PSYCHOSOCIAL IMPACTS OF THE COVID-19 PANDEMIC: RESULTS OF A BROAD SURVEY IN Québec
Phase 2 of the Survey

Authors: Mélissa Généreux,[1,2,3] Elsa Landaverde[3]
Québec research team: Mélissa Généreux,[1,2,3] Marc D. David,[3] Marie-Ève Carignan,[3] Olivier Champagne-Poirier,[3] Gabriel Blouin-Genest,[3] Mathieu Roy[2,3]

Affiliations:
1) Direction de santé publique de l'Estrie
2) Institut national de santé publique du Québec
3) Université de Sherbrooke

BRIEF DESCRIPTION OF THE SURVEY

Context: This survey is part of a two-year international project financed by the Canadian Institutes of Health Research (CIHR; $500,000) and carried out by an interdisciplinary team from the Université de Sherbrooke and other national and international partners.[1] The Québec survey is a supplement of this project that is financed by the regional public health departments. The Québec portion involves two phases: the first phase, carried out in September 2020 in seven regions of Québec, and the second, carried out in November in all the social health regions of Québec.

Why: Like other types of catastrophes, the pandemic is likely to trigger serious 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 risk and protection 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, some of which are related to communication strategies and media discourse (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: A non-probability sample of 8,518 adults living in Québec.[2] Phase 2 of the Québec survey includes the seven regions that participated in Phase 1 (Mauricie-Centre-du-Québec [MCQ], Estrie, Montréal, Laval, Lanaudière, Laurentides and Montérégie), with a recruitment objective of 750 to 1,000 adults per region, and five small regions (Bas-Saint-Laurent, Saguenay-Lac-Saint-Jean, Abitibi-Témiscamingue, Côte-Nord and Gaspésie-Îles-de-la-Madeleine) that were combined to create a sample of about 1,000 participants. Finally, about 1,000 other adults were recruited in the rest of Québec.

---

[1] Several researchers from universities elsewhere in Canada or the world are also participating in this project as co-researchers or contributors.
[2] For information purposes, the margin of error associated with a probability sample of the same size is ±1.1%, with a confidence interval of 95% (19 times out of 20).

Distribution of sample (November 6–18, 2020)

Social health region	n
Bas-Saint-Laurent	245
Saguenay-Lac-Saint-Jean	351
Capitale-Nationale	500
Mauricie-Centre-du-Québec	777
Estrie	758
Montréal	1,040
Outaouais	256
Abitibi-Témiscamingue	186
Côte-Nord	153
Gaspésie–Îles-de-la-Madeleine	118
Chaudière-Appalaches	280
Laval	759
Lanaudière	1,017
Laurentides	1,032
Montérégie	1,026
Nord-du-Québec, Nunavik, Terres-Cries-de-la-Baie-James	20
All of Québec	**8,518**

When: The data were collected from November 6 to 18, 2020, in all the regions of Québec, in the midst of 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), in the midst of the first wave of COVID-19
- A first survey conducted from May 29 to June 12, 2020, with 1,501 Canadian adults (n=435 in Québec, including 321 in the seven regions that took part in the survey in September 2020), 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

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 for this survey were weighted based on age, sex, language and region of residence.

SURVEY RESULTS

In this section, the principal results concerning the psychological and behavioural responses of the adults from Québec will be presented and discussed.

PSYCHOLOGICAL RESPONSE

Prevalence

In Québec, Canada and the United States (before the pandemic)

In general, there is little data available from populational studies conducted before the pandemic on the subject of symptoms consistent with psychological disorders such as generalized anxiety disorder or major depression. In Canada, Pelletier et al. (2017) estimated the prevalence of symptoms consistent with generalized anxiety disorder in people aged 15 and over to have been 2.5% in the preceding 12 months (CCHS 2012; WHO-CIDI scale). In the United States, according to the National Comorbidity Survey Replication (2001–2003), that proportion was estimated at 2.7% in the adult population (DSM-IV/WMH-CIDI scale).

Lukmanji et al. (2019) estimated the prevalence of probable major depression in people aged 12 and over in Canada at 6.8% (CCHS 2015–2016; PHQ-9 scale with score ≥ 10). The proportion was higher, however, in people aged 12 to 24 than those aged 25 and over (9.9% and 6.1%, respectively). In the United States, according to Shim et al. (2011), before the pandemic, 6.9% of adults reported moderate to severe symptoms of major depression (National Health and Nutrition Examination Survey 2005–2008; PHQ-9 scale with score ≥ 10).

Furthermore, 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 and up had seriously considered suicide in the preceding year.

In Québec (during the pandemic)

Table 1 presents the distribution of the psychological response observed in each region and for Québec as a whole during the data collection in November 2020.[3] Using exactly the same measurement scale and the same threshold (PHQ-9 with a score ≥ 10), we see that the prevalence of probable major depression in Québec, which is currently estimated at 19.6%, is about **three times higher** than that observed pre-pandemic in Canada (no Québec data available). Similar findings apply to probable generalized anxiety disorder, measuring using the GAD-7 scale at a threshold of 10 or higher. The scale used before the pandemic was not the same as the one used for this survey, however, which makes comparison more difficult. The current levels of generalized anxiety and major depression are similar to the levels observed in the community of Fort McMurray six months after the devastating forest fires in 2016 (probable generalized anxiety measured using GAD-7: 19.8%; Agyapong et al., 2018; probable major depression measured using PHQ-9: 14.8%; Agyapong et al., 2019). Another worrisome finding is that in Québec as a whole, **nearly one adult in four** (23.3%) currently exhibits symptoms consistent with generalized anxiety disorder or major depression.

[3] Only the data from regions (or combinations of regions) with 500 or more participants will be presented.

Table 1. Psychological disorders in the adult population of Québec, by region (November 6–18, 2020)

Social health region	Probable anxiety (GAD-7 ≥ 10[4])	Probable depression (PHQ-9 ≥ 10[5])	Probable anxiety or depression	Serious suicidal ideation[6]
Capitale-Nationale	11.6% (–)	16.2% (–)	19.8% (–)	3.6% (–)
Mauricie-CDQ	12.6% (–)	16.6%	21.0%	5.2%
Estrie	13.9%	16.4%	19.7%	6.5%
Montréal	23.4% (+)	28.1% (+)	32.0% (+)	7.9% (+)
Laval	14.9%	21.2%	24.1%	5.7%
Lanaudière	13.0%	14.6% (–)	19.0% (–)	4.4%
Laurentides	13.6%	18.3%	20.5%	6.0%
Montérégie	16.4%	18.8%	22.5%	5.6%
5 small regions	10.7% (–)	12.9% (–)	16.4% (–)	4.2%
All of Québec	**15.9%**	**19.6%**	**23.3%**	**5.8%**

(+) % significantly higher than elsewhere in Québec
(–) % significantly lower than elsewhere in Québec

As was the case in the September 2020 survey, the region of Montréal posts a higher prevalence of psychological disorders than the other regions. Nearly one Montréaler in three exhibits generalized anxiety disorder or probable major depression. Furthermore, the prevalence of serious suicidal ideation appears to be higher in Montréal than elsewhere in Québec. On the other hand, the prevalence of psychological disorders is lower than the rest of Québec in the Capitale-Nationale and Lanaudière regions and in the combination of the five small regions.[7] It is important to note that four of the five small regions are in yellow or orange zones. These results tally with the data presented in Table 2, which suggests that the alert level may influence the mental health of the population. No difference was found, however, in the level of serious suicidal ideation based on the alert level. It is interesting to note that at the time the survey was conducted, the vast majority of the population of Québec was living in a red zone.

Table 2. Psychological disorders in the adult population of Québec, by alert level (November 6–18, 2020)

Alert level	Probable anxiety	Probable depression	Probable anxiety or depression
Yellow or orange	12.4%	13.9%	17.6%
Orange/red[8]	14.3%	17.7%	21.2%
Red	16.5%	20.5%	24.3%

Note: All the differences between the groups are statistically significant ($p \geq 0.05$).

The prevalence of serious suicidal ideation, in November 2020, was about **twice as high** in Québec adults compared to the value observed in Québec before the pandemic (2014–2015 ESQP). Although more men and young adults reported serious suicidal ideation during the November survey (6.2% and 7.7%, respectively), Table 3 reveals that women as well as men and all age groups experienced an increase in the prevalence of serious suicidal ideation compared to the pre-pandemic data.

[4] For more details about the GAD-7 (in French): https://www.inspq.qc.ca/boite-outils-pour-la-surveillance-post-sinistre-des-impacts-sur-la-sante-mentale/instruments-de-mesure-standardises/fiches-pour-les-instruments-de-mesure-standardises-recommandes/symptomes-d-anxiete
[5] For more details about the PHQ-9 (in French): https://www.inspq.qc.ca/boite-outils-pour-la-surveillance-post-sinistre-des-impacts-sur-la-sante-mentale/instruments-de-mesure-standardises/fiches-pour-les-instruments-de-mesure-standardises-recommandes/symptomes-depressifs
[6] This refers to serious suicidal ideation in the preceding 12 months, measured using the two following questions: 1) Have you ever seriously considered committing suicide or ending your life? 2) Has this happened in the last 12 months?
[7] Bas-Saint-Laurent, Saguenay-Lac-Saint-Jean, Abitibi-Témiscamingue, Côte-Nord and Gaspésie-Îles-de-la-Madeleine.
[8] The Estrie region, which entered the maximum alert level (red) on November 12, was classified as being in the orange/red category, as were Outaouais, Laurentides and Nord-du-Québec.

Table 3. Serious suicidal ideation in the adult population of Québec, by age and sex, before the pandemic (2014–2015 EQSP) and November 6–18, 2020

Sociodemographic characteristic	Serious suicidal ideation	
	2014–2015 EQSP[9]	November 6–18, 2020
Sex		
Female	2.6%	6.3%
Male	3.0%	5.4%
Age		
18–24 years	3.7%	7.7%
25–44 years	3.0%	6.6%
45–64 years	3.2%	5.6%
65 and over	1.3%	4.1%

NOTE: No statistical tests were carried out for the comparisons with pre-pandemic data due to the different data collection methodologies.

Table 4 shows that the psychological response differs significantly by sex and age, with women and young adults at greater risk of exhibiting symptoms of anxiety or depression, a trend that has remained constant since the first survey. The survey reveals a worrisome phenomenon among those aged 18 to 24, with an estimated prevalence of generalized anxiety disorder or probable major depression of **nearly 50%**. This age group is also the group at greatest risk of having experienced serious suicidal ideation in the preceding year. Essential workers, especially healthcare workers, as well as teleworkers (part- or full-time) are at greater risk of exhibiting symptoms consistent with generalized anxiety disorder or major depression, compared to other workers (data not shown) and the general population.

Table 4. Psychological disorders in adults in Québec, by sociodemographic characteristic (November 6–18, 2020)

Sociodemographic characteristic	Probable generalized anxiety	Probable major depression	Probable anxiety or depression	Serious suicidal ideation
Sex				
Female	17.3%	20.0% (NS)	24.7%	5.4% (NS)
Male	14.2%	18.9% (NS)	21.6%	6.2% (NS)
Age				
18–24 years	30.5%	39.3%	45.8%	7.7%
25–34 years	23.3%	28.5%	33.0%	6.0%
35–44 years	19.8%	25.1%	29.2%	7.2%
45–54 years	15.7%	19.2%	23.2%	5.5%
55–64 years	9.4%	11.6%	14.0%	5.7%
65 and over	7.0%	7.7%	10.2%	4.1%
People living alone				
Yes	15.5% (NS)	21.4%	24.1% (NS)	8.4%
No	16.0% (NS)	19.1%	23.0% (NS)	5.1%
Child(ren) at home				
Yes	15.8% (NS)	17.9%	22.2% (NS)	4.8%
No	15.9% (NS)	20.2%	23.7% (NS)	6.2%
Education[10]				
High school or less	14.5% (NS)	18.1% (NS)	21.5% (NS)	6.3% (NS)
College	13.7% (NS)	16.9% (NS)	20.6% (NS)	5.4% (NS)
University	14.3% (NS)	17.1% (NS)	20.3% (NS)	5.4% (NS)
Anglophones[11]				
Yes	24.2%	28.5%	31.8%	7.8%
No	14.2%	17.8%	21.6%	5.4%
Immigrants				

[9] Serious suicidal ideation over 12 months (same measurement scale) in people aged 15 or over in Québec.
[10] 18–24 group excluded, as studies are often underway in this age group.
[11] People who usually speak English at home.

Yes	21.3%	24.0%	27.7%	7.5%
No	15.2%	19.0%	22.7%	5.6%
Essential workers				
Yes	19.3%	23.0%	27.5%	5.9% (NS)
No	14.3%	18.0%	21.4%	5.8% (NS)
Healthcare workers				
Yes	21.0%	25.5%	30.5%	6.6% (NS)
No	15.3%	19.0%	22.5%	5.7% (NS)
Teleworkers				
Yes	19.0%	23.2%	27.4%	5.7% (NS)
No	14.5%	17.9%	21.4%	5.8% (NS)
At-risk groups[12]				
Yes	14.6% (NS)	17.3%	20.9%	7.0%
No	15.6% (NS)	19.3%	23.2%	5.0%

NS = No significant differences among the groups ($p \geq 0.05$)

Evolution

Table 5 compares the psychological response (in terms of generalized anxiety or major depression) in the seven regions of Québec that participated in the two most recent phases of the study (September 4–14, 2020; November 6–18, 2020). Since the questions about serious suicidal ideation were newly added to the November phase, comparisons with the previous phase in September are not possible. In the seven regions, we see a degradation of the psychological condition of the adult population, in terms of both anxiety and depression. In September, in these seven regions, we estimated that 21.8% of adults exhibited a probable psychological disorder (generalized anxiety or major depression), and this proportion rose to 25.0% in November. The evolution of the psychological response between the two phases of the survey was asymmetrical in the regions, with the regions of Mauricie-Centre-du-Québec, Montréal and Laurentides suffering a bigger increase in the prevalence of generalized anxiety disorder or probable major depression.

Table 5. Psychological disorders in the adult population of seven regions of Québec, by region and by phase of the survey (September 4–14, 2020; November 6–18, 2020)

Social health region	**Probable anxiety**		**Probable depression**		**Probable anxiety or major depression**	
	September 4–14, 2020	**November 6–18, 2020**	**September 4–14, 2020**	**November 6–18, 2020**	**September 4–14, 2020**	**November 6–18, 2020**
Mauricie-CDQ	10.1%	12.6%	13.0%	16.6% (+)	15.3%	21.0% (+)
Estrie	14.5%	13.9%	15.3%	16.4%	20.3%	19.7%
Montréal	17.8%	23.4% (+)	21.5%	28.1% (+)	26.5%	32.0% (+)
Laval	16.9%	14.9%	19.3%	21.2%	24.0%	24.1%
Lanaudière	11.9%	13.0%	12.7%	14.6%	16.2%	19.0%
Laurentides	10.2%	13.6% (+)	13.8%	18.3% (+)	17.2%	20.5%
Montérégie	13.9%	16.4%	16.3%	18.8%	21.1%	22.5%
Total (7 regions)	14.6%	17.5% (+)	17.4%	21.3% (+)	21.8%	25.0% (+)

(+) significant increase since the last data collection
(–) significant decrease since the last data collection

[12] People at risk of COVID-19 complications, including people aged 70 or over and people living with one of the following conditions: cardiac disease, hypertension, diabetes, COPD, immunosuppression.

Table 6, which shows the evolution from September to November 2020 in the prevalence of psychological disorders by age and sex, reveals that the psychological deterioration is greater among men and young adults.

Table 6. Psychological disorders in the adult population of seven regions of Québec, by age and sex and by phase of the survey (September 4–14, 2020; November 6–18, 2020)

Sociodemographic characteristic	Probable anxiety or depression (%)	
	September 4–14, 2020	November 6–18, 2020
Sex		
Female	24.3%	26.1%
Male	19.0%	23.6% (+)
Age		
18–24 years	36.8%	48.9% (+)
25–34 years	28.1%	33.9% (+)
35–44 years	27.9%	32.1% (+)
45–54 years	20.3%	24.3% (+)
55–64 years	17.4%	15.4%
65 and over	10.5%	10.6%

(+) significant increase since the last data collection

Factors that influence the psychological response

The epidemiological situation alone does not explain the population's psychological response to the COVID-19 pandemic. Other factors explain these different psychological reactions. The first survey examined several risk and protection factors potentially involved in psychological response during a pandemic. With this second phase of the survey in Québec, we are able to examine how these factors have evolved as the pandemic has progressed.

In November 2020, across Québec, the ten main factors associated with the presence of symptoms consistent with generalized anxiety or major depression were, in decreasing order:

1. Low sense of coherence (ratio = 3.8)[13]
2. Serious financial losses (ratio = 2.4)
3. Victim of stigmatization (ratio = 2.1)
4. COVID-19 diagnosis (ratio = 2.1)
5. High level of erroneous beliefs (ratio = 1.8)
6. Low confidence in the authorities (ratio = 1.7)
7. Experience with COVID-19 (ratio = 1.7)
8. Online sources of information about COVID-19 (ratio = 1.7)
9. Perception of high threat for self or family (ratio = 1.6)
10. Voluntary isolation or quarantine (ratio = 1.5)

As observed in September 2020, sense of coherence still ranks first among the factors most strongly associated with psychological disorders during the pandemic. The other factors identified in November 2020 are basically the same as in September 2020, but in the seven regions that took part in the September survey, the prevalence of certain factors has increased or decreased significantly over time, as shown in Table 7.

[13] The ratio corresponds to the prevalence of generalized anxiety disorder or probable major depression in people who exhibit this risk factor compared to those who do not.

Table 7. Prevalence of the main factors associated with a probable psychological disorder (generalized anxiety or major depression) in the adult population of seven regions of Québec, by phase of the survey (September 4–14, 2020; November 6–18, 2020)

	September 4–14, 2020	November 6–18, 2020
Factors related to the pandemic		
Perception of a high threat for self or family	36.3%	38.7% (+)
Voluntary or mandatory isolation	56.6%	52.7% (–)
COVID-19 diagnosis	2.7%	2.7%
Experience with COVID-19[14]	14.2%	16.5% (+)
Serious financial losses	18.8%	20.9% (+)
Victim of stigmatization	8.5%	6.8% (–)
Factors related to the infodemic		
Use of online sources of information[12,15]	25.9%	26.5%
Median score regarding confidence in authorities[16]	32	32
Median score regarding erroneous beliefs[17]	32	33
Individual psychological resources		
High sense of coherence[18]	44.0%	43.8%

(+) significant increase since the last data collection
(–) significant decrease since the last data collection

The overabundance of information negatively influences the psychological health of the population. Figure 1 represents the relationship between the number of sources of information used regularly to find out about COVID-19, on one hand, and the presence of symptoms consistent with generalized anxiety disorder or major depression, on the other. The sources of information considered are television, radio, social networks, the Internet (other than online newspapers) and acquaintances. The findings show that beyond a certain number of regularly consulted sources (specifically, three), the risk of exhibiting symptoms of anxiety or depression increases quickly, which suggests that overexposure to information about COVID-19 is associated with poorer psychological health.

[14] Person who had to isolate due to symptoms or contact with a case of COVID-19 or those diagnosed with COVID-19.
[15] Social networks or the Internet (other than online newspapers).
[16] The score for confidence in authorities ranges from 4 to 40 and depends on the level of confidence in four types of authorities (government, international health agencies, national health agencies, health experts). The level of agreement is measured using a scale ranging from 1 (very low) to 10 (very high). The total score was also converted into quartiles (Q1 = low level, Q4 = high level).
[17] The score for erroneous beliefs ranges from 12 to 120 and is based on the level of agreement with 12 erroneous statements (see Appendix 2). The level of agreement is measured using a scale ranging from 1 (completely disagree) to 10 (completely agree). The total score was also converted into quartiles (Q1 = low level, Q4 = high level).
[18] The SOC-3 scale relies on three questions that each target one of the three components of a high sense of coherence (comprehensibility, meaningfulness and manageability). A score from 0 to 6 is possible. A score of 4 or more indicates a high sense of coherence. The questions are as follows:

1. Do you usually feel that the things that happen to you in your daily life are hard to understand? (comprehensibility)
2. Do you usually feel that your daily life is a source of personal satisfaction? (meaningfulness)
3. Do you usually see a solution to problems and difficulties that other people find hopeless? (manageability)

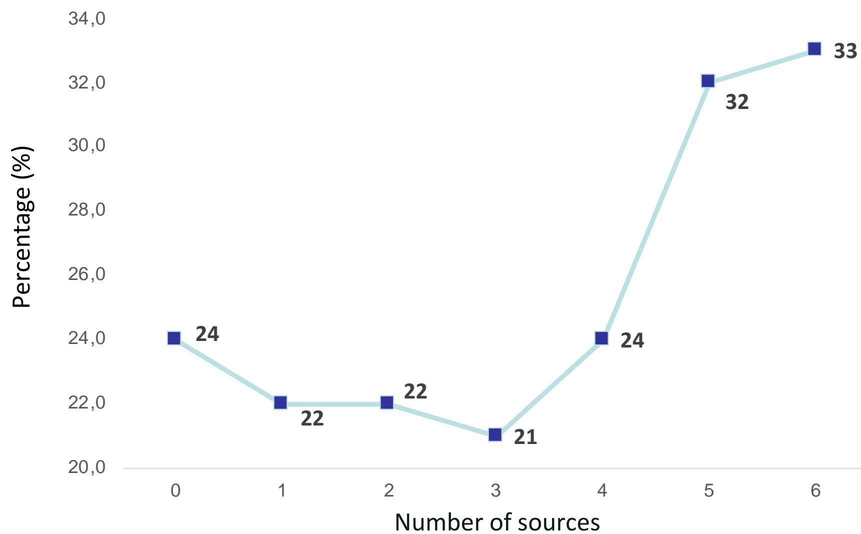

Figure 1. Generalized anxiety disorder or probable major depression (%) based on the number of sources regularly used to find information about COVID-19 by the adult population of Québec (November 6–18, 2020)

BEHAVIOURAL RESPONSE

Consumption of alcohol and cannabis

The behavioural response may take the form of stress management strategies that are sometimes appropriate (e.g., physical activity) and sometimes less appropriate (e.g., consumption of alcohol or cannabis). An increase in the use of maladaptive strategies in the population may be a sign of poor management of the stress caused by the pandemic and other daily situations. Alcohol and cannabis seem to have been chosen as stress management strategies by a great many Québecers, as shown by the data presented in Table 8. In November, nearly one adult in three reported excessive alcohol consumption at least once a month (29.3%) and one in five (19.0%) had consumed cannabis in the last year. This behavioural response varies somewhat among the regions, with excessive consumption of alcohol being more frequent in the Capitale-Nationale region and consumption of cannabis being more frequent in Montréal. As this series of questions was new in the November 2020 phase, comparisons with the September 2020 phase are not possible.

Table 8. Consumption of alcohol and cannabis in the adult population of Québec, by region (November 6–18, 2020)

Social health region	Excessive consumption of alcohol[19]	Consumption of cannabis[20]
Capitale-Nationale	34.6% (+)	17.5%
Mauricie-CDQ	28.0%	16.5%
Estrie	27.7%	15.4% (–)
Montréal	29.7%	27.7% (+)
Laval	24.6% (–)	15.6%
Lanaudière	28.7%	16.9%
Laurentides	29.9%	19.4%
Montérégie	29.8%	15.6% (–)
5 small regions	29.3%	13.0% (–)
All of Québec	29.3%	19.0%

(+) % significantly higher than elsewhere in Québec
(–) % significantly lower than elsewhere in Québec

Tables 9 and 10 show that excessive consumption of alcohol and consumption of cannabis both increased in November 2020 compared to Québec data observed in the 2018 Canadian Community Health Survey (CCHS), with a marked increase in all age groups except young adults. There is a greater increase in the excessive consumption of alcohol than in the consumption of cannabis. For excessive consumption of alcohol, the biggest increase is among men and adults over 65.

Table 9. Excessive consumption of alcohol at least once a month in the last year among the adult population of Québec, by sex and age, before the pandemic (2018 CCHS) and November 6–18, 2020

Sociodemographic characteristics	Excessive consumption of alcohol	
	2018 CCHS[21]	**November 6–18, 2020**
Sex		
Female	17.7%	24.5%
Male	24.4%	34.5%
Age		
18–34 years	32.8%	33.0%
35–49 years	25.7%	34.3%
50–64 years	19.9%	26.3%
65 and over	9.0%	23.6%
All of Québec	21.2%	29.4%

NOTE: No statistical tests were carried out for the comparisons with pre-pandemic data due to the different data collection methodologies.

[19] Consumption of five or more glasses on a single occasion, at least once a month in the last year.
[20] Any consumption of cannabis in the last year.
[21] Excessive consumption of alcohol (same measurement scale) among people 12 and over living in Québec.

Table 10. Consumption of cannabis in the last year among the adult population of Québec, by sex and age, before the pandemic (2018 CCHS) and November 6–18, 2020

Sociodemographic characteristics	Consumption of cannabis	
	2018 CCHS[22]	November 6–18, 2020
Sex		
Female	12.7%	15.8%
Male	20.2%	22.2%
Age		
18–24 years	38.1%	34.8%
25–34 years	29.3%	33.9%
35–54 years	15.3%	20.2%
55 and over	6.6%	8.5%
All of Québec	16.4%	18.9%

NOTE: No statistical tests were carried out for the comparisons with pre-pandemic data due to the different data collection methodologies.

Inclination to receive vaccination

Although progress is beginning to be made on the development of a vaccine against COVID-19, Table 11 suggests that a significant portion of the population of Québec is reluctant to receive an approved COVID-19 vaccine. Only 62.2% of adults surveyed in Québec would be prepared to receive such a vaccine, while 14.1% would refuse it and 23.7% would hesitate to receive it. It is worth noting that for regular childhood vaccinations, fewer than 5% of parents refuse to have their children receive the recommended vaccinations, while about one-third hesitate to have their children vaccinated (Guay et al., 2019; Kiely et al., 2016).

Table 11. Inclination to receive an approved COVID-19 vaccine among the adult population of Québec, by region (November 6–18, 2020)

Social health region	Accept	Refuse	Hesitate
Capitale-Nationale	66.3% (+)	12.8%	21.1%
Mauricie-CDQ	58.9%	17.2% (+)	24.0%
Estrie	58.2%	16.2%	25.6%
Montréal	61.4%	14.8%	23.8%
Laval	61.9%	14.6%	23.6%
Lanaudière	62.1%	12.5%	25.5%
Laurentides	59.0%	17.4% (+)	23.7%
Montérégie	66.7% (+)	10.8% (–)	22.6%
5 small regions	64.8%	12.3%	22.9%
All of Québec	62.2%	14.1%	23.7%

(+) Region significantly higher than the other regions
(–) Region significantly lower than the other regions

We can see in Table 12 that since September 2020, the vaccine acceptance rate has declined in the seven participating regions, while the hesitation rate has risen. A significant increase in hesitation with regard to the COVID-19 vaccine has been observed in several regions: Estrie, Lanaudière, Laurentides and Montérégie, and on the scale of the seven combined regions. At the same time, the vaccine acceptance rate in these seven regions went from 65.2% in September to 62.0% in November.

[22] Consumption of cannabis (same measurement scale) among people aged 12 and up living in Québec.

Table 12. Inclination to receive an approved COVID-19 vaccine among the adult population of seven regions of Québec, by region and phase of the survey (September 4–14, 2020; November 6–18, 2020)

Social health region	Accept		Refuse		Hesitate	
	September 4–14, 2020	November 6–18, 2020	September 4–14, 2020	November 6–18, 2020	September 4–14, 2020	November 6–18, 2020
Mauricie-CDQ	60.1%	58.9%	18.9%	17.2%	21.0%	24.0%
Estrie	60.7%	58.2%	18.3%	16.2%	21.1%	25.6% (+)
Montréal	64.2%	61.4%	14.5%	14.8%	21.3%	23.8%
Laval	62.4%	61.9%	17.6%	14.6%	20.1%	23.6%
Lanaudière	65.1%	62.1%	16.5%	12.5% (–)	18.4%	25.5% (+)
Laurentides	64.8%	59.0% (–)	18.7%	17.4%	16.5%	23.7% (+)
Montérégie	71.4%	66.7% (–)	12.9%	10.8%	15.8%	22.6% (+)
Total (7 regions)	65.2%	62.0% (–)	15.6%	14.2% (–)	19.1%	23.8% (+)

According to Table 13, which presents the inclination to receive an approved vaccine against COVID-19 based on certain sociodemographic characteristics, young and middle-aged adults are clearly less inclined to receive a COVID-19 vaccine than people aged 65 and over (77.9%). Women, people with less education, Anglophones, immigrants, essential workers (including healthcare workers) and people who are not considered at risk are among the groups least inclined to receive this vaccine.

Table 13. Inclination to receive an approved COVID-19 vaccine among the adult population of Québec, by sociodemographic characteristic (November 6–18, 2020)

Sociodemographic characteristic	Accept	Refuse	Hesitate
Sex			
Female	58.0%	14.7% (NS)	27.3%
Male	66.7%	13.5% (NS)	19.8%
Age			
18–24 years	55.1%	16.6%	28.3%
25–34 years	50.9%	21.6%	27.5%
35–44 years	53.3%	19.5%	27.2%
45–54 years	57.8%	16.5%	25.7%
55–64 years	68.1%	9.1%	22.8%
65 and over	77.9%	6.4%	15.7%
Education[23]			
High school or less	54.3%	18.2%	27.5%
College	59.1%	15.7%	25.2%
University	71.0%	10.0%	19.0%
Anglophones[24]			
Yes	59.1%	13.7% (NS)	27.1%
No	62.8%	14.2% (NS)	23.0%
Immigrants			
Yes	54.0%	19.5%	26.5%
No	63.1%	13.5%	23.3%
Essential workers			
Yes	56.7%	16.8%	26.5%
No	64.8%	13.0%	22.3%
Healthcare workers			
Yes	57.2%	18.7%	24.2% (NS)
No	62.9%	13.7%	23.4% (NS)

[23] 18–24 group excluded, as studies are often underway in this age group.
[24] People who usually speak English at home.

At-risk groups[25]			
Yes	70.9%	9.7%	19.4%
No	56.9%	16.6%	26.4%

Control measures

Since the beginning of the second wave of COVID-19 in Québec, government control measures have been stepped up progressively, based on the alert levels assigned to each region. In November 2020, the majority of the population of Québec was living in a region classified as red (maximum alert level), which corresponds to the strictest control measures. Table 13 shows the public's perceptions and attitudes about these control measures. Note, for example, that nearly one-third (31.4%) of the adult population perceive the current rules excessive and no less than 28.1% find them unclear. Less than 10% of the adult population perceives the isolation and distancing measures to be unimportant, however.

Table 14. Perceptions and attitudes[26] about the government control measures among the adult population of Québec, by region (November 6–18, 2020)

Social health region	Compliance with isolation measures unimportant	Compliance with distancing measures unimportant	Rules excessive	Rules unclear
Capitale-Nationale	9.6%	7.2%	32.6%	32.0% (+)
Mauricie-CDQ	9.7%	7.6%	32.9%	27.3%
Estrie	9.4%	8.4%	30.9%	26.6%
Montréal	8.7%	8.1%	32.9%	31.0% (+)
Laval	6.1%	6.2%	32.8%	23.8% (–)
Lanaudière	6.3%	6.1%	26.9% (–)	22.5% (–)
Laurentides	10.2%	9.2%	27.4% (–)	30.9%
Montérégie	7.3%	6.0% (–)	28.4% (–)	26.5%
5 small regions	8.8%	7.8%	30.0%	25.2%
All of Québec	8.6%	7.5%	31.4%	28.1%

Table 15 presents the differences in these perceptions and attitudes based on sociodemographic characteristics. Young adults systematically harbour more negative perceptions and attitudes about the government control measures than older adults. For example, one young adult in six (15.9%) considers it unimportant to comply with physical distancing measures, compared to just 2.2% of people 65 and older. Table 15 also shows that men are more likely to have negative perceptions and attitudes about the government measures than women.

[25] People at risk of complications from COVID-19, including people aged 70 or over and people living with one of the following conditions: cardiac disease, hypertension, diabetes, COPD, immunosuppression.

[26] Each of the four perceptions or attitudes was measured on a scale from 1 to 10. People who answered 6 or higher are considered to have adopted the perception or attitude.

Table 15. Perceptions and attitudes about the government control measures among the adult population of Québec, by sociodemographic characteristic (November 6–18, 2020)

Sociodemographic characteristic	Compliance with isolation measures unimportant	Compliance with distancing measures unimportant	Rules excessive	Rules unclear
Sex				
Female	6.7%	5.6%	27.9%	26.9%
Male	10.5%	9.4%	35.0%	29.1%
Age				
18–24 years	13.5%	15.9%	42.4%	34.3%
25–34 years	14.1%	11.6%	46.1%	32.7%
35–44 years	11.5%	9.8%	37.6%	33.2%
45–54 years	10.0%	7.9%	31.4%	28.0%
55–64 years	4.1%	3.5%	23.3%	23.3%
65 and over	3.0%	2.2%	18.4%	22.5%
Education[27]				
High school or less	10.1%	8.9%	32.5%	25.3%
College	7.6%	6.6%	30.4%	26.7%
University	6.7%	4.9%	28.8%	28.8%
Anglophones[28]				
Yes	8.9% (NS)	8.5% (NS)	34.2%	32.5%
No	8.5% (NS)	7.2% (NS)	30.8%	27.2%
Immigrants				
Yes	9.5% (NS)	9.0%	42.7%	29.3% (NS)
No	8.3% (NS)	7.2%	30.1%	27.9% (NS)
Essential workers				
Yes	9.5%	8.0% (NS)	37.2%	29.5% (NS)
No	7.9%	6.9% (NS)	28.8%	27.5% (NS)
Healthcare workers				
Yes	9.0% (NS)	7.7% (NS)	37.7%	25.5% (NS)
No	8.3% (NS)	7.2% (NS)	30.7%	28.3% (NS)
At-risk groups[29]				
Yes	5.6%	4.8%	25.1%	25.2%
No	9.9%	8.4%	34.8%	29.6%

[27] 18–24 group excluded, as studies are often underway in this age group.
[28] People who usually speak English at home.
[29] People at greater risk of complications from COVID-19, including people aged 70 or over and people living with one of the following conditions: cardiac disease, hypertension, diabetes, COPD, immunosuppression.

WHAT TO RETAIN: HIGHLIGHTS

1. In the midst of the second wave of COVID-19 in Québec, nearly one adult in four exhibits symptoms consistent with generalized anxiety disorder or major depression. The situation is even more worrisome among young adults, with nearly one in two exhibiting such symptoms.

2. There has been an increase in the prevalence of generalized anxiety disorder or probable major depression in Québec since the beginning of the second wave, especially among young adults and men.

3. More than twice as many adults in Québec (men and women of all ages) are experiencing serious suicidal ideation than the numbers observed before the pandemic.

4. Psychological disorders are clearly more present in Montréal, with one adult in three exhibiting symptoms consistent with generalized anxiety disorder or probable major depression and one adult in thirteen experiencing serious suicidal ideation in the last year.

5. Essential workers, especially those working in the health and social services sector, and people who telework are more affected psychologically than other workers in Québec.

6. Psychological health is influenced not only by the disruptions created by the pandemic (e.g., financial losses, experience with COVID-19), but also by the infodemic (e.g., distrust, erroneous beliefs).

7. Sense of coherence, which is our capacity to understand, make sense of and manage stressful situations, continues to be a very important protection factor. Québecers who have a strong sense of coherence are at four times less risk of generalized anxiety or probable major depression.

8. The excessive consumption of alcohol is on the rise in people aged 35 and over in Québec (especially among people 65 and over), compared to data observed before the pandemic.

9. Only six adults in ten in Québec would be prepared to receive an approved vaccine against COVID-19. This proportion is down since September 2020, and the rate of hesitation about the vaccine has risen.

10. Government rules to slow the spread of COVID-19 are perceived to be excessive and unclear by more than one-quarter of the adult population of Québec.

COURSES OF ACTION

As the INSPQ suggested in its recent publication on resilience and social cohesion during the pandemic (Roberge et al., 2020), a multi-prong intervention model should be adopted in every community in Québec. This model proposes the four following parts:

1) **Specialized services**: Interdisciplinary teams specialized in mental health and dependency (e.g., doctors, nurses, psychologists, social workers) who are available and equipped to deal with the specific context of the pandemic.

2) **Frontline services**:
    a. Frontline mental health and dependence 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 prescription to break isolation (that is, a doctor's prescription to take an outdoor yoga class, do a volunteer activity, etc.).[30]
    c. A sentinel network of citizens trained in psychological first aid[31] 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 local leadership, networking, collaboration, citizen participation and innovation.
    b. Practical actions to reinforce sense of coherence, particularly through individual or group interventions based in sports and recreation, artistic and cultural activities, meditation and mindfulness or self-expression (Généreux et al., in press).
    c. Support for essential workers, especially healthcare workers.

4) **Inclusion of psychosocial needs in basic services** (mental health in all policies):
    a. It is important that strategies to counter the COVID-19 pandemic seek balance between biological risks and psychosocial risks.
    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

[30] For more details on social prescription: https://www.kingsfund.org.uk/publications/social-prescribing
[31] Training modules available at: 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

REFERENCES

Agyapong, V., Hrabok, M., Juhas, M., Omeje, J., Denga, E., and Nwaka, B. (2018). Prevalence rates and predictors of generalized anxiety disorder symptoms in residents of Fort McMurray six months after a wildfire. *Front Psychiatr, 9*, 345

Agyapong, V., Juhás, M., Brown, M., Omege, J., Denga, E., Nwaka, B., Akinjise, I., Corbett, S.E., Hrabok, M., Li, X., Greenshaw, A., and Chue, P. (2019). Prevalence rates and correlates of probable major depressive disorder in residents of Fort McMurray 6 months after a wildfire. *Int J Ment Health Addiction, 17*, 120–136.

Généreux, M., Roy, M., O'Sullivan, T., and Maltais, D. (2020, February 25). A salutogenic approach to disaster recovery: The case of the Lac-Mégantic rail disaster. *Int J Environ Res Public Health, 17*(5), 1463. doi:10.3390/ijerph17051463

Généreux, M., Roy, M., Paré, C., and Lévesque J. Renforcer les capacités d'adaptation des individus et des communautés en contexte de pandémie : le rôle clé du sentiment de cohérence. Québec: Institut national de santé publique du Québec; in press.

Guay, M., Brousseau, N., and Farrands, A. (2019). Parents hésitants: un peu, beaucoup, passionnément! *Le Médecin du Québec, 54*, 1–6.

Kiely, M., Boulianne, N., Ouakki, M., Audet, D., Gariépy, M., Guay, M., De Serres, G., and Dubé, È. (2018). Enquête sur la couverture vaccinale des enfants de 1 an et 2 ans au Québec en 2016. Québec: Institut national de santé publique du Québec.

Lukmanji, A., Williams, J., Bulloch, A.G., Bhattarai, A., and Patten, S.B. (2019). Seasonal variation in symptoms of depression: A Canadian population based study. *J Affect Disord, 255,* 142–149. doi:10.1016/j.jad.2019.05.040

Pelletier, L., O'Donnell, S., McRae, L., and Grenier, J. (2017). The burden of generalized anxiety disorder in Canada. *Health Promot Chronic Dis Prev Can, 37,* 54–62.

Roberge, M.C., Bergeron, P., Lévesque, J., and Poitras, D. (2020.) COVID-19 : la résilience et la cohésion sociale des communautés pour favoriser la santé mentale et le bien-être. Québec: Institut national de santé publique du Québec.

Super, S., Wagemakers, M.A., Picavet, H.S., Verkooijen, K.T., and Koelen, M.A. (2016). Strengthening sense of coherence: Opportunities for theory building in health promotion. *Health Promot Int*., *31*(4), 869–878. doi:10.1093/heapro/dav071

APPENDIX 1

List of themes addressed in the questionnaire for the survey conducted in November 2020:

Psychological response:

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

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, sex and level of education
- Composition of household
- Chronic diseases and immunosuppression
- Immigrant status (with continent of origin)
- Language spoken at home
- Being an essential worker
- Being a health and social services worker
- Being a worker in an educational institution
- Being a teleworker

Risk or protection factors:

- Perceived threat level for self, family, country and world
- COVID-19 experience (diagnosis or symptoms, contact with a case)
- Voluntary isolation or quarantine
- Financial losses due to the pandemic
- Being a victim of stigmatization due to the pandemic
- Level of confidence in the authorities (government, health authorities, experts)
- Level of information available about COVID-19
- Sources used for information about COVID-19 (several sources examined)
- Level of erroneous beliefs about COVID-19 (based on 12 statements)
- Sense of coherence (based on SOC-3 scale)

APPENDIX 2

The twelve statements considered erroneous used as the basis for calculating the erroneous belief score:

1. I think that my government is hiding important information about the coronavirus.
2. I think that the coronavirus was intentionally developed in a laboratory.
3. I think that the coronavirus was unintentionally developed in a laboratory.
4. I think that the pharmaceutical industry is involved in the propagation of the coronavirus.
5. I think that there is already a drug to prevent or treat the coronavirus.
6. I think that once you catch the novel coronavirus, you have it for the rest of your life.
7. I think that there is a connection between 5G technology and the coronavirus.
8. I think that the coronavirus is not transmitted in hot countries.
9. I think that the coronavirus is no more dangerous than the seasonal flu (influenza).
10. I think that the sun or temperatures above 25 degrees Celsius can prevent the coronavirus (COVID-19).
11. I think that the novel coronavirus can be spread by mosquito bites.
12. I think that spraying alcohol or bleach on my entire body will kill the novel coronavirus.