

Impact of the COVID-19 pandemic on the psychological health of individuals with mental health conditions: A mixed methods study

Alexia E. Miller | Adrienne Mehak | Vittoria Trolio | Sarah E. Racine 

Department of Psychology, McGill University, Montreal, Québec, Canada

Correspondence

Sarah E. Racine, Department of Psychology, McGill University, 2001 ave. McGill College, Room 1411, Montreal, QC H3A 1G1, Canada.
Email: sarah.racine@mcgill.ca

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Abstract

Objectives: This study explored how the coronavirus disease 2019 (COVID-19) pandemic has affected individuals with mental health conditions.

Methods: Participants were 477 adults (82% female) who reported a past-year mental health condition. They completed an online survey that included an open-ended question. Mixed methods analysis was conducted.

Results: While all mental health conditions were moderately impacted by the COVID-19 pandemic, self-reported impact on anxiety disorder and obsessive-compulsive disorder symptoms was greater than for all other mental health symptoms. Thematic analysis revealed five themes: (1) the contribution of the pandemic to worsening mental health; (2) life interruptions due to the pandemic; (3) increased loneliness/isolation; (4) upsides of the pandemic; and (5) normalization of the anxieties previously experienced by those with mental health conditions.

Conclusion: Individuals with pre-existing mental health conditions reported a worsening of symptoms during the COVID-19 pandemic. Governments and organizations must focus on supporting and increasing access to treatment for this population.

KEYWORDS

anxiety, COVID-19 pandemic, depression, mental health symptoms, mental illness

1 | INTRODUCTION

The coronavirus disease 2019 (COVID-19), originating in Wuhan, China, in December 2019, has caused one of the largest pandemics in world history. As of July 2021, the disease has spread to 220 countries and has infected over 191 million people, with over 4.09 million deaths (World Health Organization, 2020). The pandemic has had profound impacts on global health and has significantly affected the economy and lives of people worldwide. With the aim to reduce the spread of the virus, countries have closed their borders and imposed quarantine and social distancing measures. The scale and intensity of the measures taken to combat the COVID-19 pandemic are unprecedented, and therefore the impacts of these measures are still largely unknown.

Not surprisingly, the COVID-19 pandemic and the related global circumstances (e.g., economic downturn) have led to an increase in concern about physical safety and financial security, anxiety about the future, as well as a disruption in the behavior and routines of millions of individuals. Governments and major organizations (e.g., Government of Canada, Centers for Disease Control and Prevention, Canadian Mental Health Organization) have warned of a potential increase in mental health crises and thus have published guidelines with the hopes of helping people better cope with the pandemic. Indeed, it is well established that an increase in stress elevates risk for psychological difficulties in both general and clinical populations (Harrington, 2012). Further, strict quarantine restrictions have been found to increase mental health difficulties due to heightened feelings of social isolation (Brooks et al., 2020). In a recent review, Brooks et al. (2020) found that individuals who had been quarantined in past disease outbreaks (i.e., Ebola virus disease, severe acute respiratory syndrome, H1N1) reported a high prevalence of symptoms of psychological disorders. These authors suggest that researchers must empirically investigate the psychological effects of the COVID-19 pandemic, as findings can help inform any prevention measures for future periods of infection and lockdown (Holmes et al., 2020).

Empirical data on the psychological consequences of the COVID-19 pandemic is becoming available. In a study examining 1738 people from various Chinese cities, 28.8% reported moderate-to-severe anxiety symptoms and 16.5% had moderate-to-severe depression symptoms (Wang et al., 2020). In a study conducted in Italy, Mazza et al. (2020) found that 32.8%, 18.7%, and 27.2% of their sample reported high or very high levels of depression, anxiety, and stress, respectively. Similarly, in a longitudinal study of UK residents before and during the pandemic, a significant increase in psychological distress compared to the previous year was observed (Pierce et al., 2020). Specifically, the population prevalence of clinically significant levels of mental distress measured by the General Health Questionnaire rose from 18.9% in 2018–2019 to 27.3% in April 2020 (Pierce et al., 2020). Research also suggests that individuals may be turning to alcohol or drugs to cope with the stress of the pandemic (Czeisler et al., 2020; Sun et al., 2020). For example, Czeisler et al. (2020) found that 13.3% of their American sample reported having taken up or increased substance use to cope with stress or emotions related to COVID-19. Similarly, in a study conducted in China, 32% of regular alcohol drinkers and 20% of regular cigarette smokers increased their usage amount during the pandemic (Sun et al., 2020). This is particularly important as substance use and mental health issues are reciprocally related; for example, individuals struggling with depression and anxiety may turn to substance use to cope, and an increase in substance use can lead to worsening mood and anxiety.

While the COVID-19 pandemic has clearly impacted the psychological health of the general population, individuals with pre-existing mental health conditions are likely at even greater risk of experiencing psychological difficulties and a worsening of their mental health symptoms during this time. Indeed, individuals with mental health conditions may have more difficulty coping with stress compared to the general population. In addition, the COVID-19 pandemic has disrupted important aspects of treatments for mental health conditions, such as access to face-to-face psychological treatment and social support networks as well as consistent structure and routine. Early research points to the negative consequences of the COVID-19 pandemic for individuals with pre-existing mental health conditions. In a study exploring individuals with self-reported eating disorders, participants with anorexia nervosa, bulimia nervosa, and binge eating disorder reported a significant increase in eating disorder symptoms and anxiety due to the COVID-19 pandemic (Terhorshuizen et al., 2020). Similarly, a longitudinal study of patients with obsessive compulsive disorder (OCD) found a significant increase in OCD symptoms from pre- to postpandemic (Davide et al., 2020). Additionally, among 331 individuals who were abstaining from alcohol pre-COVID, 18.7% reported a relapse during the pandemic (Sun et al., 2020). Finally, in a study of 2734 patients

with a variety of mental health conditions, 66% reported a worsening of their psychiatric state (Gobbi et al., 2020). The documented worsening of psychological symptoms in those with pre-existing mental health conditions demonstrates the critical need to investigate exactly how the COVID-19 pandemic has affected the psychological health of this population subgroup. Understanding how individuals with pre-existing mental health conditions have been affected by circumstances surrounding the COVID-19 pandemic can allow for interventions that better target the specific struggles endured by this population throughout the duration of the pandemic and quarantine, as well as better prepare us for future epidemics and pandemics.

While many studies have focused on how individuals with specific mental health conditions have been affected by the COVID-19 pandemic, few studies have examined multiple mental health conditions in the same study or compared the impact of the COVID-19 pandemic across different mental health conditions. Indeed, studies that have considered multiple mental health conditions have combined across diagnoses rather than examine diagnoses separately (e.g., Gobbi et al., 2020). Additionally, most studies have relied on quantitative methods to investigate the effects of the COVID-19 pandemic on psychological health. Qualitative data analysis can allow for a more nuanced understanding of people's lived experiences and thus, combining both quantitative and qualitative methods can provide a clearer picture of the self-reported effects of the COVID-19 pandemic on individuals with mental health conditions. Therefore, this study examined the perceived impact of the COVID-19 pandemic on the psychological health of individuals with a range of pre-existing mental health conditions. First, we investigated whether individuals with self-reported mental health conditions reported a worsening of their symptoms during the COVID-19 pandemic, and whether degree of symptom worsening differed based on diagnostic category. Second, we considered whether certain COVID-19-related situational factors (i.e., degree of social support, days of social distancing, information consumption) were associated with worsening mental health. Lastly, we conducted a qualitative thematic analysis of responses to an open-ended question asking about the impact, both positive and negative, of the COVID-19 pandemic on participants' psychological health.

2 | METHODS

2.1 | Participants and procedure

Data collection began on April 13th and ended on June 30th, 2020. Participants were recruited via the social media pages of study investigators and subsequent snowball sampling. Additionally, online forums (e.g., Craigslist), organizations related to psychiatric disorders (e.g., Academy for Eating Disorders forums) and organizations for underrepresented minorities (e.g., Black Students' Network of McGill) were used to recruit participants. Participants completed the study via Qualtrics survey software and were asked to respond to questions regarding demographic information, psychological health, and the COVID-19 pandemic. Participants could select "Prefer not to answer" for all study questions. All participants provided electronic informed consent. Participants were given the option to provide their email address to be entered into a draw where they had a 1/20 chance of winning a \$100 electronic Amazon gift card.

The survey was started by 1353 people, but data were only retained for 877 (64.8%) participants. Excluded participants were those who did not complete at least demographic and COVID-19 measures; who very clearly failed the validation code created specifically to catch fraudulent responders at the end of the survey; who had long strings of repetitive responses; and who provided contradictory responses suggesting a lack of attention. All data were verified by one of three student investigators who conferred when one recommended rejection of data. The principal investigator resolved cases of disagreement.

From the 877 participants with valid data, the current report focused on 477 (54.4%) participants who reported having been diagnosed with a mental health condition or who reported experiencing symptoms consistent with a mental health condition within the last year. These 477 participants ranged in age from 18 to 71 years, with a mean age of 28.2 years ($SD = 9.05$). Participants identified mostly as female (82.0% female; 13.6% male; 4.4% gender nonbinary/gender fluid/other) and cisgender (96.9%). Most identified as heterosexual (61.6%), with 16.8%

identifying as bisexual, 5.0% as pansexual, 4.4% as questioning or unsure, 3.9% as asexual, 2.9% as queer, 2.7% as lesbian, 1.5% as gay, and 1.2% as other or prefer not to answer. Regarding race/ethnicity, participants could select as many options as applied: 83.6% identified as White, 7.0% as Black, 6.9% as Hispanic or Latin American, 3.8% as Chinese, 2.9% as South Asian, 2.1% as Arab, 1.5% as West Asian, 1.3% as First Peoples/Indigenous/Aboriginal, 1.3% as Filipino, 1.0% as Southeast Asian, 0.4% as Japanese, 0.2% as Korean, 0.2% as Native Hawaiian or Other Pacific Islander, and 3.6% as Other. Participants were mostly from North America (57.0% Canada, 29.8% United States), with 6.9% of participants from Europe, 3.7% from Asia, 1.4% from South America, 1.0% from Australia and New Zealand, and 0.2% from Africa. Participants were well-educated, with 56.8% having received at least a bachelor's degree. Median family income was \$51,000–75,000 for participants reporting their own income and \$101,000–200,000 for family income of students' parents/guardians.

2.2 | Measures

2.2.1 | Mental health conditions

Participants were asked about their past experience with mental health conditions via the following questions. First, participants were asked "Have you ever received a formal diagnosis of a mental health condition?" If participants responded no, they were then asked, "Have you ever experienced the symptoms consistent with a diagnosis of a mental health condition, even if you were not formally evaluated and diagnosed?" If they responded affirmatively to either of these two questions, they were asked to select all the mental health conditions that they currently have, or have had, in the past from the following common *DSM-5* mental health conditions: agoraphobia, panic disorder, generalized anxiety disorder, social anxiety disorder, major depressive disorder, bipolar disorder, anorexia nervosa, bulimia nervosa, binge eating disorder, alcohol use disorder, nonalcoholic substance use disorder, OCD, Posttraumatic stress disorder (PTSD), borderline personality disorder (BPD), and attention deficit hyperactivity disorder (ADHD). For each mental health condition selected, participants were asked a series of follow-up questions, including: "When was the last time you experienced symptoms of [selected mental health condition]?" Only participants who indicated that they experienced symptoms in the past year were included in the current study.

2.2.2 | Impact of COVID-19 pandemic on mental health

To evaluate the impact of the COVID-19 pandemic on mental health condition symptoms, participants were asked the following for each mental health condition selected: "To what extent do you feel the COVID-19 pandemic has influenced your symptoms of [selected mental health condition]?" Participants were asked to rate their response from 1 (*not at all*) to 7 (*very much*).

2.2.3 | COVID-19 pandemic variables

Social support

Degree of social support during the COVID-19 pandemic was measured using a single question: "During the COVID-19 pandemic, my social support has generally been...". Participants were asked to rate level of social support using a scale from 1 (*very limited*) to 7 (*very strong*).

Days of social isolation

Participants were asked to report the number of days they had been engaging in social isolation via the following set of questions: "Are you currently engaging in the recommended physical isolation of yourself from other people (some are calling this social distancing or social isolation)?"; if yes, "How long have you been engaging in social isolation?," with responses in number of days. Participants who responded that they were not engaging in social isolation were marked as nonapplicable and not included in the analyses with this variable.

Information consumption

Frequency of information consumption was measured using a single question: "How frequently are you reading or watching news updates/information related to COVID-19? Please consider both traditional news media and social media in your response." Participants were asked to respond using a scale from 1 (*never*) to 7 (*constantly*).

Open-ended question

Participants were given the following open-ended prompt: "Please describe the impact, both positive and negative, of the COVID-19 pandemic on your psychological health."

2.2.4 | Mental health questionnaires

Descriptive data from the below questionnaires are presented in Table 1 to characterize the degree of mental health difficulties in the sample. Internal consistency estimates for the measures in the present sample can also be found in Table 1.

Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 2005; Lovibond & Lovibond, 1995)

The DASS-21 is a 21-item self-report measure that assesses depression, anxiety, and stress over the past week. Each subscale contains seven items rated using a Likert scale ranging from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). The DASS-21 has demonstrated good psychometric properties with good-to-excellent internal consistency in the validation study (depression $\alpha = .88$, anxiety $\alpha = .82$, stress $\alpha = .93$; Henry & Crawford, 2005). The DASS-21 has shown good convergent and discriminant validity, as the subscales correlate strongly with independent measures of anxiety and depression (Henry & Crawford, 2005). Recommended cut-off scores for depression, anxiety, and stress are as follows: depression: normal (0–9), mild (10–13), moderate (14–20),

TABLE 1 Descriptive statistics

Scale/subscale	N	M (SD)	Range	% above cut-off score (cut-off score)	Cronbach's alpha
DASS-21 Depression	439	20.31 (11.92)	0.00–42.00	67.9 (14)	.90
DASS-21 Anxiety	439	12.73 (10.06)	0.00–42.00	49.2 (10)	.83
DASS-21 Stress	433	20.38 (10.30)	0.00–42.00	47.6 (19)	.85
PROMIS Alcohol	446	45.31 (8.74)	38.90–76.70	8.1 (60)	.94
PROMIS Drugs	446	41.81 (4.38)	40.41–68.90	0.4 (60)	.92
EDE-QS	444	11.65 (8.30)	0.00–36.00	33.8 (15)	.90

Note: Cut-off scores for the DASS-21 represent moderate levels of depression, anxiety, and stress. PROMIS scores are presented as *T* scores.

Abbreviations: DASS Depression and Anxiety Scales; EDE-QS, Eating Disorder Examination—Questionnaire Short Form; PROMIS, Patient-Reported Outcome Measurement Information System.

severe (21–27), and extremely severe (28+); anxiety: normal (0–7), mild (8–9), moderate (10–14), severe (15–19), and extremely severe (20+); stress: normal (0–14), mild (15–18), moderate (19–25), severe (26–33), and extremely severe (34+).

Patient-Reported Outcomes Measurement Information System (PROMIS) Alcohol Use Short Form 7a (Pilkonis et al., 2013)

The PROMIS Alcohol Use Short Form examines an individual's alcohol use and related problems in the past 30 days. Items for the short form were drawn from a larger bank of 37 alcohol use items based on item characteristics (Pilkonis et al., 2013). Each item is rated on a five-point Likert scale from 0 (*never*) to 5 (*almost always*). Participants who had not drunk alcohol in the past 30 days were given the lowest score on all items. The PROMIS Alcohol Use Short Form has been found to have excellent internal consistency ($\alpha = .95$) and a strong association with the full item bank ($r = .93$; Pilkonis et al., 2013). A PROMIS Alcohol Use Short Form *T*-score of about 60 is a marker of risk equivalent to conventional thresholds for clinical concern (Pilkonis et al., 2016).

Patient-Reported Outcomes Measurement Information System (PROMIS) Severity of Substance Use Short Form 7a (Pilkonis et al., 2015)

The PROMIS Severity of Substance use scale examines an individual's drug use and related problems over the past 30 days. Items for the short form were drawn from the 37- and 18-item substance use forms based on item characteristics (Pilkonis et al., 2015). Each item is rated on a five-point Likert scale from 0 (*never*) to 5 (*almost always*). Participants who had not consumed drugs in the past 30 days were given the lowest score on all items. The PROMIS Severity of Substance Use Short Form has shown excellent internal consistency ($\alpha = .94$) and a strong association with the full item bank ($r = .94$; Pilkonis et al., 2015). A PROMIS Substance Use Short Form *T* score of about 60 is a marker of risk equivalent to conventional thresholds for clinical concern (Pilkonis et al., 2016).

Eating Disorder Examination—Questionnaire Short (EDE-QS; Gideon et al., 2016)

The EDE-QS is a 12-item short form of the EDE-Q which evaluates cognitive and behavioral eating disorder symptoms. The 28-item EDE-Q was abbreviated using Rasch analysis of factors identified by means of principal component analysis combined with expert opinions (Gideon et al., 2016). Participants report the frequency of eating disorder symptoms in the past week using a response scale ranging from 0 (*0 days*) to 3 (*6–7 days*). The EDE-QS has demonstrated excellent internal consistency ($\alpha = .91$) and test retest reliability over 7 days (ICC = 0.93; Gideon et al., 2016). EDE-QS scores strongly correlate with original EDE-Q Global Scores ($r = .91$ for people without eating disorders; $r = .82$ for people with eating disorders; Gideon et al., 2016). A score of 15 had good sensitivity (0.83) and specificity (0.85) for predicting the presence of a self-reported eating disorder diagnosis (Prnjak et al., 2020).

2.3 | Data analyses

2.3.1 | Quantitative analysis

First, we examined the means of the COVID-19 pandemic impact variable separately by individual *DSM-5* mental health conditions. Classification of participants into diagnostic categories was based on whether the participant endorsed having symptoms or a diagnosis of a specific mental health condition from the list of common *DSM-5* mental health conditions and if they reported having experienced symptoms of that condition within the last year. Second, we statistically compared the impact of the COVID-19 pandemic on various categories of mental health conditions (i.e., anxiety disorders, mood disorders, eating disorders,

substance use disorders, OCD, PTSD, BPD, attention deficit hyperactive disorder; see Table 2 for diagnostic groups). Anxiety disorders included: agoraphobia, panic disorder, generalized anxiety disorder, social anxiety disorder, anxiety disorder-other; mood disorders included: major depressive disorder, bipolar disorder, and mood disorder-other; eating disorders included anorexia nervosa, bulimia nervosa, binge eating disorder, and eating disorder-other; and substance use disorders included alcohol use disorder and non-alcohol substance use disorder. Partially overlapping *t* tests, as outlined by Derrick et al. (2017), were used for these analyses due to the fact that many participants reported multiple mental health conditions, and this analysis accounts for the fact that there are both paired observations and independent observations in the analysis. Third, simple linear regressions were used to analyze whether specific COVID-19 factors (i.e., social support, days in social isolation, and information consumption) predicted a greater impact of the COVID-19 pandemic on symptoms of various mental health conditions.

TABLE 2 Prevalence of mental health conditions and impact of COVID-19 pandemic on symptoms

Mental health condition	n (%)	M (SD)
Anxiety disorders	295 (62.0%)	4.61 (1.78)
Agoraphobia	18 (3.8%)	3.56 (2.38)
Panic disorder	77 (16.1%)	3.88 (2.06)
Generalized anxiety disorder	276 (57.9%)	4.81 (1.77)
Social anxiety disorder	126 (26.4%)	3.77 (2.06)
Anxiety disorder-other	3 (0.6%)	5.00 (2.00)
Mood disorders	284 (60.0%)	4.28 (1.20)
Major depressive disorder	258 (54.1%)	4.41 (2.00)
Bipolar disorder	29 (6.1%)	3.25 (2.00)
Mood disorder-other	15 (3.1%)	3.80 (2.04)
Eating disorders	112 (23.4%)	3.98 (1.99)
Anorexia nervosa	72 (15.1%)	3.68 (2.03)
Bulimia nervosa	28 (5.9%)	3.65 (2.43)
Binge eating disorder	41 (8.6%)	4.40 (1.95)
Eating disorder-other	6 (1.3%)	5.67 (1.63)
Substance use disorders	28 (5.9%)	3.02 (2.03)
Alcohol use disorder	16 (3.4%)	2.5 (1.93)
Non-Alc substance use disorder	20 (4.2%)	3.5 (2.24)
Obsessive compulsive disorder	65 (13.6%)	4.61 (1.93)
Posttraumatic stress disorder	68 (14.7%)	3.34 (1.99)
Borderline personality disorder	28 (5.9%)	4.12 (1.91)
Attention deficit hyperactivity disorder	87 (18.2%)	4.09 (2.12)
Other	34 (0.6%)	4.11 (2.11)

Note: Means and SDs are from responses to the question "To what extent do you feel the COVID-19 pandemic has influenced your symptoms of [selected mental health condition]?" Participants were asked to rate their response from 1 (*not at all*) to 7 (*very much*).

2.3.2 | Thematic analysis

The thematic analysis included 444 (93.1%) participants who responded to the open-ended question. NVivo was used to assist with qualitative analysis. An inductive thematic approach was used to identify themes in the open-ended responses. A three-person committee, which consisted of the first author (A. E. M.), a doctoral student (A. M.), and an advanced research coordinator (V. T.), worked in several stages to code the data. Each committee member initially read all responses to become familiar with the data. Next, all members independently engaged in an initial coding process in which they evaluated the data in a line-by-line fashion and provided codes that identified notable concepts and key phrases. Each member independently reviewed the data again to try to group codes and identify overlap. Next, all initial codes were compiled and collaboratively analyzed to determine the most significant and/or frequent subthemes. The team met to identify significant and/or overlapping subthemes and to discuss discrepancies in the initial categorization. In cases of discrepancies, consensus was defined as at least two of three coders independently identifying a subtheme. In cases of discrepancy where only one coder identified a specific subtheme, but the other two coders did not identify this subtheme, the subtheme was removed. These subthemes were transformed into five broad themes via discussions with the larger research team.

3 | RESULTS

3.1 | Descriptive statistics

Descriptive statistics are presented in Table 1. A large proportion of the sample reported at least moderate symptoms of depression (67.9%), anxiety (49.2%), and stress (47.6%). Similarly, a large percentage (33.8%) reported symptoms consistent with a possible eating disorder based on EDE-QS scores. Alcohol and drug related issues measured by the PROMIS scales were less common: 30.7% and 72.0% of the sample denied consuming alcohol or drugs, respectively, over the previous 30-day period. Further, only 8.1% and 0.4% of the sample reported clinically significant alcohol and drug use problems, respectively, as indicated by *T* scores ≥ 60 .

Table 2 presents the prevalence of each mental health condition in the sample, as well as the self-reported impact of the COVID-19 pandemic on mental health symptoms by diagnosis. The most commonly reported mental health conditions were generalized anxiety disorder (57.9%) and major depressive disorder (54.1%). The mean scores for the impact of the COVID-19 pandemic on mental health symptoms generally indicated a moderate impact of the pandemic, as scores tended to center around 4 (1 = not at all impacted; 7 = very much impacted).

3.2 | Partially overlapping *t* tests

The results from the overlapping *t* tests comparing the impact of the COVID-19 pandemic on mental health symptoms are presented in Table 3. Individuals reported a greater impact of the COVID-19 pandemic on symptoms of anxiety disorders and OCD, as compared to symptoms of mood disorders, eating disorders, substance use disorders, and PTSD. Anxiety disorders were also associated with a greater COVID-19 pandemic impact than ADHD. No significant differences were found among the impact of the COVID-19 pandemic on symptoms of anxiety disorders, OCD, or BPD. Individuals reported a greater impact of the COVID-19 pandemic on symptoms of both mood disorders and eating disorders, as compared to symptoms of substance use disorders and PTSD. No significant differences were found among the impact of the COVID-19 pandemic on symptoms of mood disorders, eating disorders, BPD, or ADHD. Finally, individuals reported a greater impact of the COVID-19 pandemic on symptoms of BPD and ADHD, compared to symptoms of substance use disorders. ADHD was also associated with a greater COVID-19 pandemic impact than PTSD. No significant differences were found between the impact of the COVID-19 pandemic on symptoms of substance use disorders and PTSD.

3.3 | Linear regressions

The results for the linear regressions examining specific COVID-19 factors as predictors of the impact of the COVID-19 pandemic on mental health conditions are presented in Table 4. Less social support was related to a greater impact of the COVID-19 pandemic on mood disorder symptoms and PTSD symptoms, while more social support was related to a greater impact of the COVID-19 pandemic on substance use disorder symptoms. Number of days in social isolation was positively associated with the impact of the COVID-19 pandemic on symptoms of anxiety disorders, mood disorders, and eating disorders. Lastly, greater information consumption was associated with a greater impact of the COVID-19 pandemic on PTSD symptoms.

3.4 | Thematic analysis

3.4.1 | Qualitative themes

Qualitative analysis identified five broad themes, with each theme having between zero and six subthemes (see Table 5). Themes were described using the following labels: (1) COVID-19 Feeds Symptoms of Mental Health Conditions; (2) Life Interrupted; (3) Isolation; (4) Positives; (5) COVID-19: The Great Equalizer. The most frequently reported themes were Theme 1: COVID-19 Feeds Symptoms of Mental Health Conditions, followed by Theme 2: Life Interrupted.

Theme 1: COVID-19 feeds symptoms of mental health conditions

This theme included six subthemes, all of which revolved around the topic of COVID-19 causing a worsening in mental health symptoms. The six subthemes were: an increase in symptoms, full relapse/progress deterioration, healthy coping strategies unavailable, temporary relief due to avoidance, disruption in sleep, and issues with treatment. Comments that fell under this theme include:

My anxiety has become more extreme.... My anorexia nervosa has become even worse – largely due to practical issues obtaining food (e.g., can't drive, low income, price gouging), fears around obtaining food (fear of becoming infected and then being a carrier and infecting others) (subtheme: increase of symptoms).

COVID started only a month after I left live-in treatment, so I was still getting my bearings in terms of independent recovery, and COVID threw me for a huge loop (subtheme: full relapse/progress deterioration).

...Otherwise, my social anxiety has drastically decreased because I haven't been exposed to the outside world as much as I usually am. I expect a breakdown when things get back to normal (subtheme: temporary relief due to avoidance).

Theme 2: Life interrupted

This theme included five main subthemes, all of which revolved around feelings towards the COVID-19 pandemic and how it has interfered with regular life. The five main subthemes were: COVID-19 anxiety, hopeless/purposeless/helpless, poor concentration/productivity, existential/big picture, and news. Example comments that fell under this theme include:

TABLE 3 Overlapping samples *t* tests comparing the COVID-19 pandemic impact on mental health symptoms conditions

Mental health conditions compared	<i>t</i> (df)	<i>p</i>
<i>Anxiety disorders</i>	-	-
Anxiety Disorders versus Mood Disorders	2.47 (332)	.01
Anxiety Disorders versus Eating Disorders	3.22 (304)	<.001
Anxiety Disorders versus Substance Disorders	4.59 (289)	<.001
Anxiety Disorders versus Obsessive Compulsive Disorder	-0.05 (285)	0.96
Anxiety Disorders versus Posttraumatic Stress Disorder	5.47 (284)	<.001
Anxiety Disorders versus Borderline Personality Disorder	1.48 (289)	.14
Anxiety Disorders versus Attention Deficit Hyperactive Disorder	2.17 (295)	.03
<i>Mood disorders</i>	-	-
Mood Disorders versus Eating Disorders	1.43 (277)	.15
Mood Disorders versus Substance Disorders	3.19 (274)	<.001
Mood Disorders versus Obsessive Compulsive Disorder	-8.80 (277)	<.001
Mood Disorders versus Posttraumatic Stress Disorder	3.82 (261)	<.001
Mood Disorders versus Borderline Personality Disorder	0.46 (269)	.65
Mood Disorders versus Attention Deficit Hyperactive Disorder	0.79 (277)	.43
<i>Eating disorders</i>	-	-
Eating Disorders versus Substance Disorders	2.31 (123)	.02
Eating Disorders versus Obsessive Compulsive Disorder	-2.13 (140)	.03
Eating Disorders versus Posttraumatic Stress Disorder	2.15 (136)	.03
Eating Disorders versus Borderline Personality Disorder	-0.31 (113)	.76
Eating Disorders versus Attention Deficit Hyperactive Disorder	-0.36 (147)	.72
<i>Substance disorders</i>	-	-
Substance Disorders versus Obsessive Compulsive Disorder	-3.48 (74)	<.001
Substance Disorders versus Posttraumatic Stress Disorder	-0.71 (83)	.48
Substance Disorders versus Borderline Personality Disorder	-2.14 (45)	.04
Substance Disorders versus Attention Deficit Hyperactive Disorder	-2.26 (80)	.03
<i>Obsessive compulsive disorder</i>	-	-
Obsessive Compulsive Disorder versus Posttraumatic Stress Disorder	4.07 (106)	<.001
Obsessive Compulsive Disorder versus Borderline Personality Disorder	1.68 (76)	.10
Obsessive Compulsive Disorder versus Attention Deficit Hyperactive Disorder	1.49 (112)	.14
<i>Posttraumatic stress disorder</i>	-	-
Posttraumatic Stress Disorder versus Borderline Personality Disorder	-1.88 (78)	.06
Posttraumatic Stress Disorder versus Attention Deficit Hyperactive Disorder	-2.27 (99)	.03

(Continues)

TABLE 3 (Continued)

Mental health conditions compared	t (df)	p
<i>Borderline personality disorder</i>	-	-
Borderline Personality Disorder versus Attention Deficit Hyperactive Disorder	0.21 (85)	.83
<i>Attention deficit hyperactive disorder</i>	-	-

Note: t test results are presented as positive if the disorder listed first was more impacted by the COVID-19 pandemic than the disorder listed second, whereas a negative t test reflects a greater impact of the COVID-19 pandemic on the second compared to the first disorder listed.

TABLE 4 Linear regressions examining specific COVID-19 pandemic factors as predictors of the impact of the COVID-19 pandemic on mental health

Predictors	Dependent variables	b (SE)	β	p
Social support	Anxiety disorders	-0.02 (.06)	-0.02	.69
	Mood disorders	-0.19 (.07)	-0.17	.01
	Eating disorders	-0.01 (.10)	-0.01	.92
	Substance use disorders	0.63 (.16)	0.61	<.001
	Obsessive compulsive disorder	0.06 (.14)	0.06	.67
	Posttraumatic stress disorder	-0.38 (.11)	-0.38	<.001
	Borderline personality disorder	0.14 (.17)	0.16	.44
Number of days in isolation	Attention deficit hyperactive disorder	-0.11 (.13)	-0.11	.40
	Anxiety disorders	0.02 (.01)	0.15	.04
	Mood disorders	0.03 (.01)	0.17	.03
	Eating disorders	0.04 (.02)	0.24	.04
	Substance use disorders	0.02 (.04)	0.10	.71
	Obsessive compulsive disorder	0.02 (.03)	0.10	.53
	Posttraumatic stress disorder	0.03 (.02)	0.26	.10
Information consumption	Borderline personality disorder	0.02 (.02)	0.26	.28
	Attention deficit hyperactive disorder	0.01 (.03)	0.05	.76
	Anxiety disorders	0.06 (.07)	0.05	.36
	Mood disorders	0.12 (.08)	0.09	.12
	Eating disorders	0.10 (.12)	0.78	.42
	Substance use disorders	-0.26 (.28)	-0.18	.36
	Obsessive compulsive disorder	0.14 (.16)	0.11	.38
Posttraumatic stress disorder	0.43 (.15)	0.33	<.001	
Borderline personality disorder	Attention deficit hyperactive disorder	0.28 (.22)	0.25	.21
	Attention deficit hyperactive disorder	-0.05 (.18)	-0.04	.77

Note: Numbers in bold indicate significant relationship.

TABLE 5 Thematic analysis examining the impact of the COVID-19 pandemic on the mental health of individuals with pre-existing mental health conditions

Broad theme	Subthemes	Description of subtheme	Frequency n (%)
Theme 1: COVID-19 pandemic feeds symptoms of mental health conditions	Increase in symptoms	Responses related to an increase or worsening of symptoms of a certain mental health condition	237 (53.0%)
	Full Relapse/Progress deterioration	Responses related to a complete relapse or major deterioration in one's recovery of mental health condition	43 (9.7%)
	Healthy coping strategies unavailable	Responses related to a particular helpful coping strategy for mental health being currently unavailable or only having unhealthy coping mechanisms available	43 (9.7%)
	Temporary relief due to avoidance	Responses related to feeling temporarily better due to being able to avoid triggers or situations that usually make mental health condition worse	39 (8.7%)
	Disruption in sleep	Responses related to a negative change in sleeping habits	34 (7.7%)
	Issues with treatment	Responses related to not having access to a mental health therapist or disliking virtual therapy	18 (4.1%)
Theme 2: life interrupted	COVID Anxiety	Responses related to participant being anxious about COVID related outcomes (e.g., getting sick, losing one's job due to the pandemic, grocery shopping, etc.)	131 (29.5%)
	Hopeless/Purposeless/Helpless	Responses related to an increase in feelings of hopelessness, purposelessness, or helplessness	37 (8.3%)
	Poor concentration/productivity	Responses related to participant reporting lower ability to concentrate or to be productive	30 (6.8%)
	Existential/Big Picture	Responses related to COVID-19 leading to more existential or big picture concerns about life (e.g., questioning life's purpose, anxious about state of the world)	18 (4.1%)
	News	Responses related to the news and media (e.g., obsession with refreshing news)	11 (2.5%)
Theme 3: isolation	Loneliness	Responses related to an increase in feelings of loneliness	55 (12.4%)
	Missing social interaction	Responses related to missing social interactions such as seeing friends, going out, certain social activities	41 (9.2%)

(Continues)

TABLE 5 (Continued)

Broad theme	Subthemes	Description of subtheme	Frequency n (%)
	Issues with social support	Responses related to difficulties with social support during this time and issues within the social isolation pod	24 (5.4%)
	Feeling "Cooped up"	Responses related to feeling trapped, "cooped up," or having cabin fever	11 (2.5%)
Theme 4: the COVID-19 pandemic positives	More time for hobbies/positive activities	Responses related to participant being able to engage in more hobbies, self-care, and positive activities	68 (15.3%)
	More time for loved ones	Responses related to participant being able to spend more time with loved ones	47 (10.6%)
	Enjoying the slow down	Responses related to participant enjoying the slow down or break in regular routine	30 (6.8%)
	Gratitude	Responses related to expressing gratitude	16 (3.6%)
	Resiliency	Responses related to participant adjusting or managing better than they expected	21 (4.7%)
Theme 5: COVID-19 pandemic: the great equalizer	COVID the great equalizer	Responses related to COVID-19 bringing people together or on the same "playing field"	20 (4.5%)

Negative impact would be the constant feeling of guilt and nervousness on how to be careful around people and the thought that the end to the pandemic is unknown (subtheme: COVID-19 anxiety).

The disruption of my routine has been most difficult—not having a specific place to go each day during the week (subtheme: hopeless/purposeless/helpless).

I find myself more existential than usual, questioning my purpose in life (and of life in general—not in a depressed/suicidal way, just in a general way) (subtheme: existential/big picture).

Theme 3: Isolation

This theme included four main subthemes, all of which revolved around feelings of loneliness and isolation. The four main subthemes were: loneliness, missing social interaction, issues with social support, and feeling "cooped up." Example comments that fell under this theme include:

I'm feeling left out. Alone. Really alone (subtheme: loneliness).

However, I miss the interactions I have with others, including friends. There is only so much that can be done when those that I usually meet up with in person are made to talk only online (subtheme: missing social interaction).

Theme 4: Positives

This theme included five main subthemes, all of which revolved around positive responses to the COVID-19 pandemic. The five main subthemes were: more time for hobbies/positive activities, more time for loved ones, enjoying the slow down, gratitude, and resiliency. Example comments that fell under this theme include:

The pandemic has allowed me the space to really take care of myself in ways that I didn't have the time for before. I'm finally on a regular sleeping schedule, which I couldn't figure out with in person classes. I'm eating normally and exercising (subtheme: more time for hobbies/positive activities).

Positive in that my partner and I have reconnected and spent more time together... (subtheme: more time for loved ones).

I am lucky that I live a privileged life and that I have not had to worry about money or safety. I still receive my salary, and I have a loving and supportive network of family and friends (subtheme: gratitude).

Theme 5: COVID the great equalizer

There were no subthemes for this theme. This theme included responses related to how the COVID-19 pandemic has brought everyone to an 'equal playing field.' This is to say that the COVID-19 pandemic has increased anxiety and stress in the general population, making struggles of individuals with mental health conditions feel more normal. Example comments that fell under this theme include:

Well I have always self-isolated and always felt the way that everyone is feeling now. So now I feel more normal.

I feel like everyone else is now on the same level as me being stressed about everything. My anxiety has increased a little bit, but suddenly feels validated due to everyone's anxiety of what's to come. Nobody is telling me to calm down or stop thinking about what's making me anxious, now everyone seems to understand it so it actually seems to help.

4 | DISCUSSION

The broad goal of this study was to examine how the COVID-19 pandemic has impacted the psychological health of individuals with pre-existing mental health conditions using both quantitative and qualitative methods. First, we explored whether individuals with self-identified mental health conditions reported a worsening of their symptoms during the COVID-19 pandemic, and whether degree of symptom worsening differed by diagnostic category. Based on participant's reports, all mental health conditions were moderately impacted by the COVID-19 pandemic. This is consistent with other studies conducted during the COVID-19 pandemic that found a worsening of psychological symptoms of many of the mental health conditions examined in the current study (Asmundson et al., 2020; Ettman et al., 2020; Schlegl et al., 2020). While individuals with all mental health conditions reported a perceived impact of the COVID-19 pandemic, anxiety disorders and OCD were the mental health conditions associated with the greatest degree of self-reported symptom worsening, as compared to mood disorders, eating disorders, substance use disorders, PTSD, and ADHD. Consistent with our findings, Asmundson et al. (2020) found that individuals with anxiety disorders reported significantly higher scores on COVID-19 stress scales compared to individuals with

mood disorders. While no study to our knowledge has compared OCD symptoms to other mental health condition symptoms in the time of COVID-19, Davide et al. (2020) found a significant increase in OCD symptoms from before the beginning of the COVID-19 pandemic to six-weeks after the beginning of complete lockdown. With the many unknowns that accompany the COVID-19 pandemic (e.g., when the pandemic will end, the uncertainty about the economy, questions about the COVID-19 virus itself), it is not surprising that anxiety disorders, characterized by an intolerance of uncertainty, would be strongly affected by this pandemic. Similarly, the focus on disease transmission and hand hygiene are likely to be particularly salient to individuals with the common subtype of OCD that involves contamination obsessions and washing/cleaning compulsions.

The second goal of the study was to investigate whether certain COVID-19-related situational factors (i.e., degree of social support, days of social distancing, information consumption) were associated with perceived impact of the COVID-19 pandemic on mental health symptoms. People with mood disorders and PTSD who reported having a strong social support network reported experiencing less of an impact of the COVID-19 pandemic on their mental health condition symptoms. However, having a strong social support was associated with a greater perceived impact of the COVID-19 pandemic on substance use disorder symptoms. People with substance use disorders are often surrounded by people who also use substances (Valente et al., 2004). Whether in person or virtual, spending time with others who are also using alcohol and drugs to cope with the COVID-19 pandemic may increase one's own substance use symptoms. The number of days one had engaged in social distancing was significantly related to a greater perceived impact of the COVID-19 pandemic on symptoms of anxiety disorders, mood disorders, and eating disorders. Some studies have found similar results (e.g., Pancani et al., 2021), whereas others have found no relationship between number of days in isolation and negative mental health indicators (i.e., depression, anxiety, loneliness, and stress; Gonçalves et al., 2020). Peer relationship quality has been found to buffer against anxiety disorders, depression, and eating disorders, and it may be that the longer someone goes without quality relationships, the worse these symptoms get (Gerner & Wilson, 2005; Moreira et al., 2016). Lastly, the frequency with which one consumed news related to the COVID-19 pandemic was only significantly related to the perceived impact of the COVID-19 pandemic on PTSD symptoms. Research has found that those with PTSD watch more television in general than those without PTSD (Jung et al., 2019). Additionally, Steinback et al. (2020) found that greater news consumption related to COVID-19 was associated with greater psychological distress, with 67% of this effect explained by increased perceptions of COVID-19 threats to health and economic well-being. It is possible that individuals with PTSD not only consume more media related to COVID-19 than others, but that they are also more sensitive to potential major threats publicized through the news due to their past experience with major stressors and traumas.

Lastly, we conducted a qualitative thematic analysis of responses to an open-ended question asking about the impact, both positive and negative, of the COVID-19 pandemic on people's psychological health. The results demonstrated the multiple ways in which the COVID-19 pandemic has impacted individuals with pre-existing mental health conditions. Consistent with our quantitative results, the most commonly endorsed theme was a self-reported increase or worsening of symptoms of a mental health condition. This finding can be further explained by many of the subthemes discussed within this theme, such as healthy coping strategies being unavailable during the COVID-19 pandemic and no longer having access to a therapist or not enjoying virtual therapy. Effective coping strategies and proper treatment for mental health conditions are both key factors in improving the lives of individuals living with mental health conditions. The fact that these protective factors were significantly disrupted during the COVID-19 pandemic may partially explain the reported worsening of mental health symptoms. Interestingly, some participants discussed a temporary alleviation of distress by being able to avoid triggers or situations via the lockdown that usually cause anxiety or worsen their mental health symptoms. Indeed, avoidance of feared stimuli or situations is a core symptom of many anxiety disorders (American Psychiatric Association, 2013). Unfortunately, while avoidance may provide short term relief, exposure to uncomfortable situations is key for the improvement of most anxiety disorders (Abramowitz et al., 2019). It may be that, when the COVID-19 pandemic restrictions are released, symptoms re-emerge at a more severe level than before. Clinicians should be prepared for

a potential new wave of patients once the pandemic restrictions are lifted and individuals are once more confronted with many of their past triggers.

Another commonly reported theme from the thematic analysis related to regular life being interrupted by the COVID-19 pandemic. Participants discussed being afraid of the several negative and stressful outcomes of this pandemic, such as losing one's job, becoming ill, or spreading the virus that causes COVID-19 to someone else who then becomes extremely ill. Sadly, many of these responses reflect the reality of the current COVID-19 situation. In Canada, where the majority of our sample resided, 38% of businesses have laid off over 10% of their employees due to the COVID-19 pandemic (Statistics Canada, 2020). Further, our sample was young on average (mean age of 28.2 years), and while young people may have less anxiety than an older sample about becoming extremely ill with COVID-19, participants expressed fears of spreading the virus to their older relatives. Participants also frequently reported an increase in feelings of hopelessness, purposelessness, and helplessness, as well as an increase in difficulty with concentration and productivity. Feeling hope and purpose in one's life has been linked to positive mental health outcomes (Bonab et al., 2007), and it is likely that a worsening of these feelings caused by the pandemic aggravates symptoms of mental health conditions. Similarly, loneliness was a common theme discussed in the open-ended responses and has also emerged as being a significant predictor of mental health outcomes during the COVID-19 pandemic (Killgore et al., 2020; Okruszek et al., 2020; Palgi et al., 2020; Racine et al., 2020).

On a more positive note, there were responses that described positive impacts of the COVID-19 pandemic for mental health, such as having more time for hobbies and positive activities, as well as spending more time with loved ones. While the COVID-19 pandemic has brought many negative consequences, people have also felt that the restrictions have allowed them to take a break from their usual routines and focus on hobbies they may have not had time to engage in pre-pandemic. For people with mental health conditions, having more time to focus on self-care and engage in basic health behaviors, such as relaxation, sleep, and regular eating, may have substantial benefits for mental health symptoms. Lastly, another interesting "positive" of the COVID-19 pandemic reported by a minority of our sample was the idea that, due to the increase in anxiety and stress in the general population resulting from the COVID-19 pandemic, some individuals with pre-existing mental health conditions felt more understood by the rest of the world. Specifically, participants expressed that they felt validated now that their anxieties were shared and accepted. The stigma related to mental health conditions may decrease with governments and organizations placing a strong focus on mental health during the COVID-19 pandemic and normalizing talking about shared fears during this period of unknown.

This study had many strengths, including a large sample size and the use of both quantitative and qualitative methods. However, findings should be considered in the context of several limitations. First, this online study examined individuals with self-identified mental health conditions, and diagnoses were not confirmed via clinical interviews. While this is common practice in large online studies, it is important to consider that individuals may under- or over-diagnose mental health conditions depending on their own personal contexts. Second, while this study attempted to recruit a global sample of adults, our participants mostly resided in North America (86.8%) and mostly identified as White (83.6%). This is important to consider as different countries have been differentially affected by the COVID-19 pandemic. Further, racialized individuals have been disproportionately affected by the COVID-19 pandemic, as many of the most risky and stressful frontline jobs are occupied by racial/ethnic minorities (Bowleg, 2020). Moreover, racialized communities often receive poorer medical attention/treatment and are less likely to have access to health care services, increasing their risk of suffering from serious consequences of COVID-19 (Aeligne et al., 2021; Louis-Jean et al., 2020). Additionally, racialized individuals often do not have access to affordable psychological services. The combination of the increased physical health risks of COVID-19 and the decreased mental health support faced by minority individuals likely put them at an even greater risk for increased psychological distress and suffering.

While general online forums, organizations related to psychiatric disorders, and organizations for under-represented minorities were used to recruit participants, participants for this study also included those recruited via the social media pages of the authors and subsequent snowball sampling. This may have led to an

overrepresentation of highly educated, wealthy, white participants and thus, findings may not be representative of individuals from different communities and socioeconomic backgrounds. Similarly, the sample included a higher than typical percentage of LGBTQ+ participants, with over 40% of our sample identifying as nonheterosexual versus 12% of the general population. While this can be considered a strength of our study, our results may not generalize to the broader population due to the high percentage of bi- and pansexual participants. However, the study demographics allow for investigation of these phenomenon among sexual minority participants, an at-risk population, while remaining largely heterosexual and therefore relevant to the general population.

The COVID-19 pandemic is currently ongoing, with many countries experiencing a third or fourth wave of infection and lockdown. Data collection for this study was complete by the end of June 2020, but as the pandemic continues to progress and the duration of lockdown increases, different factors may influence severity of mental health symptoms. Lastly, our study was cross-sectional, and while participants reported their perceived change in their mental health symptoms due to the COVID-19 pandemic, we cannot confirm that any symptom worsening was indeed caused by the pandemic. Studies that are able to investigate change in mental health condition symptoms from pre- to post-pandemic are needed to understand the objective degree of symptom worsening associated with this global event.

Findings highlight a significant perceived impact of the COVID-19 pandemic on individuals with mental health conditions, particularly those with anxiety disorders and OCD. Both quantitative and qualitative analyses clearly indicate that individuals with pre-existing mental health conditions have experienced a perceived worsening of symptoms throughout the COVID-19 pandemic, as well as feelings of loneliness and anxieties related to pandemic stress. These findings have important implications, as individuals with pre-existing mental health conditions require psychosocial interventions now more than ever. Education and training on brief interventions and mental health support should be provided to various types of professionals (e.g., medical professionals, teachers, etc.) to reach more people and properly support individuals with mental health conditions during this time. Further, due to a high demand for treatment and not enough treatment resources, governments and organizations should be working to provide resources and implement virtual therapy options that are available for mass audiences.

PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1002/jclp.23250>

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in OSF at <https://doi.org/10.17605/OSF.IO/BE5ZY>

ORCID

Sarah E. Racine  <http://orcid.org/0000-0002-2700-4031>

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