

## At-a-glance

# Self-rated mental health, community belonging, life satisfaction and perceived change in mental health among adults during the second and third waves of the COVID-19 pandemic in Canada

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## Abstract

Findings from the 2020 Survey on COVID-19 and Mental Health (SCMH) suggested that the positive mental health of adults in Canada was lower during the second wave of the pandemic (fall 2020) than in 2019. With 2021 SCMH data from winter/spring 2021, we find in the current study that average life satisfaction and the prevalence of high self-rated mental health, high community belonging and perceptions of stable/improved mental health were even lower during the third wave of the pandemic as compared to the second wave in the overall adult population and in most sociodemographic groups.

**Keywords:** COVID-19, coronavirus, mental health, life satisfaction, community belonging, Canadian adults, public health

## Introduction

Beyond the direct impact of COVID-19 on Canadians' physical health,<sup>1,2</sup> there have been wider effects of the pandemic on mental health. For instance, the percentage of Canadian adults who screened positive for major depressive disorder was two times higher during the second wave of the pandemic in fall 2020 compared to before the pandemic.<sup>3</sup> The positive mental health (PMH) of Canadians also appears to have been negatively affected, with lower average life satisfaction and fewer adults in Canada reporting high self-rated mental health (SRMH) and high community belonging during fall 2020 compared to pre-pandemic levels.<sup>4,5</sup>

Ongoing measurement of population mental health is necessary to understand changes in Canadians' well-being during different periods of the pandemic and provide information about the recovery of the population. There is already some evidence of mental health in Canada

worsening as the pandemic progressed from fall 2020 to winter/spring 2021. For instance, a higher percentage of adults screened positive for major depressive disorder and generalized anxiety disorder during the third (vs. second) wave of the pandemic.<sup>6</sup> Similarly, high self-rated levels of anxiety and depression were more prevalent among adults in February and April of 2021 compared to 2020.<sup>7,8</sup> In the current analysis, we investigated whether PMH outcomes and perceived change in mental health also differed in winter/spring 2021 from fall 2020 in the overall population and in various sociodemographic groups.

## Methods

Mental health during the COVID-19 pandemic's second wave was estimated using data from the 2020 Survey on COVID-19 and Mental Health (SCMH), which was collected from 11 September to 4 December 2020.<sup>9</sup> Mental health during the third wave was estimated using data from the 2021 SCMH, which was collected from

## Highlights

- Fewer adults in Canada reported high self-rated mental health in winter/spring 2021 (51.5%) compared to fall 2020 (59.9%).
- Fewer adults reported high community belonging in winter/spring 2021 (57.3%) compared to fall 2020 (63.7%).
- Rated from 0 (very dissatisfied) to 10 (very satisfied), average life satisfaction was lower in winter/spring 2021 (6.9) compared to fall 2020 (7.2).
- Fewer adults in winter/spring 2021 (58.1%) compared to fall 2020 (66.5%) reported that their mental health was better or about the same compared to before the COVID-19 pandemic.

1 February to 7 May 2021.<sup>10</sup> Adults (18 years and older) living in the 10 provinces and the three capital cities of the territories voluntarily completed the 2020 and 2021 SCMH by computer-assisted telephone interview or electronic questionnaire. A simple random sample of dwellings was selected within each province and territorial city using the Dwelling Universe File as the sampling frame, with an adult then sampled within each dwelling. The response rate for the 2020 SCMH was 53.3%, with 14 689 respondents in total. The response rate for the 2021 SCMH was 49.3%, with 8032 respondents in

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total. We analyzed data only from the 12 344 and 6592 respondents of the 2020 and 2021 SCMH, respectively, who agreed to share their data with the Public Health Agency of Canada.

SRMH was assessed by asking, “In general, how is your mental health?” with “Excellent”, “Very good”, “Good”, “Fair” and “Poor” as response options. High SRMH included those who answered “Excellent” or “Very good”.<sup>11</sup> Community belonging was assessed by asking, “How would you describe your sense of belonging to your local community?” with “Very strong”, “Somewhat strong”, “Somewhat weak” and “Very weak” as response options. High community belonging included those who answered “Very strong” or “Somewhat strong”.<sup>11</sup> Life satisfaction was assessed by asking, “Using a scale of 0 to 10 where 0 means ‘Very dissatisfied’ and 10 means ‘Very satisfied’, how do you feel about your life as a whole right now?” We examined life satisfaction as a numerical variable.<sup>11</sup> Perceived change in mental health was assessed by asking, “Compared to before the COVID-19 pandemic, how would you say your mental health is now?” with “Much better now”, “Somewhat better now”, “About the same”, “Somewhat worse now” and “Much worse now” as response options. Stable/improved mental health included those who answered “About the same”, “Somewhat better now” or “Much better now”.<sup>4</sup>

We conducted analyses using SAS Enterprise Guide version 7.1 (SAS Institute Inc., Cary, NC, USA). We used sampling weights from Statistics Canada to obtain nationally representative estimates that take into account the complex survey design. We estimated coefficients of variation and 95% confidence intervals (CIs) using bootstrap weights. We compared estimates of average life satisfaction and the prevalence of high SRMH, high community belonging and perceptions of stable/improved mental health in winter/spring 2021 to fall 2020 for the overall population and for specific sociodemographic groups using the SURVEYMEANS procedure in SAS Enterprise Guide.

We included the same sociodemographic variables as in our previous study,<sup>4</sup> although we examined broader categories for household income (tertiles instead of quintiles) and geographical location

(combining prairie provinces together, Atlantic provinces together and territorial capitals together),<sup>5</sup> as the sample size was smaller in the 2021 SCMH. We also investigated changes in mental health outcomes by work status (frontline worker, essential non-frontline worker, absent from work due to a business closure/lay-off/personal circumstances related to COVID-19, other), as previous research has found some differences in suicide ideation and perceived change in mental health during the pandemic between these groups.<sup>4,12</sup> Lastly, whether an individual lives alone (yes, no) was examined, as living alone has been associated with lower SRMH and life satisfaction pre-pandemic;<sup>13</sup> those living alone may be even more likely to be socially isolated and vulnerable to declines in mental health during the pandemic.<sup>14</sup>

Significant differences over time were identified when the 95% CI of a difference score excluded 0 and by  $p$ -values  $< 0.05$ . When reporting results, we also highlighted when differences were significant at even stricter alpha levels ( $p$ -values  $< 0.01$  and  $< 0.001$ ).

## Results

High SRMH, high community belonging and average life satisfaction results are reported in Table 1.

Overall, 51.5% of adults in Canada reported high SRMH in winter/spring 2021, which is significantly lower than the 59.9% who reported high SRMH in fall 2020. High SRMH was significantly less common in winter/spring 2021 than in fall 2020 in every sociodemographic group we examined, except for those absent from work due to the pandemic and those living in the territorial capitals.

The prevalence of high community belonging was 57.3% in winter/spring 2021, which is significantly lower than the 63.7% who reported high community belonging in fall 2020. High community belonging was significantly less common in winter/spring 2021 than in fall 2020 in most of the sociodemographic groups we examined. The exceptions for which high community belonging was not significantly different in fall 2020 and winter/spring 2021 included among racialized individuals, those from low-income households, those living in rural areas, frontline workers, those absent from work due to

the pandemic and those living in Quebec, the Atlantic provinces and the territorial capitals.

Average life satisfaction was 6.9 in winter/spring 2021, which is significantly lower than the average life satisfaction of 7.2 in fall 2020. Average life satisfaction was significantly lower in winter/spring 2021 than in fall 2020 in every sociodemographic group we examined, except for those aged 50 to 64 years old, frontline workers, essential non-frontline workers, those absent from work due to the pandemic and those living in the territorial capitals.

Lastly, perceived change in mental health results are reported in Table 2. Overall, 58.1% of adults in Canada reported in winter/spring 2021 that their mental health is stable/improved compared to before the pandemic, which is significantly lower than the 66.5% who reported stable/improved mental health in fall 2020. A significantly lower prevalence in winter/spring 2021 was found in all sociodemographic groups, except those absent from work due to the pandemic, and those living in British Columbia or the territorial capitals.

## Discussion

This study provides further evidence for worsening population mental health from the second to the third wave of the pandemic in Canada,<sup>6-8,15</sup> with adults feeling less satisfied with their life on average and fewer individuals reporting high SRMH, high community belonging and stable/improved mental health. The lower mental health levels observed during the third wave may be attributable to the cumulative effect of stressors after a year in a pandemic,<sup>16</sup> more Canadians being affected by a COVID-19 infection personally or within their social network as additional waves of the pandemic occur,<sup>1</sup> the unintended consequences of public health measures to limit the spread of COVID-19 in various jurisdictions during the third wave<sup>17</sup> and/or other factors.

Decreases in mental health were found in many sociodemographic groups, but young adults aged 18 to 34 years appeared to be struggling the most in the third wave, with just one-third reporting high SRMH and fewer than half reporting high community belonging or stable/improved mental health. Declines in some mental health outcomes

**TABLE 1**  
Prevalence of high self-rated mental health and high community belonging, and average life satisfaction in fall 2020 and winter/spring 2021

Characteristics	High self-rated mental health			High community belonging			Average life satisfaction		
	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)
	% (95% CI)	% (95% CI)		% (95% CI)	% (95% CI)		Mean (95% CI)	Mean (95% CI)	
<b>Overall</b>	59.9 (58.7, 61.2)	51.5 (49.7, 53.3)	8.5*** (6.3, 10.6)	63.7 (62.4, 64.9)	57.3 (55.6, 59.1)	6.3*** (4.2, 8.4)	7.2 (7.1, 7.3)	6.9 (6.8, 7.0)	0.3*** (0.2, 0.4)
<b>Gender</b>									
Female	55.7 (53.9, 57.5)	49.3 (46.9, 51.6)	6.4*** (3.4, 9.4)	63.6 (61.9, 65.3)	56.7 (54.3, 59.1)	6.9*** (4.0, 9.8)	7.1 (7.0, 7.2)	6.8 (6.7, 6.9)	0.3*** (0.2, 0.5)
Male	64.5 (62.6, 66.4)	54.0 (51.2, 56.7)	10.5*** (7.2, 13.9)	63.8 (61.9, 65.7)	58.2 (55.4, 60.9)	5.6*** (2.3, 8.9)	7.3 (7.2, 7.4)	7.0 (6.9, 7.1)	0.3*** (0.1, 0.4)
<b>Age (years)</b>									
18–34	50.6 (47.6, 53.7)	33.4 (29.4, 37.5)	17.2*** (12.2, 22.2)	51.4 (48.3, 54.6)	43.7 (39.3, 48.1)	7.7** (2.3, 13.1)	6.8 (6.6, 6.9)	6.3 (6.1, 6.5)	0.5*** (0.2, 0.7)
35–49	57.2 (54.6, 59.7)	48.6 (44.9, 52.3)	8.6*** (4.1, 13.0)	62.8 (60.2, 65.3)	54.4 (50.9, 58.0)	8.3*** (4.1, 12.6)	7.1 (7.0, 7.2)	6.9 (6.7, 7.0)	0.3** (0.1, 0.5)
50–64	62.0 (59.7, 64.3)	57.6 (54.2, 60.9)	4.4* (0.4, 8.5)	65.9 (63.6, 68.2)	61.3 (58.2, 64.4)	4.6* (0.7, 8.5)	7.2 (7.1, 7.3)	7.0 (6.9, 7.2)	0.2 (–0.01, 0.3)
65+	72.5 (70.4, 74.6)	68.0 (64.9, 71.1)	4.5* (0.8, 8.3)	77.7 (75.8, 79.6)	71.5 (68.6, 74.4)	6.2*** (2.8, 9.6)	7.8 (7.7, 7.9)	7.5 (7.3, 7.6)	0.3*** (0.2, 0.5)
<b>Racialized group member</b>									
Yes	60.8 (57.8, 63.8)	50.1 (45.9, 54.4)	10.6*** (5.5, 15.8)	59.9 (56.8, 63.0)	57.1 (52.8, 61.4)	2.8 (–2.3, 8.0)	6.9 (6.8, 7.1)	6.7 (6.5, 6.9)	0.2* (0.02, 0.5)
No	59.7 (58.3, 61.1)	52.1 (50.2, 54.0)	7.6*** (5.2, 10.0)	65.0 (63.6, 66.5)	57.7 (55.8, 59.6)	7.4*** (5.0, 9.7)	7.3 (7.2, 7.4)	7.0 (6.9, 7.1)	0.3*** (0.2, 0.4)
<b>Immigrant status</b>									
Yes	64.0 (61.2, 66.8)	55.5 (51.4, 59.5)	8.6*** (3.6, 13.5)	63.7 (60.9, 66.5)	58.5 (54.7, 62.4)	5.2* (0.5, 9.9)	7.1 (7.0, 7.2)	6.9 (6.7, 7.0)	0.2* (0.03, 0.5)
No	58.4 (56.9, 59.8)	49.9 (47.9, 51.9)	8.5*** (6.0, 11.0)	63.7 (62.2, 65.2)	56.8 (54.8, 58.8)	6.9*** (4.4, 9.3)	7.2 (7.2, 7.3)	6.9 (6.8, 7.0)	0.3*** (0.2, 0.4)
<b>Household income</b>									
Low	58.9 (56.7, 61.1)	51.2 (48.3, 54.2)	7.7*** (4.0, 11.3)	62.0 (59.8, 64.2)	58.9 (56.0, 61.8)	3.1 (–0.5, 6.7)	7.1 (7.0, 7.2)	6.8 (6.6, 6.9)	0.3*** (0.2, 0.5)
Middle	59.3 (56.8, 61.7)	51.4 (48.0, 54.8)	7.9*** (3.7, 12.1)	63.4 (60.9, 65.8)	57.1 (53.6, 60.6)	6.3** (1.9, 10.6)	7.1 (7.0, 7.2)	6.9 (6.8, 7.1)	0.2* (0.02, 0.4)
High	61.5 (59.1, 63.9)	53.6 (50.0, 57.3)	7.9*** (3.5, 12.3)	63.5 (61.1, 66.0)	54.3 (50.7, 57.8)	9.3*** (4.9, 13.6)	7.3 (7.2, 7.4)	7.1 (6.9, 7.2)	0.3** (0.1, 0.4)

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TABLE 1 (continued)  
Prevalence of high self-rated mental health and high community belonging, and average life satisfaction in fall 2020 and winter/spring 2021

Characteristics	High self-rated mental health			High community belonging			Average life satisfaction		
	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)
	% (95% CI)	% (95% CI)		% (95% CI)	% (95% CI)		Mean (95% CI)	Mean (95% CI)	
Place of residence									
Population centre	58.5 (57.1, 60.0)	50.5 (48.5, 52.6)	8.0*** (5.5, 10.5)	62.3 (60.8, 63.8)	55.6 (53.6, 57.6)	6.7*** (4.3, 9.2)	7.1 (7.0, 7.2)	6.8 (6.7, 6.9)	0.3*** (0.2, 0.4)
Rural area	66.1 (63.4, 68.7)	56.3 (52.3, 60.3)	9.8*** (5.1, 14.5)	69.9 (67.3, 72.6)	65.6 (61.7, 69.5)	4.4 (−0.5, 9.2)	7.6 (7.5, 7.7)	7.3 (7.2, 7.5)	0.3** (0.1, 0.5)
Educational attainment									
High school or lower	58.1 (55.6, 60.6)	48.3 (44.9, 51.7)	9.8*** (5.7, 13.9)	65.7 (63.2, 68.1)	59.0 (55.5, 62.5)	6.7** (2.4, 10.9)	7.2 (7.1, 7.3)	6.9 (6.7, 7.1)	0.3** (0.1, 0.5)
Post-secondary	60.7 (59.2, 62.2)	52.9 (50.7, 55.1)	7.8*** (5.2, 10.5)	62.7 (61.2, 64.3)	56.6 (54.5, 58.7)	6.1*** (3.6, 8.6)	7.2 (7.1, 7.3)	6.9 (6.8, 7.0)	0.3*** (0.2, 0.4)
Parent/guardian of child < 18 years									
Yes	59.2 (56.8, 61.6)	49.2 (45.6, 52.8)	10.0*** (5.7, 14.3)	64.9 (62.4, 67.3)	56.8 (53.3, 60.3)	8.1*** (3.9, 12.2)	7.2 (7.1, 7.3)	6.9 (6.8, 7.1)	0.3** (0.1, 0.4)
No	60.3 (58.7, 61.9)	52.3 (50.2, 54.4)	8.0*** (5.4, 10.6)	63.2 (61.7, 64.7)	57.6 (55.5, 59.6)	5.7*** (3.2, 8.2)	7.2 (7.1, 7.3)	6.9 (6.8, 7.0)	0.3*** (0.2, 0.4)
Work status									
Frontline worker	57.2 (52.1, 62.3)	46.4 (39.6, 53.2)	10.8* (2.5, 19.1)	64.5 (59.4, 69.5)	59.0 (52.1, 65.9)	5.4 (−3.0, 13.9)	7.2 (6.9, 7.4)	6.9 (6.6, 7.2)	0.2 (−0.1, 0.6)
Essential non-frontline worker	62.5 (59.5, 65.5)	52.7 (48.5, 56.9)	9.8*** (4.6, 15.0)	64.5 (61.6, 67.4)	58.6 (54.7, 62.6)	5.9* (0.9, 10.9)	7.3 (7.1, 7.4)	7.1 (7.0, 7.3)	0.2 (−0.1, 0.4)
Not working due to COVID-19	38.4 (27.3, 49.5)	49.9 <sup>f</sup> (33.2, 66.6)	−11.5 <sup>f</sup> (−31.8, 8.9)	58.6 (47.5, 69.7)	60.9 <sup>f</sup> (44.4, 77.4)	−2.3 <sup>f</sup> (−22.6, 18.0)	6.3 (5.7, 6.8)	6.5 <sup>f</sup> (6.0, 7.0)	−0.2 <sup>f</sup> (−1.0, 0.5)
Other	59.9 (58.4, 61.4)	51.6 (49.4, 53.7)	8.3*** (5.7, 10.9)	63.5 (61.9, 65.0)	56.6 (54.5, 58.6)	6.9*** (4.4, 9.4)	7.2 (7.1, 7.3)	6.8 (6.7, 6.9)	0.4*** (0.3, 0.5)
Living alone									
Yes	59.0 (56.8, 61.3)	51.6 (48.3, 54.8)	7.5*** (3.4, 11.6)	62.2 (59.9, 64.5)	58.1 (54.9, 61.2)	4.2* (0.2, 8.1)	7.1 (7.0, 7.2)	6.8 (6.7, 7.0)	0.3** (0.1, 0.5)
No	60.0 (58.6, 61.5)	51.5 (49.4, 53.6)	8.6*** (6.0, 11.1)	63.9 (62.4, 65.4)	57.1 (55.2, 59.1)	6.7*** (4.3, 9.2)	7.2 (7.2, 7.3)	6.9 (6.8, 7.0)	0.3*** (0.2, 0.4)

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TABLE 1 (continued)  
Prevalence of high self-rated mental health and high community belonging, and average life satisfaction in fall 2020 and winter/spring 2021

Characteristics	High self-rated mental health			High community belonging			Average life satisfaction		
	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)
	%	%		%	%				
	(95% CI)	(95% CI)		(95% CI)	(95% CI)				
Geographical location									
British Columbia	55.6 (52.1, 59.1)	48.2 (43.5, 52.8)	7.4* (1.5, 13.3)	61.9 (58.5, 65.2)	53.5 (48.9, 58.2)	8.3** (2.6, 14.1)	6.9 (6.8, 7.1)	6.7 (6.5, 6.9)	0.3* (0.01, 0.5)
Prairie provinces	53.6 (51.2, 56.0)	46.9 (43.4, 50.4)	6.7** (2.3, 11.1)	61.7 (59.4, 64.0)	57.3 (54.0, 60.7)	4.3* (0.2, 8.5)	6.9 (6.8, 7.0)	6.6 (6.5, 6.8)	0.3** (0.1, 0.5)
Ontario	58.9 (56.4, 61.4)	47.8 (44.3, 51.4)	11.1*** (6.9, 15.3)	63.3 (60.8, 65.8)	54.9 (51.4, 58.4)	8.4*** (4.2, 12.6)	7.1 (7.0, 7.2)	6.7 (6.6, 6.9)	0.3*** (0.2, 0.5)
Quebec	70.1 (67.6, 72.5)	63.6 (60.0, 67.1)	6.5** (2.1, 10.9)	65.0 (62.3, 67.6)	61.1 (57.7, 64.4)	3.9 (−0.3, 8.1)	7.8 (7.7, 7.9)	7.5 (7.4, 7.7)	0.2** (0.1, 0.4)
Atlantic provinces	57.1 (55.0, 59.2)	50.8 (47.7, 53.9)	6.3*** (2.5, 10.0)	70.4 (68.3, 72.4)	66.9 (64.0, 69.9)	3.5 (−0.2, 7.1)	7.4 (7.3, 7.5)	7.1 (7.0, 7.3)	0.2** (0.1, 0.4)
Territorial capitals	51.4 (47.6, 55.2)	47.5 (43.5, 51.4)	3.9 (−1.5, 9.3)	73.8 (70.6, 77.1)	71.7 (67.8, 75.5)	2.2 (−3.0, 7.4)	7.2 (7.1, 7.3)	7.0 (6.8, 7.2)	0.2 (−0.02, 0.4)

**Abbreviations:** CI, confidence interval; SCMH, Survey on COVID-19 and Mental Health.

**Notes:** Life satisfaction was rated on a scale from 0 (very dissatisfied) to 10 (very satisfied). Prairie provinces include Alberta, Manitoba and Saskatchewan. Atlantic provinces include New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island. Territorial capitals include Iqaluit, Whitehorse and Yellowknife. Positive values in the difference columns mean that the percentage/average was higher in fall 2020 than in winter/spring 2021; negative values in the difference columns mean that the percentage/average was lower in fall 2020 than in winter/spring 2021. Due to rounding, the difference scores do not always equal the difference between estimates from fall 2020 and winter/spring 2021. Some positive mental health estimates from the 2020 SCMH reported in this table differ slightly from the positive mental health estimates in Capaldi et al.<sup>4</sup> because the latter excluded territorial data to be more comparable with the 2019 Canadian Community Health Survey.

<sup>‡</sup> Estimates should be interpreted with caution, as the unweighted total sample size is between 75 and 150. Please look at the confidence intervals when interpreting these estimates.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

**TABLE 2**  
**Prevalence of perceived stability/improvement in mental health compared to before the COVID-19 pandemic in fall 2020 and winter/spring 2021**

Characteristics	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)
	% (95% CI)	% (95% CI)	
<b>Overall</b>	66.5 (65.2, 67.8)	58.1 (56.3, 59.9)	8.5*** (6.2, 10.7)
<b>Gender</b>			
Female	62.3 (60.6, 64.0)	55.3 (53.0, 57.7)	7.0*** (4.0, 9.9)
Male	71.0 (69.0, 72.9)	61.1 (58.2, 63.9)	9.9*** (6.4, 13.4)
<b>Age (years)</b>			
18–34	58.7 (55.5, 61.8)	44.2 (39.9, 48.6)	14.4*** (9.0, 19.8)
35–49	62.4 (59.8, 65.0)	51.9 (48.3, 55.6)	10.5*** (6.1, 14.8)
50–64	67.8 (65.6, 70.1)	63.5 (60.2, 66.7)	4.4* (0.4, 8.4)
65+	79.6 (77.7, 81.5)	74.7 (71.8, 77.6)	4.9** (1.5, 8.3)
<b>Racialized group member</b>			
Yes	68.2 (65.1, 71.2)	60.1 (55.8, 64.4)	8.1** (2.8, 13.3)
No	65.8 (64.3, 67.3)	57.6 (55.6, 59.6)	8.2*** (5.8, 10.7)
<b>Immigrant status</b>			
Yes	71.0 (68.3, 73.7)	61.9 (57.9, 65.9)	9.1*** (4.3, 13.9)
No	64.7 (63.2, 66.2)	56.4 (54.4, 58.5)	8.3*** (5.8, 10.8)
<b>Household income</b>			
Low	69.1 (66.9, 71.2)	60.6 (57.7, 63.5)	8.5*** (4.8, 12.1)
Middle	64.5 (62.0, 66.9)	59.9 (56.6, 63.2)	4.6* (0.5, 8.7)
High	63.5 (60.9, 66.2)	53.9 (50.3, 57.5)	9.7*** (5.3, 14.1)
<b>Place of residence</b>			
Population centre	65.4 (63.8, 66.9)	56.4 (54.3, 58.4)	9.0*** (6.4, 11.5)
Rural area	71.9 (69.4, 74.4)	66.0 (62.3, 69.6)	5.9** (1.5, 10.3)
<b>Educational attainment</b>			
High school or lower	71.1 (68.6, 73.6)	62.7 (59.1, 66.2)	8.4*** (4.1, 12.7)
Post-secondary	64.3 (62.8, 65.9)	56.2 (54.0, 58.4)	8.1*** (5.5, 10.8)
<b>Parent/guardian of child &lt; 18 years</b>			
Yes	62.4 (59.9, 64.8)	52.6 (49.1, 56.2)	9.7*** (5.5, 14.0)
No	68.0 (66.5, 69.6)	60.1 (58.0, 62.2)	7.9*** (5.3, 10.6)

Continued on the following page



TABLE 2 (continued)  
Prevalence of perceived stability/improvement in mental health compared to before the COVID-19 pandemic in fall 2020 and winter/spring 2021

Characteristics	2020 SCMH	2021 SCMH	Difference 2020–2021 (95% CI)
	% (95% CI)	% (95% CI)	
Work status			
Frontline worker	61.9 (57.0, 66.7)	47.6 (40.5, 54.7)	14.3*** (6.0, 22.6)
Essential non-frontline worker	66.1 (63.0, 69.1)	59.2 (55.3, 63.2)	6.9** (1.9, 11.8)
Not working due to COVID-19	49.8 (38.1, 61.4)	45.9 <sup>E</sup> (30.2, 61.7)	3.9 <sup>E</sup> (−15.6, 23.3)
Other	67.4 (65.9, 69.0)	58.6 (56.5, 60.8)	8.8*** (6.2, 11.5)
Living alone			
Yes	69.5 (67.4, 71.7)	61.2 (57.9, 64.5)	8.3*** (4.4, 12.3)
No	66.1 (64.6, 67.6)	57.5 (55.5, 59.6)	8.6*** (6.1, 11.1)
Geographical location			
British Columbia	62.7 (59.3, 66.1)	57.1 (52.5, 61.8)	5.6 (−0.2, 11.3)
Prairie provinces	63.1 (60.8, 65.3)	54.2 (50.8, 57.5)	8.9*** (4.8, 13.0)
Ontario	66.5 (64.1, 68.9)	56.3 (52.8, 59.8)	10.2*** (5.9, 14.4)
Quebec	70.2 (67.7, 72.7)	62.3 (58.8, 65.7)	8.0*** (3.7, 12.3)
Atlantic provinces	70.8 (68.9, 72.8)	66.0 (63.2, 68.8)	4.8** (1.5, 8.2)
Territorial capitals	65.1 (61.4, 68.9)	63.3 (59.2, 67.4)	1.9 (−3.8, 7.5)

**Abbreviations:** CI, confidence interval; SCMH, Survey on COVID-19 and Mental Health.

**Notes:** Prairie provinces include Alberta, Manitoba and Saskatchewan. Atlantic provinces include New Brunswick, Newfoundland and Labrador, Nova Scotia and Prince Edward Island. Territorial capitals include Iqaluit, Whitehorse and Yellowknife. Positive values in the difference column mean that the percentage was higher in fall 2020 than in winter/spring 2021; negative values in the difference column mean that the percentage was lower in fall 2020 than in winter/spring 2021. Due to rounding, the difference scores do not always equal the difference between estimates from fall 2020 and winter/spring 2021.

<sup>E</sup> Estimates should be interpreted with caution, as the unweighted total sample size is between 75 and 150. Please look at the confidence intervals when interpreting these estimates.

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

\*\*\*  $p < 0.001$ .

from fall 2020 were also found among frontline workers, with fewer than half reporting high SRMH or stable/improved mental health in winter/spring 2021. Although speculative, it is possible that the sense of purpose and social contribution to the protection of the health and well-being of Canadians during the pandemic may have partially buffered similar declines in community belonging and life satisfaction among some frontline workers. Future research could examine risk and protective factors among this population and other vulnerable groups. Contrary to expectation, the PMH of those living alone and those living with others was quite similar at both time points.

Distinguishing between *living* alone and *feeling* alone is likely important.<sup>18</sup>

While some of the limitations of previous research (e.g. differing sampling frames and data collection methods)<sup>4</sup> are not present, the current study still has some limitations. For instance, nonresponse bias may be an issue given the response rates,<sup>19</sup> findings may not generalize to populations excluded from the SCMH (e.g. those living on reserves)<sup>9,10</sup> and seasonal effects may be (partially) driving the observed differences in mental health.<sup>20,21</sup>

In conclusion, ongoing surveillance of mental health is essential for understanding

the wider impacts of the COVID-19 pandemic, and is especially needed for socio-demographic groups not captured in the current study, including children, youth, LGBTQ2+ communities and those in institutions.

## Conflicts of interest

The authors have no conflicts of interest.

## Authors' contributions and statement

CC drafted the article and all authors contributed to its revisions. LL conducted the

statistical analyses and all authors interpreted the results.

The content and views expressed herein are those of the authors and do not necessarily reflect those of the Government of Canada.

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