

PSYCHOSOCIAL IMPACTS OF THE COVID-19 PANDEMIC: RESULTS OF A BROAD SURVEY IN QUÉBEC Phase 3 of the Survey

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BRIEF DESCRIPTION OF THE SURVEY

Context: This survey is part of a two-year international project carried out by an interdisciplinary team from the Université de Sherbrooke and other national and international partners.¹ The Québec portion is a supplement to the project, consisting of three phases. The first was carried out in September 2020 in seven regions of Québec, while the second and third were carried out in all regions of Québec, in November 2020 and then in February 2021. The third phase was financed by the Ministère de la Santé et des Services sociaux du Québec.

Why: Like other types of catastrophes, the pandemic is likely to trigger serious psychological consequences in the population in the short, medium and long terms. It is important to fully grasp the nature, scope, distribution and evolution of the psychosocial impacts of the pandemic and the related factors, to support decision making and public health interventions.

What: The psychological and behavioural response to the pandemic is studied, as well as its associations with various risk and protection factors (see the list of themes in Appendix 1). The questionnaire, available in French and English, contains just over 80 closed questions (average completion time: 20 minutes).

Who: The respondents are from a non-probability sample of 10,513 adults living in Québec. The third data collection phase includes all regions of Québec. A recruitment target was set for 750 to 1,500 participants for the most populous social-health regions (Capitale-Nationale, Mauricie-Centre-du-Québec, Estrie, Montréal, Outaouais, Chaudière-Appalaches, Laval, Lanaudière, Laurentides, Montérégie).

¹ Many researchers and contributors from universities and health organizations elsewhere in Canada and the world are also participating in this project.

Distribution of sample (November 5–16, 2021)

Social health region	n
Bas-Saint-Laurent	350
Saguenay-Lac-Saint-Jean	600
Capitale-Nationale	1001
Mauricie-Centre-du-Québec (CDQ)	750
Estrie	750
Montréal	1501
Outaouais	751
Abitibi-Témiscamingue	276
Côte-Nord	160
Nord-du-Québec	14
Gaspésie/Îles-de-la-Madeleine	145
Chaudière-Appalaches	451
Laval	751
Lanaudière	1002
Laurentides	1000
Montérégie	1005
Nunavik	3
Terres-cries-de-la-Baie-James	3
All of Québec	10,513

When: The data were collected from February 5 to 16, 2021, in all the regions of Québec, during the second wave of COVID-19. This survey builds on:

- A pilot survey conducted from April 8 to 11, 2020, with 600 Canadian adults (n=300 in Québec), during the first wave of COVID-19
- A pilot survey conducted from May 29 to June 12, 2020, with 1,501 Canadian adults (n=435 in Québec), toward the end of the first wave of COVID-19
- A second survey conducted from September 4 to 14, 2020, in seven regions of Québec (n=6,261), at the beginning of the second wave of COVID-19
- A survey conducted from November 6 to 18, 2020, in all regions of Québec (n=8,518) during the second wave

How: The sample was drawn randomly from the web panels of Léger and its partner, Dynata. The web users on the panels were recruited using a variety of strategies (random recruitment, in social media or through campaigns or partners), in order to accurately represent the population. For maximum representativity, the data were weighted based on age, sex, language and region of residence.

STUDY VARIABLES

Several psychological health indicators were examined. These are described in the table below.

Variables	Description
Probable generalized anxiety	Assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale, which is a seven-item scale based on the diagnostic criteria for generalized anxiety disorder described in the DSM-IV. Each item uses a scale from 1 to 3 and assesses the presence of symptoms consistent with this disorder in the last two weeks. The GAD-7 score ranges from 0 to 21, where a threshold of 10 or more identifies moderate to severe symptoms of generalized anxiety disorder. A score of 15 or more points to severe symptoms.
Probable major depression	Assessed using the Patient Health Questionnaire-9 (PHQ-9), which is a nine-item scale based on the diagnostic criteria for major depression described in the DSM-IV. Each item uses a scale from 1 to 3 and assesses the presence of symptoms consistent with this disorder in the last two weeks. The PHQ-9 score ranges from 0 to 27, where a threshold of 10 or more identifies moderate to severe symptoms of major depression. A score of 15 or more points to severe symptoms.
Probable generalized anxiety or major depression	Presence of symptoms consistent with generalized anxiety disorder or major depression (score of 10 or more on either of these two scales).
Serious suicidal ideation	Assessed using two questions from the Canadian Community Health Survey: 1) Have you ever seriously considered committing suicide or ending your life? 2) Has this happened in the last 12 months?

A large number of risk and protection factors were also examined and correlated with the psychological health indicators. They were grouped into four categories: sociodemographic, related to the pandemic, related to the infodemic (overabundance of information¹) and protection factors. They are described in Appendix 2 of this report.

¹ <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation>

SURVEY RESULTS

1- Psychological health

Nearly a year after the beginning of the pandemic, nearly one-quarter (23.2%) of the adult population in Québec has symptoms consistent with generalized anxiety disorder or probable major depression. Table 1 shows the prevalence of different psychological health indicators within the adult population of Québec, by region. Only the results from regions with 500 or more respondents are presented. The results show that the region of Montréal has the highest prevalences of anxiety or probable depression. The same is true for serious suicidal ideation. On the other hand, some regions present more favourable psychological health outcomes, including Saguenay-Lac-Saint-Jean, Capitale-Nationale, Mauricie-CDQ, Estrie, Lanaudière and Montérégie. The results also suggest that, in general, people living in orange zones have better psychological health outcomes than those living in red zones.

Table 1. Psychological health in the adult population of Québec, by region (February 5–16, 2021)

	Probable generalized anxiety	Probable major depression	Probable anxiety or depression	Serious suicidal ideation
Saguenay-Lac-Saint-Jean	7.8% (-)	11.5% (-)	14.2% (-)	3.8%
Capitale-Nationale	13.4% (-)	19.2%	21.2%	4.6%
Mauricie-CDQ	12.1% (-)	14.3% (-)	17.2% (-)	5.9%
Estrie	13.7%	16.3% (-)	19.5% (-)	6.3%
Montréal	22.1% (+)	27.8% (+)	31.9% (+)	6.7% (+)
Outaouais	17.3%	20.4%	25.4%	8.1% (+)
Laval	15.3%	22.2%	25.0%	4.9%
Lanaudière	12.5% (-)	16.3% (-)	19.5% (-)	4.2%
Laurentides	16.2%	17.7%	22.1%	6.0%
Montérégie	14.0% (-)	17.1% (-)	20.7% (-)	4.9%
Regions in orange or special status zones	10.2% (-)	14.1% (-)	16.8% (-)	4.8%
Regions in red zones	16.2%	20.4%	23.9%	5.7%
All of Québec	15.6%	19.8%	23.2%	5.6%

(+) % significantly higher than elsewhere in Québec

(-) % significantly lower than elsewhere in Québec

The prevalences observed in February 2021 are clearly higher than was estimated before the pandemic, although population surveys examining psychological health before the pandemic using these same indicators are rare.

In Canada, Pelletier et al. (2017)² estimated the prevalence of symptoms consistent with generalized anxiety disorder in people aged 15 or over to have been 2.5% in the preceding 12 months (CCHS 2012; WHO-CIDI scale). Lukmanji et al. (2019)³ estimated the prevalence of probable major depression in people aged 12 or over in Canada at 6.8% (CCHS 2015–2016; PHQ-9 scale with score ≥ 10). The proportion was higher in people aged 12 to 24 than those aged 25 or over (9.9% and 6.1%, respectively). Finally, according to the 2014–2015 Québec health survey (Enquête québécoise sur la santé de la population – EQSP), 2.8% of the population of Québec aged 15 or up had seriously considered suicide in the preceding year.

The currently estimated prevalences for probable major depression (19.8%) and serious suicidal ideation (5.6%) in Québec are therefore about three times and two times higher, respectively, than estimated pre-pandemic.

² Pelletier L, O'Donnell S, McRae L, Grenier, J. The burden of generalized anxiety disorder in Canada. *Health Promot Chronic Dis Prev Can.* 2017; 37:54-62.

³ Lukmanji A, Williams JVA, Bulloch AGM, Bhattarai A, Patten SB. Seasonal variation in symptoms of depression: A Canadian population based study. *J Affect Disord.* 2019;255:142-149.

Table 2 presents the psychological response of adults in Québec by sociodemographic characteristic. As was observed in the previous survey (November 2020), young adults, women, Anglophones and immigrants have worse psychological outcomes during the pandemic than other adults. No less than 43.3% of adults aged 18–24 present symptoms consistent with generalized anxiety disorder or major depression. Type of residence also seems to be highly related to the risk of anxiety or depression, with 28.9% of tenants and 37.7% of people living in low-rent housing reporting symptoms consistent with these psychological disorders. Many healthcare and social services workers (31.3%) and especially social services workers (42.2%) present with “probable anxiety or depression.”

Table 2. Psychological health in the adult population of Québec, by sociodemographic characteristic (February 5–16, 2021)

Sociodemographic characteristic	Probable generalized anxiety	Probable major depression	Probable anxiety or depression	Serious suicidal ideation
Gender				
<i>Female</i>	17.3%	21.6%	25.6%	5.5% (NS)
<i>Male</i>	13.7%	17.6%	20.6%	5.6% (NS)
Age				
<i>18–24 years old</i>	31.8%	36.6%	43.3%	7.2%
<i>25–34 years</i>	22.3%	28.9%	33.2%	7.4%
<i>35–44 years</i>	19.7%	26.5%	29.6%	7.4%
<i>45–54 years</i>	15.5%	20.0%	23.6%	6.2%
<i>55–64 years</i>	9.3%	11.4%	14.0%	5.3%
<i>65 and over</i>	6.2%	7.9%	10.1%	2.2%
Person living alone				
<i>Yes</i>	15.8% (NS)	21.4%	24.3% (NS)	7.4%
<i>No</i>	15.6% (NS)	19.3%	22.9% (NS)	5.1%
Type of residence				
<i>Owner</i>	12.8%	16.6%	19.8%	4.3%
<i>Tenant</i>	21.4%	26.1%	28.9%	8.4%
<i>Low-rent housing</i>	24.3%	34.4%	37.7%	10.5%
Education⁴				
<i>High school or less</i>	14.1% (NS)	16.8% (NS)	20.2% (NS)	5.4% (NS)
<i>College</i>	13.7% (NS)	18.3% (NS)	21.3% (NS)	5.9% (NS)
<i>University</i>	13.2% (NS)	17.8% (NS)	20.8% (NS)	5.1% (NS)
Anglophone				
<i>Yes</i>	24.5%	29.0%	33.7%	6.8%
<i>No</i>	13.9%	17.8%	21.6%	5.4%
Immigrant				
<i>Yes</i>	19.9%	26.6%	31.2%	6.5% (NS)
<i>No</i>	15.0%	18.8%	22.2%	5.5% (NS)
Occupation				
<i>Student</i>	31.5%	35.0%	41.3%	6.9%
<i>Worker</i>	17.2%	22.0%	25.8%	5.9%
<i>Unemployed</i>	22.0%	28.0%	32.5%	12.1%
<i>Retired</i>	5.5%	8.1%	9.7%	2.4%
Essential worker				
<i>Yes</i>	18.0%	23.4%	27.3%	6.9%
<i>No</i>	14.8%	18.5%	21.8%	5.2%
Healthcare or social services worker				
<i>Yes</i>	20.2%	25.4%	31.3%	8.9%
<i>No</i>	15.3%	19.3%	22.6%	5.3%
Healthcare worker				
<i>Yes</i>	18.1% (NS)	23.4%	27.6%	9.1%
<i>No</i>	15.5% (NS)	19.5%	23.0%	5.4%
Social services worker				
<i>Yes</i>	26.7%	31.6%	42.2%	8.8% (NS)
<i>No</i>	15.4%	19.5%	22.9%	5.5% (NS)

⁴ 18–24 group excluded, as studies are often underway in this age group.

Teleworker				
Yes	17.4%	22.7%	26.6%	5.8% (NS)
No	16.4%	21.1%	24.6%	6.1% (NS)
Not working	14.2%	17.4%	20.5%	5.3% (NS)
Medical history				
Yes	16.7%	22.3%	25.7%	7.9%
No	14.7%	18.3%	21.7%	4.9%

NS = Lack of significant difference among the groups ($p \geq 0.05$)

The data collected during the various phases of the survey reveal that after a deterioration in the psychological response in November 2020, the situation stabilized in Québec between November 2020 and February 2021, for both anxiety and depression (see Table 3).

Table 3. Psychological health in the adult population of Québec, by phase of the survey

	Probable generalized anxiety		Probable major depression		Probable anxiety or depression	
	Québec	Seven regions	Québec	Seven regions	Québec	Seven regions
April 2020	14.2%	15.9%	NA	NA	NA	NA
May–June 2020	13.1%	15.6%	17.0%	19.5%	21.3%	24.1%
September 2020	NA	14.6%	NA	17.4%	NA	21.8%
November 2020	15.9%	17.5%	19.6%	21.3%	23.3%	25.0%
February 2021	15.6%	16.7%	19.8%	20.8%	23.2%	24.5%

NA = not applicable as the item was not assessed in this region in this period

Table 4 shows that between November 2020 and February 2021, no significant change was observed in terms of anxiety or probable depression, among men or women and in all age groups.

Table 4. Psychological health in the adult population of Québec, by age and sex and by phase of the survey

Sociodemographic characteristics	Probable anxiety or depression	
	November 6–18, 2020	February 5–16, 2021
Gender		
Female	24.7%	25.6%
Male	21.6%	20.6%
Age		
18–24 years old	45.8%	43.3%
25–34 years	33.0%	33.2%
35–44 years	29.2%	29.6%
45–54 years	23.2%	23.6%
55–64 years	14.0%	14.0%
65 and over	10.2%	10.1%

Note: No statistically significant difference among the groups ($p \geq 0.05$).

2- Risk and protection factors

The epidemiological situation alone does not explain the population's psychological response to the COVID-19 pandemic. Other factors appear to explain these different psychological reactions. The previous phases of the survey examined several risk and protection factors that could influence well-being during a pandemic. This third data collection reveals these same factors along with several new factors deemed relevant based on the literature and the developments in the situation (see Appendix 1).

Logistic regression analyses were used to examine the relationships between the various factors under study and psychological health. The final model was adjusted for all the variables presented in Table 5 and for age, sex, language spoken at home, being a healthcare or social services worker and medical history (chronic diseases). Table 5 therefore presents, for each risk or protection factor retained in the final model, raw and adjusted odds ratios (OR), with their confidence intervals (CI) at 95%.

Table 5. Association of certain risk or protection factors and psychological health in the adult population of Québec (February 5–16, 2021)

Risk or protection factor	Probable anxiety or depression	Raw odds ratio		Adjusted odds ratio	
		OR	(CI 95%)	OR	(CI 95%)
Perceived threat for self/family					
<i>High perceived threat</i>	30.0%	1.85	[1.68; 2.03]	1.85	[1.64; 2.08]
<i>Low perceived threat</i>	18.8%	1	Reference	1	Reference
Financial losses					
<i>Significant</i>	42.9%	3.30	[2.97; 3.67]	1.90	[1.67; 2.16]
<i>Little or no loss</i>	18.5%	1	Reference	1	Reference
Victim of stigmatization					
<i>Yes</i>	49.9%	3.79	[3.25; 4.42]	1.99	[1.65; 2.41]
<i>No</i>	20.8%	1	Reference	1	Reference
Experience with COVID-19					
<i>Yes</i>	35.9%	2.29	[2.06; 2.54]	1.52	[1.33; 1.73]
<i>No</i>	19.7%	1	Reference	1	Reference
Quality of social relationships					
<i>Unsatisfactory</i>	44.2%	5.61	[4.86; 6.48]	1.42	[1.18; 1.72]
<i>Fairly satisfactory</i>	20.1%	1.78	[1.56; 2.03]	0.97	[0.82; 1.14]
<i>Very satisfactory</i>	12.4%	1	Reference	1	Reference
Loneliness					
<i>Lonely</i>	41.8%	6.08	[5.50; 6.73]	2.99	[2.64; 3.38]
<i>Not lonely</i>	10.6%	1	Reference	1	Reference
Online sources of information					
<i>Yes</i>	30.8%	1.78	[1.61; 1.97]	1.21	[1.06; 1.37]
<i>No</i>	20.0%	1	Reference	1	Reference
Level of erroneous beliefs					
<i>High (4th quartile)</i>	35.2%	3.23	[2.82; 3.69]	1.83	[1.55; 2.16]
<i>3rd quartile</i>	22.3%	1.70	[1.47; 1.96]	1.21	[1.02; 1.43]
<i>2nd quartile</i>	19.4%	1.43	[1.23; 1.66]	1.23	[1.03; 1.47]
<i>Low (1st quartile)</i>	14.4%	1	Reference	1	Reference
Political ideology					
<i>Extreme (left or right)</i>	30.1%	1.53	[1.36; 1.72]	1.16	[1.00; 1.35]
<i>Centre</i>	22.0%	1	Reference	1	Reference
Sense of coherence					
<i>Low</i>	34.3%	5.40	[4.81; 6.06]	2.52	[2.20; 2.89]
<i>High</i>	8.8%	1	Reference	1	Reference
Level of social support					
<i>Low</i>	54.1%	5.51	[4.55; 6.68]	2.54	[1.99; 3.25]
<i>Moderate</i>	35.5%	2.58	[2.33; 2.89]	1.35	[1.18; 1.54]
<i>High</i>	17.6%	1	Reference	1	Reference
Sense of community belonging					
<i>Low</i>	36.6%	2.94	[2.60; 3.32]	1.28	[1.10; 1.50]

<i>Fairly low</i>	23.7%	1.58	[1.41; 1.78]	1.01	[0.88; 1.16]
<i>High</i>	16.5%	1	Reference	1	Reference

After age, the five main factors most strongly associated with the presence of symptoms consistent with generalized anxiety disorder or major depression are (in decreasing order):

1. Loneliness (adjusted odds ratio [AOR] = 2.99)
2. Low level of social support (AOR = 2.54)
3. Low sense of coherence (AOR = 2.52)
4. Victim of stigmatization (AOR = 1.99)
5. Significant financial losses (AOR = 1.90)

It can therefore be said that the probability of observing symptoms consistent with generalized anxiety disorder or major depression is three times higher in adults who feel lonely than those who feel less lonely, independent of the other study factors. It is interesting to note that many social factors (loneliness, low social support, stigmatization) play an important role in the psychological response during the pandemic, even more so than financial factors or those related to fear of the virus. Sense of coherence, which is the psychological predisposition to understand and make sense of stressful situations and mobilize resources to face them, is also a key protection factor in the context of the pandemic.

Table 6 explores the frequency and distribution, by sociodemographic group, of the three main risk factors for anxiety or depression. No less than 40.5% of the adult population feels lonely one year into the pandemic, and this proportion is even higher in young adults. A Canadian study conducted in 2008–2009 with people aged 65 or older in Canada⁵ revealed that 12% of them reported feeling lonely at that time (using the same measurement scale used in this survey), which is considerably lower than the proportion observed in the pandemic (28.4%).

Table 6. Prevalence of main factors associated with the presence of symptoms consistent with generalized anxiety disorder or major depression in the adult population of Québec, by age, sex and education (February 5–16, 2021)

	Lonely	Social support not high	Low sense of coherence
Gender			
<i>Female</i>	43.7%	22.7%	54.9%
<i>Male</i>	37.0%	30.8%	58.1%
Age			
<i>18–24 years old</i>	58.2%	29.4%	75.3%
<i>25–34 years</i>	51.8%	22.6%	66.3%
<i>35–44 years</i>	46.3%	29.6%	61.6%
<i>45–54 years</i>	40.5%	33.0%	58.1%
<i>55–64 years</i>	31.3%	27.5%	46.4%
<i>65 and over</i>	28.4%	21.0%	44.9%
Education⁶			
<i>High school or less</i>	36.3%	28.7%	60.6%
<i>College</i>	38.7%	26.4%	54.9%
<i>University</i>	39.5%	25.0%	50.2%
Total	40.5%	26.7%	56.5%

Note: All differences among the groups are statistically significant ($p < 0.05$).

While isolation refers to the low quantity and quality of social contacts (real situation), loneliness refers to the subjective experience stemming from the perception of a low quantity and quality of social contacts (perceived situation). In other words, young people appear to be more inclined to feel deprived of social contacts during the pandemic, regardless of whether or not they are more isolated.⁷ The same phenomenon is observed with the sense of coherence, which is deemed low in three young adults out of four. In these highly unusual times, young people

⁵ <https://www150.statcan.gc.ca/n1/pub/82-003-x/2020003/article/00003-eng.htm#n27>

⁶ 18–24 group excluded, as studies are often underway in this age group.

⁷ <https://www.inspq.qc.ca/publications/3104-solitude-jeunes-adultes-pandemie-covid19>

on average have weaker individual psychological resources for dealing with stress and making sense of what is happening to them, compared to older adults.

4- Use of healthcare services

Thanks to new questions added to the survey in February 2021, it was possible to estimate the proportion of adults who consulted with a professional about their psychological health during the year, based on psychological health profile. It appears that only 34.8% of people presenting symptoms consistent with an anxiety disorder or major depression consulted with a professional about their psychological health during this period, and that 50.9% of those with serious suicidal ideation did so. These people primarily consulted with their family doctor or, to a lesser degree, a psychologist.

We also see that many people with anxiety or probable depression say they did not feel the need to seek the help of professionals in the healthcare network (29.3%) and even fewer sought help in the community network (54.4%), which constituted the principal obstacle to the use of these services. Relatively few said they are waiting for services. Another important fact: nearly one-third (32.8%) of adults with generalized anxiety disorder or probably major depression say they consulted a professional in the healthcare network in the last year but that their consultation(s) did not adequately meet their needs.

Table 7. Psychological health in the adult population of Québec, by use of healthcare services (February 5–16, 2021)

	People with anxiety or probable depression	People with serious suicidal ideation	Entire population
Consultation about psychological health			
<i>No</i>	65.2%	49.1%	84.1%
<i>Yes</i>	34.8%	50.9%	15.9%
<i>Yes, family doctor</i>	22.0%	32.4%	9.6%
<i>Yes, specialist</i>	8.2%	15.8%	3.0%
<i>Yes, nurse</i>	2.8%	3.8%	1.0%
<i>Yes, psychologist</i>	14.3%	18.6%	6.8%
<i>Yes, social worker</i>	8.5%	15.4%	3.3%
<i>Yes, phone line</i>	3.8%	7.2%	1.2%
Healthcare network's response to needs			
<i>Needs met</i>	19.3%	20.1%	23.7%
<i>Needs partly or not met</i>	32.8%	41.6%	15.9%
<i>Waiting</i>	6.8%	7.6%	3.5%
<i>Intention to consult</i>	11.8%	9.8%	5.2%
<i>No need</i>	29.3%	20.9%	51.7%
Community network's response to needs			
<i>Needs met</i>	10.0%	16.4%	6.8%
<i>Needs partly or not met</i>	19.6%	26.5%	7.5%
<i>Waiting</i>	6.7%	7.5%	2.8%
<i>Intention to consult</i>	9.3%	7.3%	3.2%
<i>No need</i>	54.4%	42.2%	79.6%

5- Psychological effects of COVID-19

So far, we have seen that the pandemic has led to a series of disruptions in various spheres of people’s lives, which, in turn, increase the risk of developing a psychological disorder or aggravating a pre-existing disorder. The literature also suggests that in addition to the effects of the pandemic, COVID-19 may lead to the persistence of various symptoms (including symptoms of anxiety or depression) among 10%–20% of people who had COVID-19,⁸ which is called Post-Acute Sequelae SARS-CoV-2 infection (PASC), post-COVID syndrome or “long COVID.” It is difficult, however, to differentiate between the influences of the pandemic (and its various stressors) and the effects of COVID-19 on psychological health.

Using data gathered from September 2020 to February 2021 in Québec, the three databases were aligned, taking care to exclude repeats (adults who participated in the survey more than once). For repeats, only the data from the most recent participation were considered. The final sample is comprised of 20,327 individual adults living in Québec (Phase 1: n = 3,978; Phase 2: n = 5,836; Phase 3: n = 10,513).

Table 8 reveals the prevalence of experience with COVID-19, which was divided into three categories: diagnosis of COVID-19; contact or COVID-19 symptoms leading to isolation; no experience with COVID-19. Of the 20,327 adults surveyed since September 2020, 599 adults (3%) said they had received a diagnosis of COVID-19 and 3,008 (15%) had to isolate due to being in contact with a positive case or having COVID-19 symptoms (without a diagnosis), for a total of 18% of the sample who had “experience with COVID-19.”

The table also shows that experience with COVID-19, by contact, symptoms or diagnosis, was more frequent in young adults, healthcare and social services workers and, to a lesser degree, people living with child(ren) at home. More people with a medical history associated with a risk of complications from COVID-19 (immune-compromised, diabetes, heart disease, emphysema/chronic bronchitis) were diagnosed as having COVID-19, but fewer of them were isolated due to being in contact with a positive case or having symptoms (without a diagnosis).

Table 8. Prevalence of experience with COVID-19 in the adult population of Québec, by sociodemographic characteristic (September 2020 to February 2021)

	No experience (n=16,510)	Contact or symptoms (n=3,008)	Diagnosis (n=599)
Phase of survey			
<i>September 2020</i>	85.0%	12.2%	2.8%
<i>November 2020</i>	83.0%	14.7%	2.3%
<i>February 2021</i>	80.5%	16.0%	3.4%
Gender			
<i>Female</i>	82.1%	15.7%	2.2%
<i>Male</i>	82.2%	14.0%	3.9%
Age			
<i>18–34 years</i>	71.0%	23.4%	5.6%
<i>35–49 years</i>	77.0%	19.9%	3.1%
<i>50–64 years</i>	87.5%	10.9%	1.6%
<i>65 and over</i>	93.8%	4.8%	1.4%
Education⁹			
<i>High school or less</i>	87.0%	10.7%	2.4%
<i>College</i>	83.2%	14.2%	2.6%
<i>University</i>	82.1%	15.2%	2.7%
Anglophone			
<i>Yes</i>	79.6%	16.5%	3.9%
<i>No</i>	82.5%	14.6%	2.8%
Child(ren) at home			
<i>Yes</i>	76.0%	20.8%	3.2%

⁸ <https://www.bmj.com/content/bmj/372/bmj.n405.full.pdf>

⁹ 18–24 group excluded, as studies are often underway in this age group.

No	84.2%	12.9%	2.9%
Healthcare or social services worker			
Yes	69.8%	21.6%	8.6%
No	83.1%	14.4%	2.5%
Medical history			
Yes	84.9%	11.6%	3.5%
No	80.5%	17.0%	2.5%
Total	82.1%	15.0%	3.0%

Note: All differences among the groups are statistically significant ($p < 0.05$).

Note in Table 9 that the diagnosis of COVID-19 appears to be associated with an increased risk of major depression but not of generalized anxiety. The prevalence of probable generalized anxiety is high among people who had COVID-19, as it is among people who had contact with a case or developed symptoms (without a diagnosis). On the other hand, the prevalence of probable major depression rises from 16.9% in the general population to 29.0% among contacts with positive cases and people with symptoms and then to 38.1% among people diagnosed with COVID-19. The same trend can be seen for severe symptoms of major depression. It is important to point out that when we count only people diagnosed with COVID-19 in the first wave (but who took part in the survey between September 2020 and February 2021), the prevalence of probable major depression remains very high (37.7%). This suggests that the psychological effects associated with COVID-19 may last several weeks or months.

Table 9. Psychological health in the adult population of Québec, by experience with COVID-19 (September 2020 to February 2021)

	Probable generalized anxiety	Probable generalized anxiety (severe)	Probable major depression	Probable major depression (severe)
No experience (n = 16,510)	13.6%	5.4%	16.9%	7.6%
Contact or symptoms (n = 3,008)	24.1%	9.2%	29.0%	13.5%
Diagnosis (n = 599)	25.5%	9.0%	38.1%	19.4%
First-wave diagnosis (n = 244)¹⁰	20.9%	8.6%	37.7%	16.8%
Total	15.5%	6.1%	19.3%	8.8%

Note: All differences among the groups are statistically significant ($p < 0.05$).

Further analyses (not shown) confirm that the relationship between experience with COVID-19 and probable major depression observed in Table 9 is maintained after adjustment for a series of potential confounding factors, including the sociodemographic characteristics in Table 9 and risk factors related to the pandemic (perceived threat, stigmatization, financial losses, daily stress level). These analyses indicate that the probability of presenting symptoms consistent with major depression is increased by 82% in people who had COVID-19 (AOR 1.82; CI 95% 1.48–2.24) and by 25% in people who were isolated due to contact or symptoms (AOR 1.25; CI 95% 1.12–1.39), compared to people who have had no experience with COVID-19. According to these estimates, the effects of COVID-19 are significantly higher than the effects of isolation due to contact or symptoms (without diagnosis).

Since the symptoms of major depression are more closely related to a diagnosis of COVID-19 (including diagnoses received during the first wave), the prevalence of each of the nine symptoms of depression (the nine items on the PHQ-9 scale) were examined on the basis of experience with COVID-19. Table 10 reveals that some symptoms are more closely related to a diagnosis of COVID-19, namely concentration problems, psychomotor retardation (speaking and moving slowly) and suicidal thoughts (thinking one would be better off dead). No less than 17.2% of people who were diagnosed with COVID-19 report having had suicidal thoughts at least one out of every two days over the last two weeks, a proportion that is 2.5 times higher than among people who had contact or symptoms and 4 times higher than the general population. Note also that this proportion remains high (14.7%) among people who had COVID-19 during the first wave, from one to eleven months before answering the survey. Concentration problems and psychomotor retardation are 2.6 and 4.6 times higher, respectively, among people diagnosed with COVID-19 than among those with no experience with COVID-19.

¹⁰ COVID-19 diagnoses from the first wave correspond to all respondents who say they were isolated for a COVID-19 diagnosis between March and July 2020.

Table 10. Frequent symptoms of major depression (present at least half of the days over the last two weeks) in the adult population of Québec, by experience with COVID-19 (September 2020 to February 2021)

	Sadness	Loss of interest	Fatigue	Sleep disturbance	Loss of appetite	Sense of guilt	Concentration problems	Psychomotor retardation	Suicidal thoughts
No experience (n=16,510)	12.7%	12.9%	20.4%	18.9%	12.8%	11.4%	10.1%	4.8%	4.3%
Contact or symptoms (n=3,008)	21.4%	19.7%	34.6%	30.7%	21.6%	20.2%	17.3%	7.7%	6.8%
Diagnosis (n=599)	23.9%	21.4%	35.2%	28.7%	28.2%	25.5%	26.5%	22.2%	17.2%
First-wave diagnosis (n=244)	23.8%	22.1%	34.3%	29.5%	27.9%	25.4%	21.7%	21.7%	14.7%
Total	14.3%	14.2%	23.0%	21.0%	14.6%	13.1%	11.6%	5.8%	5.0%

Note: All differences among the groups are statistically significant ($p < 0.05$).

The persistence of cognitive symptoms (e.g., psychomotor retardation) and psychological symptoms (e.g., suicidal thoughts) several weeks or months after the diagnosis of COVID-19 may well be the result of long COVID.

7 – HIGHLIGHTS

Psychological health

- After a deterioration of psychological health in fall 2020 in Québec, the situation stabilized between November 2020 and February 2021, for symptoms of both anxiety and depression.
- A year after the beginning of the pandemic, nearly one-quarter (23%) of the adult population of Québec presents symptoms consistent with generalized anxiety disorder or probable major depression.
- Compared to people living in red zones, people in orange zones have better psychological health outcomes.
- As was observed in November 2020, more young adults (43%) display symptoms consistent with generalized anxiety disorder or major depression.
- Many healthcare and social services workers (31%) and especially social services workers (42%) also present with anxiety or probable depression.

Risk and protection factors

- A variety of social factors (loneliness, low social support, stigmatization) affect psychological health during the pandemic, even more so than factors related to finances or fears.
- Four in ten adults feel lonely, and these people are at three times greater risk of reporting symptoms consistent with generalized anxiety disorder or major depression than other adults.

Use of healthcare services

- Only one-third (35%) of people with anxiety or probable depression consulted with a professional for their psychological health in the last year, and one-half (51%) of those with serious suicidal ideation did so.
- Many people with anxiety or probable depression (29%) do not feel the need to seek help from the healthcare network, which appears to constitute the principal obstacle for the use of these services.

Psychological effects of COVID-19

- Of the 20,327 adults surveyed since September 2020 in Québec, 3% say they received a diagnosis of COVID-19 and 15% were isolated due to being in contact with a positive case or having symptoms of COVID-19.
- Experience with COVID-19 (contact, symptoms or diagnosis) was most common in young adults, healthcare or social services workers and people living with children at home.
- The symptoms of major depression are twice as common in people who were diagnosed with COVID-19 as in those with no experience with COVID-19 (38% vs. 17%).
- Nearly one person in five who had COVID-19 (17%) reported having frequent suicidal thoughts, a proportion that is four times higher than in the general population (4%).

8 – COURSES OF ACTION

A multi-prong psychological health intervention model should be adopted in every community in Québec. This model proposes the four following parts:

1) **Specialized services:**

- a. Interdisciplinary teams specialized in mental health (e.g., doctors, nurses, psychologists, social workers) who are available and equipped to deal with the specific context of the pandemic.
- b. As recently recommended by the World Health Organization,¹¹ more research on long COVID, better recognition of people who have it and more rehabilitation support for these people.

2) **Frontline services:**

- a. Frontline mental health workers accessible in both the clinical and community setting (that is, outreach intervention) and equipped to deal with the specific context of the pandemic.
- b. Social prescribing to break isolation (that is, a prescription from a doctor to do social activities, such as group outings outdoors or volunteering).¹²
- c. A network of “scouts” trained in psychological first aid¹³ to identify, initiate the care of and refer people at higher risk to qualified resources.

3) **Reinforcement of community support:**

- a. The creation of favourable social environments in each local service network drawing on leadership, networking, collaboration, citizen participation and innovation.
- b. Practical actions to reinforce sense of coherence,¹⁴ particularly through individual or group interventions based in sports and recreation, artistic and cultural activities, meditation and mindfulness or self-expression.
- c. Increased support for healthcare and social services workers.

4) **Inclusion of psychosocial needs in basic services:**

- a. Search for balance between biological risks and psychosocial risks in the use of strategies to counter the COVID-19 pandemic.
- b. Mechanisms in place to meet the social needs of people and communities (e.g., food security, housing, child protection, grief support).
- c. National and regional communications strategies:
 - i. To promote a health lifestyle (healthy diet, physical activity, screen time, adequate sleep, low-risk alcohol consumption)
 - ii. To promote mental health and self-care in order to maintain, reinforce or improve psychological wellness
 - iii. To reduce stigmatization, distrust, erroneous beliefs and fear
 - iv. To more effectively reach certain at-risk groups (e.g., young adults, Anglophones), particularly through a strong digital strategy

¹¹ <https://www.bmj.com/content/bmj/372/bmj.n405.full.pdf>

¹² <https://www.kingsfund.org.uk/publications/social-prescribing>

¹³ <https://santemontreal.qc.ca/en/professionnels/drsp/sujets-de-a-a-z/coronavirus-sars-cov-2-ou-covid-19/maladie-a-coronavirus-copie-1/#c45036>

¹⁴ https://refips.org/wp-content/uploads/2020/12/COVID19_SOC_UIPES_REFIPS_final.pdf

APPENDIX 1

List of themes addressed in the questionnaire for the survey conducted in February 2021

(italics = themes added in February 2021)

Psychological response:

- Probable generalized anxiety disorder (based on the GAD-7 scale)
- Probable major depression (based on the PHQ-9 scale)
- Serious suicidal ideation in the last 12 months
- Probable post-traumatic stress disorder (based on the PC-PTSD-5 scale)

Behavioural response:

- Use of tobacco and e-cigarettes
- Excessive consumption of alcohol
- Consumption of cannabis
- Domestic violence (physical and psychological; based on the HITS screening test)
- Level of physical activity (active transportation and recreation)
- Inclination to receive an approved COVID-19 vaccine
- Perceptions and attitudes about government control measures

Sociodemographic characteristics:

- Age, gender
- Level of education
- Household composition
- Immigrant status (with continent of origin)
- Language spoken at home
- Medical history
- Being an essential worker
- Being a healthcare or social services worker
- Being a teleworker
- *Type of residence*
- *Occupation*
- *Being a remote student*

Risk or protection factors:

- Related to the pandemic
 - Perceived threat for self/family
 - Perceived threat for country/world
 - Being a victim of stigmatization due to the pandemic
 - Financial losses
 - Quarantine or voluntary isolation
 - Experience with COVID-19
 - Daily stress level
 - *Loneliness*
 - *Satisfaction with social life*

- Related to the infodemic
 - Sources of information
 - Level of erroneous beliefs
 - Level of confidence in authorities
 - *Political polarization*

- Protection factor
 - Sense of coherence
 - *Level of social support*
 - *Sense of community belonging*
 - *Consultation for psychological health*
 - *Healthcare network's response to needs*
 - *Community network's response to needs*

APPENDIX 2

Description of risk and protection factors under study

Factors	Description
Sociodemographic	
Gender	Gender identification (male, female)
Age	Age category (18–24; 25–34; 35–44; 45–54; 55–64; 65 and up)
Type of residence	Type of residence (owner; tenant; low-rent housing)
Household composition	Household composition (alone, with children, without children)
Education	Highest level of education achieved (high school or less; college; university)
Anglophone	English as main language at home (yes; no)
Immigrant	Born in Canada (yes; no)
Occupation	Occupation (student; worker; unemployed; retired)
Essential worker	Having a job in the healthcare or social services sector, law enforcement, emergency services, essential goods provider or teaching institution (yes; no)
Healthcare or social services worker	Being a healthcare or social services worker
Teleworker	Working remotely most of the time or occasionally (yes; no); the answer “no” means that a person works only in their work environment
Medical history	Person with one of the four following conditions: heart disease, diabetes, chronic obstructive pulmonary disease (COPD)
Alert level	Classification of regions by alert level issued by the government at the time of the survey (red zone; orange zone; special status)
Related to the pandemic	
Perceived threat for self/family	Perceived level of threat posed by COVID-19 for self and/or family (very low/low; moderate; high/very high)
Perceived threat for country/world	Perceived level of threat posed by COVID-19 for the country and/or the world (very low/low; moderate; high/very high)
Victim of stigmatization	Being a victim of stigmatization or discrimination due to COVID-19 (yes; no)
Financial losses	Having suffered significant financial losses due to COVID-19 (yes; no)
Experience with COVID-19	Having an experience related to COVID-19 (diagnosis; contact or symptoms; none) The diagnosis of COVID-19 is determined on the basis of a positive response to one of these two questions: “Have you received a medical diagnosis of COVID-19?” and “Have you been in isolation/quarantine due to a diagnosis of COVID-19?” To be considered as having contact with COVID-19 or having had symptoms of COVID-19 (without a diagnosis), the person must have been in isolation/quarantine.
Daily stress level	Perceived daily stress level measured using a question taken from the Canadian Community Health Survey: Thinking about the amount of stress in your life, would you say that most of your days are...? (Not at all stressful / Not very stressful / A bit stressful / Quite a bit stressful / Extremely stressful)
Loneliness	Loneliness is based on three items from the “Three-Item Loneliness Scale,” each measured on a scale of 1 to 3. The total score, which ranges from 3 to 9, was dichotomized using a standard threshold (not lonely [3–5]; lonely [6–9]).
Satisfaction with social life	Satisfaction with social life refers to relationships with family, friends and acquaintances. The respondent was asked to indicate their level of satisfaction (very satisfactory; fairly satisfactory; fairly unsatisfactory; very unsatisfactory).
Related to the infodemic	
Sources of information	Sources regularly used for information about COVID-19, including news media (television, radio, newspapers); social circle (friends, family and colleagues); online (social networks, Internet). The respondents were asked to indicate the frequency of use (a lot/often; not a lot/not at all) for each source of information.
Level of erroneous beliefs	Erroneous belief score based on 11 scientifically unfounded statements (for example, “I believe that the coronavirus was intentionally developed in a laboratory” or “I believe that the coronavirus is not transmitted in hot countries.” The participants were asked to select a response on a scale of 1 to 10 for each of these statements. The sum of these 11 scores (total score ranging from 11 to 110) was then divided into quartiles.

Level of confidence in authorities	Level of confidence in authorities (scientists, doctors and health experts; national health organizations; global health organizations; government), each on a scale from 1 to 10. The sum of these four separate scores (total score ranging from 4 to 40) was then divided into quartiles.
Political polarization	Political ideology measured using a scale from 0 (extreme left) to 6 (extreme right). Three categories were created: left [0-2]; centre [3]; right [4-6]. The answers were recategorized to reflect political polarization (centre; extremes [left and right combined]).
Protection factors	
Sense of coherence	Sense of coherence measured using a three-item questionnaire (the SOC-3) developed for the needs and constraints of large-scale studies and that demonstrated adequate psychometric properties. Each question corresponds to one of the three components in the sense of coherence. The total score, which ranges from 0 to 6, was dichotomized using a standard threshold (low [0–4]; high [5–6]).
Level of social support	The level of social support is measured using the “Multidimensional Scale of Perceived Support.” The respondents were asked to respond to 12 statements using choices ranging from Totally agree (1 point) to Totally disagree (7 points). To calculate the score, the sum of the 12 statements was divided by 12. An average score on a scale from 1 to 2.9 is considered to be low support, a score from 3 to 5 is considered moderate support and a score from 5.1 to 7 is considered to be high support.
Sense of community belonging	Sense of attachment a person feels toward the people among whom and the neighbourhood in which they live (very strong/fairly strong; fairly weak; very weak).
Consultation for psychological health	Consultation with a healthcare professional about their psychological health in the last 12 months (yes; no). For those who did have a consultation, the type of professional was specified (family doctor; specialist; nurse; psychologist; social worker; phone line; other).
Healthcare network’s response to needs	Healthcare network’s response to physical or psychological health needs in the last 12 months (needs met; needs partly or not met; waiting; intention to consult; no need).
Community network’s response to needs	Community network’s response to physical or psychological health needs in the last 12 months (needs met; needs partly or not met; waiting; intention to consult; no need).