly. All questions had unambiguously correct responses (ex. For this question, please choose "Strongly Disagree").

Dried cannabis use frequency and quantity

To mitigate reduce improper estimating of dried cannabis use self-reporting, a scaling image is provided within the survey comparing the size of 1 gram of dried cannabis to a bottle cap (Supplementary Figure 2).

Supplementary Figure 2: Illustration for scale of 1 gram of dried cannabis relative to a standard bottle cap.

SUPPLEMENTARY RESULTS

Attrition analysis

There were 1,502 participants first enrolled in the study, attrition analysis can be found in Supplementary Table 1. Excluded individuals tended to be younger, male, have lower household income, and use more dried cannabis on average than included participants.

Supplementary Table 1: Baseline characteristics of included versus not included study participants

	Included	Not Included	
N (%) Total Sample	1343 (89.41%)	159 (10.59%)	
N (%) Female	822 (61.21%)	74 (46.54%)	$X^2 = 12.1$; **$p = .000504$**
N (%) White Ethnicity	1065 (79.30%)	128 (80.50%)	$X^2 = 0.0631$; $p = .802$
Median Household Income	$60,000 - $74,999	$45,000 - $59,999	$t = 3.24$; **$p = .00120$**
Mean +/- SD Age	39.2 +/- 14.1	35.7 +/- 12.5	$t = 3.01$; **$p = .00269$**
Mean +/- SE Cigarettes Smoked per Day	1.2 +/- 0.12	2.1 +/- 0.46	$t = 1.88$; $p = .0619$
Mean +/- SE Cannabis Grams	0.23 +/- 0.02	0.44 +/- 0.07	$t = 2.90$; **$p = .00428$**

Baseline characteristics

Supplementary Table 2: Baseline characteristics of cohort stratified by dried cannabis and cigarette use

Characteristic	Overall Sample (N= 1,343)	No Dried Cannabis Use (N= 590)	Dried Cannabis Use (N= 753)	Statistics	No Cigarette Use (N= 1,095)	Cigarette Use (N= 248)	Statistics
% of cohort	100%	43.9%	56.07%	N/A	81.5%	18.5%	N/A
N (%) Female	822 (61.2%)	387 (65.6%)	435 (57.8%)	X^2 = 8.20; **p = .00418**	672 (61.4%)	150 (60.5%)	X^2 = 0.0347; p = .852
N (%) White Ethnicity	1,065 (79.3%)	476 (80.7%)	589 (78.2%)	X^2 = 1.07; p = .301	857 (78.3%)	208 (83.9%)	X^2 = 3.54; p = .06
Vaccination Status: Primary Vaccination (1-2 vaccines)	1269 (94.5%)	563 (95.4%)	706 (93.8%)	X^2 = 1.46; p = .227	1046 (95.5%)	223 (89.9%)	X^2 = 11.5; p = **.000840**
Booster Vaccination (1-2 vaccines + booster)	1032 (76.8%)	471 (79.8%)	561 (74.5%)	X^2 = 4.98; p = 0.0256	873 (79.7%)	159 (64.1%)	X^2 = 26.8; **p < .0001**
Cigarette Use (mean# cigarettes throughout study +/- SD)	1,749.7 +/- 6,834.0	1,107.0 +/- 5,409.6	2,253.3 +/- 7,736.1	t = 3.06; **p = .00226**	0 +/- 0	9,475.2 +/- 13,425.8	N/A
Cannabis Use (mean grams throughout study +/-SD)	251.6 +/- 922.0	0 +/- 0	448.7 +/- 1195.2	N/A	144.5 +/- 654.3	724.3 +/- 1564.4	t = 5.72; **p < .0001**
Median Income**	$75,000 - $89,999	$90,000 - $104,999	$75,000 - $89,999	t = 4.96; **p < .0001**	$90,000 - $104,999	$60,000 - $74,999	t = 7.78; **p < .0001**
Mean +/- SD Age at end of 2022 (median age)	39.2 +/- 14.1 (34)	44.1 +/- 14.8	35.4 +/- 12.2	t = 11.8; **p < .0001**	39.5 +/- 14.3 (34)	37.8 +/- 12.8 (34)	t = 1.73; p = .0844

#Total grams calculated across all time points multiplying frequency (expressed as % of past 30 days) by grams.

* n = 1,264 with this data in total

**From most recent income measure (T11 or T10 if not available)

Dried cannabis use, cigarette smoking and COVID-19 infection

Supplementary Table 3: COVID-19 infection self-reporting among cigarette smokers and dried cannabis users

Individual Substance Use Groups						
N (% of use group)	No Dried Cannabis Use (N= 590)	Dried Cannabis Use (N= 753)	Statistics	No Cigarette Use (N= 1,095)	Cigarette Use (N= 248)	Statistics
1+ COVID-19 Infection	338 (57.3%)	482 (64.0%)	X^2 = 6.01; p = .0142	681 (62.2%)	139 (56.0%)	X^2 = 2.95; p = .0855
2+ COVID-19 Infections	43 (7.3%)	100 (13.3%)	X^2 = **11.9; p = .000573**	110 (10.0%)	33 (13.3%)	X^2 =1.93; p = .165

Impact of COVID-19 pandemic on cannabis or cigarette smoking cessation

To ensure that the inverse associations between COVID-19 infection outcomes and cigarette/cannabis use we observed were not the result of participants quitting or reducing their use after a COVID-19 infection, we used the wave in which a participant reported their first COVID-19 infection to split their data into pre-infection and post-infection (**Supplementary Table 4**). Thus, this required use of the subset of participants with non-missing data across all intra-COVID time points (N = 1,125). In total, n = 763 reported a prior COVID-19 infection, in which pre- and post- use of cigarettes (average number per day) and dried cannabis (average grams per day) were calculated. No significant differences were found between pre- and post-infection time periods in the mean number of cigarettes consumed per day or in the mean dried cannabis use per day (**Supplementary Table 4**).

Supplementary Table 4: Changes in cigarette and cannabis use pre- and post-COVID-19 infection

Mean +/- SE	Pre-COVID Infection	Post-COVID Infection	Statistical Test
Overall Change in Cigarettes Per Day (N= 763)	0.62 +/- 2.65	0.51 +/- 2.54	t = 1.61; p = .109
Change in Cigarette Users (N= 128)	3.70 +/- 0.49	3.07 +/- 0.49	t = 1.61; p = .109
Overall Change in Dried Cannabis Per Day (N= 763)	0.11 +/- 0.40	0.11 +/- 0.41	t = 0.172; p = .864

Change in Dried Cannabis Users (N= 446)	0.19 +/- 0.51	0.19 +/- 0.53	t = 0.172; p = .864

Frequency of substance use and COVID-19 infection self-reporting

Supplementary Table 5: Dried cannabis and tobacco consumption by COVID-19 infection reporting

Individual Substance Use Groups		
Mean +/- SD	Average Cannabis Grams per Day Dried Cannabis Use (N= 753)	Average Cigarettes per Day Cigarette Use (N= 248)
No COVID-19 Infection	0.32 +/- 0.69	6.31 +/- 8.06
COVID-19 Infection	0.19 +/- 0.52	3.51 +/- 5.1
Significance	t = 2.72; p = .00569	t = 3.34; **p = .000982**
Effect Size (Cohen's D)	d = 0.75	0.43

Booster vaccination and self-reported COVID-19 infection

Supplementary Table 6: COVID-19 outcomes and booster vaccination rate among all participants

	N(%)	COVID-19 Booster Vaccination Rate	Statistics
<1 COVID-19 Infection	523 (38.9%)	409 (78.2%)	$X^2 = 0.890$; $p = .346$
1+ COVID-19 Infection	820 (61.1%)	623 (76.0%)	
<2 COVID-19 Infections	1200 (89.4%)	936 (78.0%)	$X^2 = 7.88$; $p =$ **.00500**
2+ COVID-19 Infections	143 (10.6%)	96 (67.1%)	

Supplementary Table 7: Self-reported COVID-19 infection stratified by booster vaccination and substance use

Individual Substance Use Groups						
N(%)	No Dried Cannabis Use (*N*= 590)	Dried Cannabis Use (*N*= 753)	Statistics	No Cigarette Use (*N*= 1,095)	Cigarette Use (*N*= 248)	Statistics
1+ COVID-19 Infection						
No booster vaccination	72 (60.5%)	125 (65.1%)	$X^2 = 0.486$; $p = .486$	147 (66.2%)	50 (56.2%)	$X^2 = 2.34$; $p = .126$
Booster vaccination	266 (56.5%)	357 (63.3%)	$X^2 = 5.19$; $p = .0227$	534 (61.2%)	89 (56.0%)	$X^2 = 1.31$; $p = .253$
2+ COVID-19 Infections						
No booster vaccination	12 (10.1%)	35 (18.2%)	$X^2 = 3.19$; $p = .0741$	33 (14.9%)	14 (15.7%)	$X^2 = .000305$; $p = .986$
Booster vaccination	31 (6.6%)	65 (11.6%)	$X^2 = 7.02$; $p = .00806$	77 (8.8%)	19 (12.0%)	$X^2 = 1.21$; $p = .271$