

**Exploring Which Anxiety-Related Disorder Symptoms and Mechanisms are Associated
with COVID-19 Anxiety**

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Abstract

In the wake of the COVID-19 pandemic, a rise in anxiety has been reported among the population. This rise coincides with the introduction of COVID-19 anxiety, which is the fear and emotional distress caused by the COVID-19 pandemic. Previous research has found an association between COVID-19 anxiety and symptoms of health anxiety, panic disorder, and obsessive-compulsive disorder. COVID-19 anxiety has also been associated with mechanisms such as anxiety sensitivity, maladaptive metacognitions, intolerance of uncertainty, and the emotion of disgust. In the current study, self-report questionnaires were used to examine which anxiety-related disorder symptoms, and related mechanisms, were associated with COVID-19 anxiety. A total of 593 MacEwan students completed the study between September 2020 and February 2021. A set of regression analyses examined which anxiety-related disorder symptoms were uniquely associated with COVID-19 anxiety. The two symptoms most associated with COVID-19 anxiety were health anxiety and obsessive-compulsive disorder symptoms. When examining the anxiety-related mechanisms, a second set of regression analyses identified disgust sensitivity and health anxiety-specific intolerance of uncertainty as having the strongest association with COVID-19 anxiety. Based on these findings, clinicians may wish to screen for COVID-19 anxiety in clients experiencing health anxiety, obsessive-compulsive, or panic disorder symptoms. Lastly, clinicians may find it helpful to target the clients' responses to feelings of disgust, and their health anxiety-specific intolerance of uncertainty, when working with clients experiencing high levels of COVID-19 anxiety.

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List of Abbreviations

ASI-3	Anxiety Sensitivity Index-3
ASI-C	Anxiety Sensitivity Index-Cognitive Concerns
ASI-P	Anxiety Sensitivity Index-Physical Concerns
ASI-S	Anxiety Sensitivity Index-Social Concerns
CAS	Coronavirus Anxiety Scale
CSS	COVID Stress Scale
C19P-S	Coronavirus 19 Phobia Scale
DPSS-R	Disgust Propensity and Sensitivity Scale-Revised
DPSS-DP	Disgust Propensity and Sensitivity Scale-Revised-Disgust Propensity
DPSS-DS	Disgust Propensity and Sensitivity Scale-Revised-Disgust Sensitivity
DSIU	Disorder-Specific Intolerance of Uncertainty Scales
DSIU-GAD	Disorder-Specific Intolerance of Uncertainty Scales-Generalized Anxiety Disorder
DSIU-HA	Disorder-Specific Intolerance of Uncertainty Scales-Health Anxiety
DSIU-MDD	Disorder-Specific Intolerance of Uncertainty Scales-Depression
DSIU-OCD	Disorder-Specific Intolerance of Uncertainty Scales-Obsessive-Compulsive Disorder
DSIU-PD	Disorder-Specific Intolerance of Uncertainty Scales-Panic Disorder
DSIU-PTSD	Disorder-Specific Intolerance of Uncertainty Scales-Post-Traumatic Stress Disorder
DSIU-SAD	Disorder-Specific Intolerance of Uncertainty Scales-Social Anxiety Disorder
DSIU-SP	Disorder-Specific Intolerance of Uncertainty Scales-Specific Phobia

FCV-19S	Fear of Coronavirus Scale
GAD-7	Generalized Anxiety Disorder-7
INF	Infrequency Measure
MCQ-HA	Metacognition Questionnaire-Health Anxiety
MCQ-BT	Metacognition Questionnaire-Health Anxiety-Biased Thinking
MCQ-I	Metacognition Questionnaire-Health Anxiety-Illness Beliefs
MCQ-U	Metacognition Questionnaire-Health Anxiety-Uncontrollability
OCI-R	Obsessive-Compulsive Inventory-Revised
PDSS	Panic Disorder Severity Scale-Self Report
PHQ-15	Patient Health Questionnaire
SIAS	Social Interaction Anxiety Scale
SHAI	Short Health Anxiety Index
SPS	Social Phobia Scale

Exploring Which Anxiety-Related Disorder Symptoms and Mechanisms are Associated with COVID-19 Anxiety

COVID-19 Anxiety

COVID-19 is a highly contagious virus that was first identified in China in late 2019. Since then, COVID-19 has spread globally, creating an international health crisis. The effects of the COVID-19 pandemics can be seen in the medical and health field, as well as the world's sociopolitical and economic climates. Despite the development of various vaccines and improvements in treatment, the virus continues to cause challenges for many countries' medical systems. As of March 2022, there have been more than 466 million cases of COVID-19 reported, and the virus has caused approximately 6.07 million deaths worldwide (Ritchie et al., 2020). In addition, variants of the virus have been identified which cause continued concern for the general public. (Taylor, 2019). The ever-changing nature of the pandemic has caused individuals to feel anxiety and worry as the future remains uncertain.

From the beginning of the pandemic, researchers have explored anxiety in relation to the COVID-19. A study of New Jersey university students conducted in April and May of 2020 found that approximately half reported clinically elevated health anxiety and generalized anxiety levels associated with the COVID-19 pandemic (Kibbey et al., 2021). In a sample of 4,379 students in Italy that measured state and trait anxiety levels during COVID-19 lockdowns, approximately 50% of participants with low trait anxiety had high state anxiety during the lockdown (Busetta et al., 2021). Additionally, of the individual who reported high trait anxiety, 60% reported elevated state anxiety (Busetta et al., 2021). Tull et al. (2020) found that individuals who reported a more significant impact on their lives attributable to COVID-19 reported greater anxiety and worry. These findings have further sparked researchers to explore

anxiety attributed to the COVID-19 pandemic. Specifically, researchers have sought to explore COVID-19 anxiety, which is the fear and emotional distress caused by the COVID-19 pandemic (Lee, 2020; Nikčević & Spada, 2020).

Though COVID-19 anxiety research is a relatively new field, previous studies have examined pandemics and their effects on populations. Wheaton et al. (2012) found that during the H1N1 pandemic, health anxiety and disgust sensitivity were significantly associated with H1N1-related anxiety. Similarly, obsessive-compulsive disorder symptoms were found to be associated with fear of the H1N1 virus, and this relationship was mediated by both disgust sensitivity and anxiety sensitivity (Brand et al., 2013). Additionally, fear of the Ebola virus was correlated with disgust sensitivity and anxiety sensitivity (Blakey et al., 2015), both beliefs contributing to anxiety disorders. Intolerance of uncertainty has also been associated with individuals feeling anxious about the threat of a virus and the potential of contracting it (Taha et al., 2014). While these specific mechanisms will be explored in more detail later, it is clear that anxiety-related disorder symptoms and mechanisms have been associated with fear of prior diseases and viruses that have gained popular recognition.

Multiple scales have been developed to measure COVID-19 anxiety. Four scales of note were developed during the early stages of the pandemic and have been widely used: the COVID Stress Scale (CSS; Taylor et al., 2020), the Coronavirus Anxiety Scale (CAS; Lee, 2020), the Coronavirus 19 Phobia Scale (C19P-S; Arpaci et al., 2020) and the Fear of Coronavirus Scale (FCV-19S; Ahorsu et al., 2020). A review of COVID-19 anxiety scales found that all of these four scales are of good quality and psychometrically sound (Panteleimon et al., 2021). It is important to note that researchers have found that not all measures of COVID-19 anxiety that have been created measure the same aspects of COVID-19 anxiety (Mertens et al., 2021). Each

of the measures created had different conceptualizations of what matters in the measurement of COVID-19 anxiety. For example, the CSS measures six different facets that contribute to COVID-19 anxiety such as fear of contracting the virus, compulsive checking, and traumatic stress. In comparison, the FCV-19S measures the self-reported body responses and fearful thoughts that are connected to COVID-19. While few studies have included multiple COVID-19 anxiety measures, the CSS has been found to be strongly correlated with the FCV-19S and the C19P-S (Khosravani et al., 2021). The differences between these scales merit using multiple scales when examining COVID-19 anxiety and the need for further research regarding these instruments.

Despite the large amount of research being conducted on various aspects of COVID-19, there has been limited attempts to determine if specific anxiety-related disorders, or the specific mechanisms that underlie these disorders, are uniquely associated with COVID-19 anxiety. The present study explored if COVID-19 anxiety is associated with symptoms of specific anxiety-related disorders. In addition, the study explored the relationship COVID-19 anxiety has with specific anxiety-related mechanisms.

COVID-19 Anxiety and Anxiety-Related Disorders

Multiple research teams have been exploring the relationship between COVID-19 and various aspects of anxiety. Asmundson et al. (2020) surveyed a large sample of 700 participants with self-reported anxiety disorder diagnoses. They found that individuals with a pre-existing anxiety disorder were higher in COVID-19 anxiety compared to those with a mood disorder diagnosis or no diagnosis. A follow-up to this study using the same methodology collected data from two different samples, taken at different times, of 649 and 657 participants with self-reported anxiety disorder diagnoses (Asmundson et al., 2022). The study found that those with

an anxiety-related diagnosis reported higher levels of anxiety throughout the pandemic compared to those with a self-reported mood disorder diagnosis or no diagnosis. Additionally, using a clinical sample of 610 participants, it was found that individuals with generalized anxiety disorder, panic disorder, or obsessive-compulsive disorder have a higher stress reaction to COVID-19 than individuals diagnosed with other anxiety-related disorders (Khosravani et al., 2021). Though limited research has directly explored COVID-19 anxiety in relation to social anxiety, individuals with social anxiety have been found to be experiencing unique stressors related to the pandemic (Saint & Moscovitch, 2021).

Health anxiety has been studied thoroughly in previous pandemics and continues to be thought of as a major contributor to various aspects of pandemic behaviour (Taylor, 2019). Using a large non-clinical sample of 1,615 participants, Jungmann and Witthöft (2020) found that health anxiety was associated with heightened COVID-19 anxiety. In a multinational sample, Mertens et al. (2020) also found that health anxiety was strongly associated with COVID-19 anxiety. The relationship between health anxiety and COVID-19 anxiety was still found when other factors such as intolerance of uncertainty and general worry were included in the analysis (Mertens et al., 2020). Researchers continue to spotlight health anxiety as a unique predictor of COVID-19 anxiety (Warren et al., 2021). In addition, the relationship between COVID-19 anxiety and health anxiety has been shown to be mediated by various factors, such as metacognitions, intolerance of uncertainty, and emotional regulation (Akbari et al., 2021). Despite these mediating relationships, health anxiety has been thought of as the most prominent contributing anxiety-related symptoms associated with COVID-19 anxiety (Kibbey et al., 2021).

In addition to health anxiety, obsessive-compulsive disorder symptoms have been consistently associated with COVID-19 anxiety. A recent six-month longitudinal study found

that obsessive-compulsive disorder symptoms predicted COVID-19 anxiety consistently during the study (Meşterelu et al., 2021). In a recent meta-review, Grant et al. (2021) found that many obsessive-compulsive patients experienced worse symptoms during the pandemic. Specifically, contamination fears and washing behaviours were associated with worsening symptoms. In addition, Grant et al. (2021) found that obsessive-compulsive symptoms in the general population were related to an increase in COVID-19 related stress.

Given the preoccupation with becoming ill found in individuals with excessive health anxiety, and the heightened fears of becoming contaminated by unseen pathogens found in many individuals with obsessive-compulsive disorder (American Psychiatric Association, 2013), it is not surprising that individuals experiencing symptoms of health anxiety and obsessive-compulsive disorder would be particularly prone to COVID-19 anxiety. Based on both the theoretical associations and the existing literature, it was anticipated that health anxiety symptoms and obsessive-compulsive disorder symptoms would have the strongest unique associations with COVID-19.

COVID-19 Anxiety and Anxiety-Related Mechanisms

In addition to exploring what symptoms are associated with COVID-19 anxiety, researchers have also been examining the specific mechanisms that may contribute to the development and maintenance of COVID-19 anxiety. Some of the anxiety-related mechanisms that have been explored in relation to the COVID-19 anxiety include anxiety sensitivity, disgust sensitivity and propensity, metacognitions, and intolerance of uncertainty.

Anxiety sensitivity is the belief that anxiety symptoms will cause harm to the individual experiencing them (Reiss et al., 1986). It is characterized by the fear of bodily symptoms of anxiety, fear of the loss of cognitive control due to anxiety, and fear of being observed as

experiencing anxiety (Taylor et al., 2007). Anxiety sensitivity has been established as a transdiagnostic factor that influences a wide range of anxiety-related disorders (Taylor et al., 2007). As expected, researchers have found that anxiety sensitivity is associated with COVID-19 fear (Hashemi et al., 2020; Warren et al., 2021). In particular, the physical concerns aspect of anxiety sensitivity (i.e., the fear of bodily symptoms) has been associated with the highest degree of COVID-19 anxiety (Ojalehto et al., 2021; Paluszec et al., 2021; Warren et al., 2021).

Disgust is the emotional response to something unpleasant (Olatunji et al., 2007a). In anxiety disorder-related research, disgust is most often measured using two constructs: disgust propensity and disgust sensitivity. Disgust propensity is the frequency that someone experiences the emotion, while disgust sensitivity is the emotional response that occurs when the individual experiences disgust (Olatunji et al., 2007a). Like anxiety sensitivity, disgust appears to be a transdiagnostic factor that influences various anxiety-related symptoms (Olatunji et al., 2007a). McKay et al. (2020), using a sample of 908 Chinese adults, found that disgust correlated with COVID-19 fear. In a sample of 347 undergraduate participants, it was also found that disgust correlates with COVID-19 fear (Waqas et al., 2020). Additionally, researchers have found that disgust sensitivity and propensity moderated the relationship between anxiety sensitivity and COVID-19 anxiety (McKay et al., 2020; Paluszec et al., 2021).

Metacognitive beliefs are a group of dysfunctional beliefs related to how thoughts are interpreted, controlled, and modified (Wells & Cartwright-Hatton, 2004). Several general, and disorder-specific, maladaptive metacognitive beliefs appear to be significant contributors to generalized anxiety disorder, obsessive-compulsive disorder, social anxiety disorder, and health anxiety (Bailey & Wells, 2016; Grøtte et al., 2016; Nordahl et al., 2017; Penney et al., 2020). Using a measure of general maladaptive metacognitive beliefs, Aydin et al. (2021) had 862

nonclinical participants report their emotional states related to COVID-19. In the study, they found that COVID-19 anxiety was associated with the metacognitive belief that worries are uncontrollable and dangerous and with the metacognitive belief that the individual is constantly aware of their own thoughts (Aydin et al., 2021). While this study establishes a connection between maladaptive metacognitions and COVID-19 anxiety, it is reasonable to expect that maladaptive metacognitions specific to health anxiety (Bailey & Wells, 2015) would have the strongest association with COVID-19 anxiety.

Lastly, intolerance of uncertainty is a transdiagnostic mechanism that is defined as "an individual's dispositional incapacity to endure the aversive response triggered by the perceived absence of salient, key, or sufficient information, and sustained by the associated perception of uncertainty" (Carleton, 2016, p. 31). Unsurprisingly, intolerance of uncertainty was associated with COVID-19 anxiety in a study using a nonclinical sample of 960 participants (Bakioğlu et al., 2020). In a study using 1772 participants looking at mental wellbeing during the pandemic, they also found that intolerance of uncertainty was associated with COVID-19 anxiety (Satici et al., 2020). Additionally, intolerance of uncertainty has been found to be associated with the fear of COVID-19 spreading in the population (Wheaton et al., 2021). However, like metacognitive beliefs, disorder-specific conceptualizations and measures of intolerance of uncertainty have been established (Thibodeau et al., 2015). It's proposed that health anxiety-specific intolerance of uncertainty would have the strongest association with COVID-19 anxiety.

To date, no study has examined all of these potential anxiety-related mechanisms concurrently in a study of COVID-19 anxiety. Though previous research has looked at many of these variables in relation to COVID-19 anxiety, there has not been a significant effort to provide an inclusive analysis of these variables. It is anticipated that the physical concerns aspect of

anxiety sensitivity, disgust propensity and sensitivity, maladaptive metacognitions specific to health anxiety, and health anxiety-specific intolerance of uncertainty would each be uniquely associated with COVID-19 anxiety.

Hypotheses

Hypothesis 1: Health anxiety and obsessive-compulsive disorder symptoms will be uniquely associated with COVID anxiety.

Hypothesis 2: The physical concerns aspect of anxiety sensitivity, disgust propensity and sensitivity, maladaptive metacognitions specific to health anxiety, and health anxiety-specific intolerance of uncertainty will each be uniquely associated with COVID anxiety.

Methods and Materials

Participants

Data was collected from a non-clinical sample of undergraduate psychology students at MacEwan University. Participants were recruited through the online research site at MacEwan University. Students who chose to participate in the study were eligible to receive two percent course credit for a psychology course. A total of 593 participants completed the study from September 2020 to February 2021. After conducting data cleaning, a total of 44 participants were removed, resulting in a final sample of 549 participants. No specific inclusion or exclusion criteria were implemented for the present study. The sample was predominantly young adults who were female and single (see Table 1). Additionally, though predominantly Caucasian, the sample was also composed of individuals from diverse racial backgrounds such as Southeast Asian, Israeli, Black, and Indigenous (see Table 1). Lastly, the sample had a wide range of experiences related to COVID-19, with very few participants testing positive for COVID-19 (see Table 2).

Measures

Demographic Questionnaire. The Demographic questionnaire consisted of 11-items. The questionnaire collected information on participants' sex, gender, age, and racial identity. marital status, and employment status. Participants also responded to questions concerning their marital status, employment status, and student status. Lastly, participants were asked if they were diagnosed with any mental disorders or conditions.

COVID-19 Demographic Questionnaire. The COVID-19 Demographic questionnaire was created for this study, and it consisted of 6-items that collected information on participants' experience with COVID-19. Participants reported how many times they had been tested for COVID-19, have tested positive for COVID-19, and if they believe they contracted COVID-19 but were never tested. Additionally, participants were also asked to self-report if they thought they were considered at high-risk for experiencing adverse outcomes. Participants also responded to questions concerning if they were attending class or attending campus, and how often they were attending the MacEwan campus. Lastly, participants were asked if they attended MacEwan University campus for either instructional or non-instructional purposes.

Infrequency Scale (INF; Morey, 1991). The Infrequency Scale is an 8-item measure that is used to identify random responding by participants. Each self-report item has a score ranging from 0 to 3. The total range of scores is from 0 to 24, with higher scores indicating more random responding by participants. The scale has good construct validity but, as expected, low

Table 1.
Participants demographic characteristics (N = 549)

Characteristics	Mean	SD	Frequency	Percentage
Age	21.13	4.53		
Sex				
Female			375	68.3%
Male			172	31.3%
Other			2	0.4%
Gender				
Female			365	66.7%
Male			169	30.9%
Non-Binary			8	1.5%
Two-Spirit			1	0.2%
Genderfluid			1	0.2%
Other/Not Specified			5	1%
Ethnicity				
Caucasian/White			306	55.8%
Southeast Asian			58	10.6%
Middle Eastern			27	4.9%
Mixed Race			25	4.6%
Black			22	4.0%
East Asian			20	3.6%
Indian			18	3.3%
Eastern European			13	2.4%
Indigenous/Aboriginal			10	1.8%
South Asian			10	1.8%
African			8	1.5%
Latino/Hispanic/Caribbean			7	1.3%
Other			24	4.7%
Marital Status				
Single			324	59.0%
Dating			186	33.9%
Married/common law			31	5.6%
Divorced/separated			6	1.1%
Widowed			1	0.2%
Current Employment				
Full-time			40	7.3%
Part-time			260	47.4%
Not employed			247	45.0%
Student Status				
Full-time			496	90.3%
Part-time			52	9.5%

Note. Percentages do not always add to 100% due to missing data.

Table 2.*Participants' experience with COVID-19 and campus life (N = 549)*

Characteristics	Frequency	Percentage
How Many Times Tested for COVID-19		
0	298	54.3%
1	146	26.6%
2	58	10.6%
3	25	4.6%
4	13	2.4%
5	5	0.9%
>5	4	0.8%
Tested Positive for COVID-19		
Yes	20	3.6%
No	529	96.4%
Believe They Contracted COVID-19		
Yes	106	19.3%
No	441	80.6%
Considers Self to be at High-Risk for Severe Outcomes		
Yes	97	17.7%
No	451	82.1%
Currently Attending Campus for Lectures/Labs		
Yes	150	27.3%
No	397	72.3%
Currently Attending Campus for Non-Instructional Activities		
Yes	227	41.5%
No	320	58.5%

Note. Percentages do not always add to 100% due to missing data.

internal consistency. Participants who score above a 9 on the scale are recommended to be removed from consideration during analysis.

COVID-19 Anxiety Measures.

COVID Stress Scale (CSS; Taylor et al., 2020). The CSS is a 36-item scale that measures COVID-19 distress related to fear of becoming infected or encountering contaminated stimuli, socio-economic consequences, disease-related xenophobia, traumatic stress, and compulsive checking and reassurance seeking. Each item is rated on a scale from 0 to 4. All the scores are combined to create a total score between 0 and 144. A higher score on the scale represents more self-reported COVID-19 stress. The scale has demonstrated high internal consistency, in addition to convergent and discriminant validity.

Coronavirus Anxiety Scale (CAS; Lee, 2020). The CAS is a 5-item self-report questionnaire of COVID-19 anxiety. Each item is rated on a scale from 0 to 4, with total scores ranging from 0 to 20. Higher scores indicate higher levels of COVID-19 anxiety. Evaluations of the CAS indicated that the scale has high reliability, along with good content, convergent, and discriminant validity.

Coronavirus 19 Phobia Scale (C19P-S; Arpacı et al., 2020). Participants completed the C19P-S, a 20 item self-report questionnaire with each item rated on a scale from 1 to 5 for total scores from 20 to 100. The scale measures the psychological, psycho-somatic, economic, and social factors of fear of COVID-19. The C19P-S has shown good convergent and discriminant validity and good internal consistency.

Fear of Coronavirus Scale (FCV-19S; Ahorsu et al., 2020). The FCV-19S is a 7-item scale with total scores ranging from 7 to 35. Higher scores represent greater COVID-19 fear. It measures the self-reported bodily reactions to fear of COVID-19, such as a racing heart, and

fearful thoughts related to COVID-19, such as the fear of losing one's life. The scale has been shown to have high internal consistency and concurrent validity.

Anxiety-Related Disorder Symptom Measures

Patient Health Questionnaire-15 (PHQ-15; Kroenke et al., 2002). The PHQ-15 measures the perceived severity of 15 common somatic symptoms. Each item is scored from 0 to 2, to generate total scores from 0 to 30, based on how much the participant has been bothered by each symptom over the past four weeks. The scale has excellent internal reliability and has demonstrated both convergent and discriminant validity.

Short Health Anxiety Index (SHAI; Salkovskis et al., 2002). The SHAI contains 18 items that each has four responses (scored 0 to 3) that participants can choose from, with higher scores representing higher health anxiety. Total scores can range from 0 to 54. The scale has been demonstrated to have good internal consistency and criterion validity.

Generalized Anxiety Disorder-7 (GAD-7; Spitzer et al., 2006). The GAD-7 is a 7-item brief self-report measure of GAD symptoms, with total scores ranging from 0 to 21. Evaluations of the GAD-7 have shown the scale to have strong internal consistency and strong content, convergent, and discriminant validity.

Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002). The OCI-R measures obsessive-compulsive disorder symptoms and uses 18 items in total. The scale measures six common obsessive-compulsive disorder symptoms, including washing, obsessing, hoarding, ordering, checking, and neutralizing. Total scores range from 0 to 72, with higher scores representing high obsessive-compulsive disorder symptoms. The scale has good convergent and discriminant validity and excellent internal consistency.

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). The SIAS measures fear of social interaction with 20-items. Each item is rated on a scale from 0 to 4, for total scores from 0 to 80, with higher scores signifying higher social anxiety. The scale has high internal consistency and discriminant validity.

Social Phobia Scale (SPS; Mattick & Clarke, 1998). The SPS is a 20-item scale with each item rated on a scale from 0 to 4, to generate total scores from 0 to 80. The scale measures individuals' fear of being criticized for executing everyday activities. The scale has strong internal consistency and discriminant validity.

Panic Disorder Severity Scale-Self Report (PDSS; Houck et al., 2002). The PDSS includes 7 items rated from 0 to 4. Total scores can range from 0 to 28, with higher scores representing greater panic disorder symptoms. The scale has high internal consistency and discriminant validity.

Anxiety-Related Mechanism Measures

Anxiety Sensitivity Index-3 (ASI-3; Taylor et al., 2007). Using three subscales, each with 6 items, the ASI-3 measures an individual's fear related to sensations that result from anxious arousal. The subscales include physical concerns (ASI-P), cognitive concerns (ASI-C), and social concerns (ASI-S). Each item is rated between 0 to 4, with scores on each subscale ranging from 0 to 24. The ASI-3 has been shown to have high criterion-related, convergent, and discriminant validity, along with the measure having strong internal consistency.

Disgust Propensity and Sensitivity Scale-Revised (DPSS-R; Olatunji et al., 2007a). The DPSS-R is a 16-item scale, with each item ranging from 1 to 5. The DPSS-R has two subscales, which measure how often an individual experiences disgust called disgust propensity (DPSS-DP) and the emotional effect of disgusting experiences have called disgust sensitivity (DPSS-DS).

Each subscale has eight items, with scores ranging from 16 to 80. The scale has strong internal consistency and has good convergent and discriminant validity.

Disorder-Specific Intolerance of Uncertainty scales (DSIU; Thibodeau et al., 2015).

The DSIU measures intolerance of uncertainty specifically related to generalized anxiety disorder (DSIU-GAD), social anxiety disorder (DSIU-SAD), obsessive-compulsive disorder (DSIU-OCD), health anxiety (DSIU-HA), post-traumatic stress disorder (DSIU-PTSD), panic disorder (DSIU-PD), specific phobia (DSIU-SP), and depression (DSIU-MDD). Each subscale has 3 items, with each self-reported item on a scale from 0 to 4, for possible scores from 0 to 12. The scale has been shown to have good internal consistency and criterion validity.

Metacognition Questionnaire-Health Anxiety (MCQ-HA; Bailey & Wells, 2015). The MCQ-HA includes three subscales of metacognitive beliefs related to health anxiety, with 14 self-reported items being scored between 1 to 4. The beliefs that thoughts can cause illness (MCQ-I) and the beliefs about biased thinking regarding one's health (MCQ-BT) subscales each have 5 items with subscale scores ranging from 5 to 20. The belief that thoughts about one's health are uncontrollable (MCQ-U) subscale has 4 items with a subscale score ranging from 4 to 16. Higher scores indicate greater negative metacognitions related to health anxiety. The scale has good internal consistency along with discriminant and convergent validity.

Procedure

Ethical approval for this study was received from the MacEwan University Research Ethics Board. Participants were recruited through MacEwan University's SONA system (<https://grantmacewan.sona-systems.com/>). Using their personal SONA account, students could voluntarily choose to participate in the study from a list of currently recruiting studies. The Psychology Department at MacEwan University uses the SONA research site to recruit

participants for available studies, pre-screen participants, award research participation credit, and integrate Qualtrics. MacEwan University Psychology Department uses Qualtrics, an online survey website, to conduct online research.

Once a participant signs for the study through SONA, participants are then directed to Qualtrics. Once on Qualtrics, they are presented with an online consent form (see Appendix A). Participants who consented to the study completed a demographic characteristics form, the COVID-19 demographic form, and the previously mentioned measures in a randomized order (see Appendix B). The INF was broken up into three parts and included with the rest of the measures in random order. Participants also completed additional COVID-19 questionnaires and measures that were not examined for the present study. Once participants completed the questionnaires, they were provided with an online debriefing form (see Appendix C). The debriefing form provided details about the study contact information of the researchers. The study was intended to be completed by participants in approximately 60 minutes.

Statistical Analyses

Before any analyses were conducted, data screening was conducted. This included appropriately removing participants, replacing missing data, and adjusting for outliers.

For participants that were not missing excessive data, a decision on if missing data would be replaced was made for each specific measure. If the measure contained 80% of its data filled out by the participant, then the remaining missing data was replaced. To determine what score to insert for the missing data, the mean score of the remaining responses from the participant on the scale in question was calculated and used. If the participant had responded to less than 80% of the measure, then missing values were not filled in for that scale.

Outliers were replaced according to the recommendations made by Tabachnick and Fidell (2013). Based on these recommendations, a participant's total score on the measure was considered an outlier if it fell above or below a set cut-off score. To determine that cut-off score, the standard deviation was multiplied by three, and then it was added or subtracted from the mean (Tabachnick & Fidell, 2013). Once identified, the outliers were reduced or increased to one below or above the next score that was not considered an outlier.

Analyses was conducted once data screening was completed. Due to the number of variables being explored, significance was set at $p < .01$. To begin, zero-order correlations were calculated. The first set of correlations assessed looked at the correlation between scores on the COVID-19 anxiety scales, the CSS, CAS, FVC-19S, and C19P-S and the scales that measured the anxiety-related symptoms: the PHQ-15, SHAI, GAD-7, OCI-R, SIAS, SPS, and PDSS. The second set of correlations assessed looked at the correlation between scores on COVID-19 anxiety scales and the scales that measure anxiety-related mechanisms: the subscales of the ASI-3, DPSS-R, DSIU, and MCQ-HA.

A series of multiple regressions were then conducted. Each set had four separate multiple regressions conducted, one for each of the COVID-19 anxiety measures, the CSS, CAS, FVC-19S, and C19P-S. The first set used each of the COVID-19 anxiety measures scores as the dependent variables to explore the association with the anxiety-related symptom measures scores. The second set used each of the scores of the COVID-19 measures as the dependent variables to examine the association with anxiety-related mechanisms scores.

Results

Data Screening

A total of 20 participants were removed from the dataset due to excessive missing data. An additional 24 participants were removed from the dataset for scoring high on the INF (Morey, 1991). The total number of participants used in the analyses was 549.

Before analysis was conducted, possible missing values were replaced for the following COVID-19 anxiety scales: 58 missing values for the CSS, 7 missing values for the CAS, 28 missing values for the C19P-S, and 20 missing values for the FCV. A total of 72 missing values for the PHQ, 18 missing values for the SHAI, 34 missing values for the GAD-7, 67 missing values for the OCI-R, 12 missing values for the PDSS, 44 missing values for the SPS, and 49 missing values for the SIAS were replaced for the anxiety-related symptoms measures. 24 missing values for the ASI-3, 18 missing values for the MCQ-HA subscales, and 34 missing values for the DPSS-R were replaced for the anxiety-related mechanism measures. No missing values could be replaced in the DSIU due to the subscales only having three items each. A total of 52 participants' raw data contained outlier data which was adjusted accordingly.

Descriptive statistics were conducted on each of the scales used in the study to examine the Cronbach alpha coefficients, means, ranges, and standard deviations (see Table 3). All the measures exhibited satisfactory to excellent internal consistencies. Compared to previous research, the mean scores on the CAS were notably lower than those in other samples (Lee, 2020; Lee et al., 2020). The CSS (Taylor et al., 2020) and the FCV-19S (Ahorsu et al., 2020; Warren et al., 2021) mean scores were also found to be slightly lower. These differences could be due to the different times during the pandemic that the samples were collected and the

Table 3.*Psychometric properties of the measures used in the analyses*

Measure	Mean	SD	Observed Range	Cronbach's Alpha
CSS	35.38	24.75	0-111	.96
CAS	1.52	2.42	0-9	.87
CP19-S	44.60	16.64	20-94	.95
FCV-19S	16.15	6.22	7-34	.89
PHQ-15	9.42	5.85	0-27	.85
SHAI	16.57	8.25	0-41	.91
GAD-7	8.59	5.88	0-21	.92
OCI-R	20.09	13.62	0-61	.92
SIAS	33.84	17.88	0-78	.94
SPS	26.17	19.62	0-80	.96
PDSS	4.25	4.96	0-19	.90
ASI-P	6.61	5.86	0-24	.88
ASI-C	6.30	6.28	0-24	.91
ASI-S	9.36	6.19	0-24	.85
DPSS-DP	21.02	6.28	8-39	.89
DPSS-DS	18.12	6.35	8-37	.84
MCQ-BT	6.67	2.14	4-15	.81
MCQ-I	8.56	3.19	5-18	.78
MCQ-U	7.12	2.67	5-18	.76
DSIU-GAD	5.47	3.57	0-12	.89
DSIU-SAD	5.38	3.67	0-12	.89
DSIU-OCD	5.91	3.20	0-12	.81
DSIU-HA	4.26	3.37	0-12	.86
DSIU-PTSD	4.92	3.77	0-12	.91
DSIU-MDD	4.15	3.77	0-12	.89
DSIU-PD	2.66	3.35	0-12	.93
DSIU-SP	4.41	3.44	0-12	.87

Note. SD = Standard Deviation; Observed Range = Range of Participants Scores; CSS = COVID Stress Scale; CAS = Coronavirus Anxiety Scale; CP19-S = Coronavirus 19 Phobia Scale; FCV-19S = Fear of Coronavirus Scale; PHQ-15 = Patient Health Questionnaire-15; SHAI = Short Health Anxiety Index; GAD-7 = Generalized Anxiety Disorder-7; OCI-R = Obsessive-Compulsive Inventory-Revised; SIAS = Social Interaction Anxiety Scale; SPS = Social Phobia Scale; PDSS = Panic Disorder Severity Scale-Self Report; ASI-P = Anxiety Sensitivity Index-Physical Concern Subscale; ASI-C = Anxiety Sensitivity Index-Cognitive Concern Subscale; ASI-S = Anxiety Sensitivity Index-Social Concern Subscale; DPSS-DP = Disgust Propensity and Sensitivity Scale-Disgust Propensity; DPSS-DS = Disgust Propensity and Sensitivity Scale-Disgust Sensitivity; MCQ-BT = Metacognition Questionnaire-Health Anxiety-Biased Thinking; MCQ-I = Metacognition Questionnaire-Health Anxiety-Illness Beliefs; MCQ-U = Metacognition Questionnaire-Health Anxiety-Uncontrollability; DSIU-GAD = Disorder-Specific Intolerance of Uncertainty Scales-Generalized Anxiety Disorder; DSIU-SAD = Disorder-Specific Intolerance

of Uncertainty Scales-Social Anxiety Disorder; DSIU-OCD = Disorder-Specific Intolerance of Uncertainty Scales-Obsessive-Compulsive Disorder; DSIU-HA = Disorder-Specific Intolerance of Uncertainty Scales-Health Anxiety; DSIU-PTSD = Disorder-Specific Intolerance of Uncertainty Scales-Post-Traumatic Stress Disorder; DSIU-MDD = Disorder-Specific Intolerance of Uncertainty Scales-Depression; DSIU-PD = Disorder-Specific Intolerance of Uncertainty Scales-Panic Disorder; DSIU-SP = Disorder-Specific Intolerance of Uncertainty Scales-Specific Phobia

differences in the samples. Interestingly, the mean score on the C19P-S (Arpaci et al., 2020) was higher than found in previous samples.

When looking at the anxiety-related symptoms scales, the mean score of the PHQ-15 was similar to primary care patients (Kroenke et al., 2002). Compared to previous student samples, the mean score on the SHAI was higher and closer to scores displayed by an anxious sample (Alberts et al., 2013; Salkovskis et al., 2002). Additionally, the mean score on the GAD-7 was higher than in previous studies exploring COVID-19 anxiety (Warren et al., 2021). Mean scores on the OCI-R (Foa et al., 2002) and the PDSS (Houck et al., 2002) were similar to non-clinical samples. Lastly, the SIAS and the SPS displayed mean scores closer to scores found in clinical samples (Mattick & Clarke, 1997).

The ASI-3 subscales mean scores fell between scores seen in previous nonclinical and clinical samples (Taylor et al., 2007) and were similar or higher to previous studies exploring COVID-19 anxiety (Warren et al., 2021). Mean scores on the DPSS-R subscales were higher than those found in previous nonclinical samples (Olatunji et al., 2007). Mean scores on the MCQ-HA subscales were similar to previous research conducted with university samples (Bailey & Wells, 2016). Lastly, mean scores on the DSIU subscales were slightly higher than those found in previous undergraduate samples (Thibodeau et al., 2015).

Analyses

The zero-order correlations between each of the variables were examined (see Table 4 and Table 5). As expected, the COVID-19 anxiety scales were strongly correlated, but did not show evidence of multicollinearity (Tabachnick & Fidell, 2013), warranting the use of all four scales in further analyses. Each of the anxiety-related disorder symptom scales were moderately associated with the measures of COVID-19 anxiety and moderately or strongly correlated with

the other anxiety-related disorder symptom measures (see Table 4). In addition, the COVID-19 anxiety measures significantly correlated with the measures of anxiety-related mechanisms (see Table 5). Each anxiety-related mechanisms measure also moderately to strongly correlated with the other measures of anxiety-related mechanisms.

A series of multiple regression analyses were conducted to examine which anxiety-related disorder symptom measures, and which anxiety-related mechanism measures, were uniquely associated with each COVID-19 anxiety measure. The first four regression analyses examined if anxiety-related disorder symptoms were significantly associated with COVID-19 anxiety across the four scales (see Table 6). The anxiety-related disorder symptom measures were significantly associated with scores on the CSS, $F(7, 523) = 58.65, p < .001$, CAS, $F(7, 527) = 42.25, p < .001$, CP-19S, $F(7, 528) = 64.89, p < .001$, and FCV-19, $F(7, 528) = 38.15, p < .001$. Across all four COVID-19 anxiety scales, scores on the SHAI and OCI-R were significantly associated with COVID-19 anxiety. In addition, PDSS scores were significantly related to COVID-19 anxiety as measured by the CAS, CP19-S, and FCV-19. No other anxiety-related disorder symptom measures accounted for unique variance in the COVID-19 anxiety measures.

Four regression analyses examined if anxiety-related mechanisms were significantly associated with COVID-19 anxiety (see Table 7). The anxiety-related mechanism measures were significantly associated with the scores on the CSS, $F(16, 491) = 29.75, p < .001$, CAS, $F(16, 496) = 64.27, p < .001$, CP-19S, $F(16, 497) = 32.34, p < .001$, and FCV-19, $F(16, 497) = 22.03, p < .001$. Across all four scales of COVID-19 anxiety, the anxiety-related mechanism scales that emerged as being consistently associated with COVID-19 anxiety were disgust sensitivity and the health anxiety subscale of the DSIU. The MCQ-HA subscale that measures beliefs about

Table 4
Correlations: COVID-19 Anxiety and Anxiety-Related Disorder Symptoms

Measure	CSS	CAS	CP19-S	FCV- 19S	PHQ-15	SHAI	GAD-7	OCI-R	SIAS	SPS
CSS	-									
CAS	.60**	-								
CP19-S	.77**	.63**	-							
FCV- 19S	.69**	.59**	.77**	-						
PHQ-15	.40**	.39**	.45**	.35**	-					
SHAI	.54**	.47**	.59**	.53**	.51**	-				
GAD-7	.48**	.46**	.51**	.44**	.62**	.57**	-			
OCI-R	.60**	.47**	.58**	.45**	.47**	.54**	.59**	-		
SIAS	.37**	.30**	.41**	.31**	.46**	.45**	.52**	.51**	-	
SPS	.48**	.40**	.49**	.38**	.52**	.51**	.62**	.61**	.78**	-
PDSS	.47**	.51**	.51**	.45**	.58**	.54**	.62**	.48**	.46**	.58**

* $p < .01$, ** $p < .001$

Table 5
Correlations: COVID-19 Anxiety and Anxiety-Related Mechanisms

Measure	CSS	CAS	CP1 9-S	FCV -19S	ASI- P	ASI-C	ASI-S	DPSS -DP	DPSS -DS	MCQ- BT	MCQ- I	MCQ- U	DSIU- GAD	DSIU- SAD	DSIU- OCD	DSIU- HA	DSIU- PTSD	DSIU- MDD	DSIU- PD
ASI-P	.55*	.46*	.54*	.49*	-														
ASI-C	.49*	.44*	.48*	.37*	.67*	-													
ASI-S	.47*	.39*	.50*	.39*	.65*	.70**	-												
DPS S- DP	.39*	.31*	.42*	.34*	.45*	.37**	.45**	-											
DPS S- DS	.52*	.43*	.53*	.46*	.59*	.45**	.54**	.73**	-										
MC Q- BT	.47*	.39*	.42*	.36*	.41*	.39**	.39**	.28**	.33**	-									
MC Q-I	.35*	.30*	.34*	.29*	.37*	.34**	.27**	.29**	.33**	.44**	-								
MC Q-U	.51*	.39*	.52*	.41*	.55*	.49**	.49**	.39**	.47**	.59**	.47**	-							

DSI U- GA D	.49*	.37*	.55*	.46*	.61*	.61**	.67**	.40**	.51**	.33**	.32**	.56**	-						
DSI U- SAD	.39*	.30*	.42*	.32*	.49*	.58**	.72**	.39**	.44**	.27**	.19**	.44**	.74**	-					
DSI U- OC D	.38*	.26*	.41*	.29*	.47*	.48**	.54**	.39**	.40**	.28**	.31**	.40**	.68**	.63**	-				
DSI U- HA	.57*	.43*	.61*	.56*	.62*	.53**	.56**	.46**	.55**	.40**	.37**	.60**	.69**	.57**	.57**	-			
DSI U- PTS D	.35*	.29*	.39*	.33*	.49*	.54**	.59**	.38**	.42**	.25**	.26**	.42**	.64**	.64**	.53**	.54**	-		
DSI U- MD D	.43*	.37*	.48*	.37*	.51*	.66**	.63**	.36**	.41**	.37**	.27**	.55**	.77**	.72**	.58**	.60**	.69**	-	
DSI U- PD	.42*	.39*	.43*	.39*	.55*	.61**	.57**	.29**	.42**	.36**	.29**	.50**	.60**	.54**	.44**	.51**	.56**	.61**	-

DSI	.40*	.33*	.49*	.40*	.52*	.49**	.57**	.44**	.45**	.35**	.27**	.46**	.63**	.59**	.48**	.55**	.52**	.58**	.51**
U- SP	*	*	*	*	*														

* $p < .01$, ** $p < .001$

Table 6
Regression: COVID-19 Anxiety and Anxiety-Related Disorder Symptoms

Measure		CSS				Measure		CAS			
	<i>R</i>	<i>R</i> ²	β	<i>t</i>	<i>pr</i>		<i>R</i>	<i>R</i> ²	β	<i>t</i>	<i>pr</i>
Step 1	.66	.44				Step 1	.60	.36			
PHQ-15			.02	0.09	.01	PHQ-15			.01	0.65	.03
SHAI			.72	5.49**	.23	SHAI			.05	3.99**	.17
GAD-7			.11	0.49	.02	GAD-7			.01	0.39	.02
OCI-R			.69	8.46**	.35	OCI-R			.04	4.32**	.19
SIAS			-.12	-1.61	-.07	SIAS			-.01	-1.70	-.07
SPS			.13	1.76	.08	SPS			.01	0.92	.04
PDSS			.51	2.21	.09	PDSS			.15	6.06**	.26
Measure		CP19-S				Measure		FCV-19S			
	<i>R</i>	<i>R</i> ²	β	<i>t</i>	<i>pr</i>		<i>R</i>	<i>R</i> ²	β	<i>t</i>	<i>pr</i>
Step 1	.68	.46				Step 1	.58	.34			
PHQ-15			.12	0.99	.04	PHQ-15			-.04	-0.85	-.04
SHAI			.62	7.16**	.29	SHAI			.25	6.84**	.29
GAD-7			.06	0.45	.02	GAD-7			.09	1.44	.06
OCI-R			.36	6.78**	.28	OCI-R			.08	3.62**	.16

SIAS	.01	0.06	.01	SIAS	-.01	-0.25	-.01
SPS	.02	0.29	.01	SPS	-.01	-0.35	-.02
PDSS	.46	3.05*	.13	PDSS	.22	3.52**	.15

Note. pr = Partial correlation.

* $p < .01$, ** $p < .001$

Table 7
Regression: COVID-19 Anxiety and Anxiety-Related Mechanisms

Measure		CSS				Measure		CAS			
	<i>R</i>	<i>R</i> ²	β	<i>t</i>	<i>pr</i>		<i>R</i>	<i>R</i> ²	β	<i>t</i>	<i>pr</i>
Step 1	.70	.49				Step 1	.59	.35			
ASI-P			.16	2.92*	.13	ASI-P			.15	2.46	.11
ASI-C			.09	1.72	.08	ASI-C			.16	2.61*	.12
ASI-S			-.02	-0.37	-.02	ASI-S			-.02	-0.37	-.02
DPSS-DP			-.04	-0.87	-.39	DPSS-DP			-.05	-0.98	-.04
DPSS-DS			.19	3.63**	.16	DPSS-DS			.21	3.41**	.15
MCQ-BT			.19	4.45**	.19	MCQ-BT			.16	3.46**	.15
MCQ-I			.02	0.38	.02	MCQ-I			.05	1.11	.05
MCQ-U			.04	0.89	.04	MCQ-U			-.07	-1.23	-.06
DSIU-GAD			.04	0.63	.03	DSIU-GAD			-.01	-0.05	-.01
DSIU-SAD			-.01	-0.18	-.01	DSIU-SAD			-.05	-0.71	-.03
DSIU-OCD			.01	0.01	.01	DSIU-OCD			-.07	-1.37	-.06
DSIU-HA			.25	4.86**	.21	DSIU-HA			.16	2.74*	.12

DSIU-PTSD			-.05	-0.93	-.04	DSIU-PTSD			-.05	-0.96	-.04
DSIU-MDD			.02	0.26	.01	DSIU-MDD			.08	1.22	.06
DSIU-PD			.01	0.11	.01	DSIU-PD			.06	1.17	.05
DSIU-SP			-.01	-0.03	-.01	DSIU-SP			.02	0.35	.02
Measure			CP19-S			Measure			FCV-19S		
	<i>R</i>	<i>R</i> ²	<i>β</i>	<i>t</i>	<i>pr</i>		<i>R</i>	<i>R</i> ²	<i>β</i>	<i>t</i>	<i>pr</i>
Step 1	.71	.51				Step 1	.64	.42			
ASI-P			.08	1.43	.06	ASI-P			.14	2.40	.12
ASI-C			.05	1.02	.05	ASI-C			-.01	-0.23	-.01
ASI-S			.08	1.37	.06	ASI-S			-.01	-0.21	-.01
DPSS-DP			-.02	-0.32	-.01	DPSS-DP			-.03	-0.61	-.03
DPSS-DS			.16	3.05*	.14	DPSS-DS			.17	2.91*	.13
MCQ-BT			.10	2.46	.11	MCQ-BT			.09	2.09	.09
MCQ-I			.02	0.58	.03	MCQ-I			.02	0.50	.02
MCQ-U			.05	1.02	.05	MCQ-U			-.05	-1.03	-.05
DSIU-GAD			.09	1.53	.07	DSIU-GAD			.16	2.24	.10

DSIU-SAD	-.09	-1.51	-.07	DSIU-SAD	-.11	-1.72	-.08
DSIU-OCD	-.01	-0.28	-.01	DSIU-OCD	-.11	-2.26	-.10
DSIU-HA	.30	6.03**	.26	DSIU-HA	.38	6.98**	.29
DSIU-PTSD	-.04	-0.84	-.04	DSIU-PTSD	-.01	-0.10	-.01
DSIU-MDD	.03	0.50	.02	DSIU-MDD	-.04	-0.55	-.03
DSIU-PD	-.02	-0.43	-.02	DSIU-PD	.07	1.35	.06
DSIU-SP	.03	2.21	.09	DSIU-SP	.08	1.55	.07

Note. *pr* = Partial correlation.

* $p < .01$, ** $p < .001$

biased thinking regarding one's health was also significantly associated with scores on the CSS and the CAS, while the physical concerns subscale of the ASI-3 was associated with CSS scores, and the cognitive concerns subscale of the ASI-3 was associated with CAS scores.

Discussion

The present study aimed to explore the associations between COVID-19 anxiety and specific anxiety-related disorder symptoms and anxiety-related mechanisms. It was predicted that health anxiety and obsessive-compulsive disorder symptoms would have the strongest unique associations with COVID-19 anxiety. Based on the findings, this prediction has been largely confirmed. Health anxiety was uniquely associated with COVID-19 anxiety across all four COVID-19 anxiety measures. This is in line with earlier research into COVID-19 anxiety (Jungmann & Witthöft, 2020; Mertens et al., 2020; Warren et al., 2021). Additionally, prior research has established a connection between a publicized pandemic and a rise in health anxiety among the general population (Taylor & Asmundson, 2004). It is not surprising that individuals who have significant anxiety surrounding their health would be most strongly affected by a significant global health crisis. Given the ongoing nature of the pandemic and its continued influence on the population, high health anxiety could continue to be found in the population as individuals continue to experience COVID-19 anxiety. Our findings continue to support the idea the most prominent symptoms associated with COVID-19 anxiety are health anxiety symptoms (Kibbey et al., 2021).

Obsessive-compulsive disorder symptoms were also found to be uniquely associated with COVID-19 anxiety. This is consistent with previous research on COVID-19 anxiety and obsessive-compulsive disorder symptoms (Grant et al., 2021; Meşterelu et al., 2021). Contamination fears, which are prevalent in obsessive-compulsive disorder, have been

previously found to be associated with precautionary behaviours, such as hand washing, during the COVID-19 pandemic (Knowles & Olatunji, 2021). Further, an elevated level of COVID-19 anxiety may be found in those with obsessive-compulsive disorder symptoms due to a fear of becoming infected with COVID-19, or with infecting others knowingly or unknowingly (Fontenelle & Miguel, 2020; Wheaton et al., 2021).

Additionally, though not hypothesized, panic disorder symptoms were also associated with COVID-19 anxiety. This could be due to individuals with panic disorder being more attuned to physical sensations in their body, which could increase their psychological distress and fear of a panic attack during the pandemic (Perna & Caldirola, 2020). These individuals may attend more readily to any potential symptoms associated with COVID-19, causing them significant anxiety. Additionally, these individuals may misinterpret the respiratory symptoms of COVID-19 as the start of a panic attack and vice versa. This could increase their overall COVID-19 anxiety and their panic disorder symptoms during the pandemic (Perna & Caldirola, 2020). Lastly, although it was not anticipated that panic disorder symptoms would be uniquely associated with COVID-19 anxiety when controlling for the symptoms of other anxiety disorder symptoms, this finding does align with the results of a recent publication that found that individuals with a primary diagnosis of panic disorder have reported increased COVID-19 anxiety throughout the pandemic (Asmundson et al., 2022).

Concerning anxiety-related mechanisms, it was hypothesized that the physical concerns aspect of anxiety sensitivity, disgust propensity and sensitivity, maladaptive metacognitive beliefs about health, and health anxiety-specific intolerance of uncertainty would each be uniquely associated with COVID-19 anxiety. Overall, health anxiety-specific intolerance of uncertainty and disgust sensitivity had the strongest unique associations with COVID-19 anxiety.

Health anxiety-specific intolerance of uncertainty being associated with increased anxiety would be expected in a national health crisis like a pandemic. Health anxiety-specific intolerance of uncertainty represents the distress that an individual may experience due to not knowing for sure if they will be, or are currently, sick. Much of the uncertainty that individuals are experiencing during the pandemic is uncertainty about their health status (e.g., is my sore throat a sign of COVID, or am I imagining it?) and the consequences of COVID-19 (e.g., if I get COVID-19, will I be hospitalized?). Therefore, it stands to reason that we would see increased anxiety related to COVID-19 in those with dysfunctional beliefs related to health anxiety-specific intolerance of uncertainty. Additionally, there is also the fear that individuals can pass on the virus without knowing they are spreading it if they are asymptomatic. For individuals high in health anxiety-specific intolerance of uncertainty, this ambiguity could significantly increase their COVID-19 anxiety. It is anticipated that individuals will continue to feel uncertainty as the pandemic continues due to not knowing with certainty if the COVID-19 pandemic has run its course (Taylor, 2019).

Previous research that has not included other anxiety-related mechanisms has found that disgust sensitivity and disgust propensity correlate with COVID-19 anxiety (McKay et al., 2020; Waqas et al., 2020). In the present study, though disgust sensitivity was associated with COVID-19 anxiety, contrary to what was predicted, disgust propensity was not associated. This is in line with research conducted in previous pandemics where disgust sensitivity was associated with fear of the virus (Blakey et al., 2015; Brand et al., 2013; Wheaton et al., 2012). Disgust sensitivity is the emotional reaction that individuals experience in response to the sensations of disgust. This finding suggests that it is not how often individuals find things disgusting, but rather their emotional response to disgust that is related to COVID-19 anxiety. It has been

theorized that being high in disgust may cause an individual to avoid situations where they could be contaminated by a disease or illness (Deacon & Olatunji, 2007). Individuals with a heightened emotional response to a perceived disgusting circumstance would be expected to experience greater anxiety in the pandemic context. This increase in anxiety could be due to the virus, which would be perceived as disgusting, being constantly brought to their awareness through the media. Additionally, individuals who are high in disgust are more emotionally sensitive of disgusting situations, such as an individual sneezing without covering their mouth, which is also how the SARS-CoV-2 virus can transmit (Coelho et al., 2020). Being more emotionally reactive to these disgusting situations would likely increase an individual's anxiety around contracting the virus.

The metacognitive beliefs regarding biased thinking regarding one's health, which is the beliefs that optimistic thinking about one's health is unhelpful while pessimistic thinking about one's health is helpful (Bailey & Wells, 2015), was associated with COVID-19 anxiety across two scales. This could be due to the nature of the COVID-19 pandemic and the relatively unknown aspects of COVID-19 when the study was conducted. For many otherwise healthy individuals, contracting the COVID-19 virus was and continues to be a considerable risk and comes with many unknowns. If a person is anxious about COVID-19 and becomes ill during the pandemic, they may immediately assume that they have contracted COVID-19. Until the individual can get tested for COVID-19, they may feel that the best thing to do is to assume the worst (i.e., engage in pessimistic thoughts about their health). Additionally, the risk of COVID-19 being passed on to another person who may be at risk of adverse health outcomes is a cause of anxiety for many. Thinking pessimistically about one's health could be a protective factor during the pandemic, as it may lead the person to engage in protective health behaviours. This

type of negative thinking likely also leads to increased anxiety for many individuals as any subtle sign of ill health could mean that they contracted COVID-19.

Lastly, the physical aspect of anxiety sensitivity and the cognitive aspect of anxiety sensitivity were associated with COVID-19 anxiety on one scale each. This is of interest because the physical aspect of anxiety sensitivity has been previously found to be strongly associated with COVID-19 anxiety (Ojalehto et al., 2021; Paluszec et al., 2021; Warren et al., 2021). It is possible that the inclusion of multiple mechanisms that have not been previously examined simultaneously with anxiety sensitivity weakened the relationship between anxiety sensitivity and COVID-19 anxiety in our study. However, based on the findings of this study, it does appear that anxiety sensitivity may play a role in COVID-19 anxiety. It stands to reason that if an individual is fearful of the bodily sensations associated with a dangerous disease, such as COVID-19, they would experience higher anxiety related to that disease. Still, the results suggest that health anxiety-specific intolerance of uncertainty, disgust sensitivity, and the metacognitive beliefs about biased thinking regarding one's health play larger roles than anxiety sensitivity in COVID-19 anxiety.

Based on our findings that health anxiety and obsessive-compulsive disorder symptoms are significantly associated with COVID-19 anxiety, it is not surprising that anxiety-related mechanisms that are specific to health anxiety and obsessive-compulsive disorder were also uniquely associated with COVID-19 anxiety. The health anxiety-related metacognitive beliefs about biased thinking regarding one's health and health anxiety-specific intolerance of uncertainty have been developed to measure dysfunctional beliefs typically found in those who score high on measures of health anxiety (Bailey & Wells, 2015; Thibodeau et al., 2015). Additionally, while disgust is related to various disorders, it appears to be particularly associated

with obsessive-compulsive disorder (Olatunji et al., 2007b; Knowles et al., 2018). The results found in the two sets of analysis support each other. Specifically, the anxiety-related mechanisms that were most associated with COVID-19 anxiety largely align with the specific anxiety-related disorder symptoms that were most associated with COVID-19 anxiety.

Interestingly, very few participants who completed the study had tested positive for COVID-19 prior to completing the study (see Table 2). Also of interest is that a much larger portion of individuals believed they had contracted the virus but had not tested positive or never tested (see Table 2). Additionally, less than a fifth of the participants considered themselves at high risk of adverse outcomes if they contracted the virus (see Table 2). Data for this study was conducted during the first year of the pandemic when many individuals were successfully avoiding contracting the virus. These observations suggest that the actual experience of contracting COVID-19 or the lingering consequences of experiencing COVID-19 were not the cause of elevated anxiety scores in our sample. Instead, the fear of contracting the virus may be responsible for the increase in anxiety. Regardless of them contracting the virus, participants still reported experiencing heightened COVID-19 anxiety.

Slightly under half of the participants had been tested at least once for COVID-19 (see Table 2). People may misunderstand bodily changes or sensations due to the pandemic, as they are supposedly more anxious about their health (Taylor, 2019). This may cause them to seek testing, even when they do not have a high likelihood of having the virus. Additionally, these individuals may have experienced a greater concern about COVID-19 after sitting in the ambiguity of potentially contracting the virus while waiting on test results. Lastly, despite the COVID-19 regulation and stay-at-home order, almost half of the sample reported still attending MacEwan University's campus (see Table 2). This could account for some of the increase in the

anxiety experience by participants of this study due to them being at higher risk of contracting COVID-19 while at the MacEwan University campus.

Strengths of the Study

This study utilizes a wide range of anxiety-related symptoms and mechanisms to increase the scope of already published findings. It is the first to examine these anxiety-related symptoms and anxiety-related mechanisms together. The study also utilized multiple measures of COVID-19 anxiety. In addition, the study used health anxiety-specific anxiety-related dysfunctional beliefs as previous research has found that health anxiety is the most significant contributor to COVID-19 anxiety. Another notable strength of this study is the large sample that was used in the analysis ($N = 549$). Large samples sizes are essential to increase the generalizability and confidence in the validity of the findings (Price et al., 2015). The sample also represented individuals from diverse backgrounds. Additionally, an effort was made to reduce order effects by presenting the measures in random order to participants. Lastly, all the measures used in the study presented acceptable to excellent internal consistencies and were supported by previous literature as strong measures.

Limitations

There are some limitations to the current study. A significant limitation of this study is that it makes use of convenience sampling. The sample is a university demographic, and the majority of participants were young adults. It is possible that the challenges that cause anxiety for students during the COVID-19 pandemic are not the same as other populations. An additional limitation is that due to the study's cross-sectional nature, there is no way to determine if the anxiety-related disorder symptoms and anxiety-related mechanisms measured in this study were already present before the pandemic started or if they developed as a result of the pandemic. In

addition, since the start of the study, additional measures of COVID-19 anxiety have been developed, and some of them have more robust psychometric properties (Panteleimon et al., 2021). It is possible that the more recently developed scales may be more accurate at measuring COVID-19 anxiety than some of the measures used in the present study. Most of the COVID-19 measures used in the present study were developed with limited information on the true nature of the long-lasting pandemic. Lastly, a measure of post-traumatic stress symptoms was not included. Research has recently explored the mediating role of health anxiety in the relationship between post-traumatic stress symptoms and the COVID-19 pandemic (Coloma-Carmona & Carballo, 2021). Including measures of post-traumatic stress symptoms could be beneficial to explore how they contribute to COVID-19 anxiety in future research.

Conclusion

Overall, our findings are significant because, although previous research has established that anxiety has increased in the pandemic, there has been a lack of information on the specific anxiety-related disorders that are most associated with heightened COVID-19 anxiety. Individuals with severe health anxiety, obsessive-compulsive disorder, or panic disorder symptoms may be at exceptionally high risk for developing a high degree of anxiety regarding contracting COVID-19, and mental health outreach may wish to focus on individuals experiencing these symptoms in particular. This study provides further insights for the clinicians who work with patients who experience anxiety-related disorder symptoms and anxiety mechanisms as the pandemic continues. Clinicians who work with clients with anxiety-related symptoms may wish to evaluate how the COVID-19 pandemic has affected these individuals and address these symptoms in treatment. Additionally, a therapist working with clients high in COVID-19 anxiety may specifically wish to target health anxiety-related intolerance of

uncertainty and disgust sensitivity. Lastly, the long-term consequences of having experienced heightened COVID-19 anxiety may increase other anxiety symptoms in the future. Over the next few years, clinicians may benefit from evaluating the impact of the COVID-19 pandemic on a client's anxiety at the start of treatment.

Future research could focus on the development of these anxiety symptoms and mechanisms over time. Longitudinal research on the effect of COVID-19 anxiety could be beneficial as the pandemic continues to impact the daily lives of individuals around the globe. Research that monitors individuals that have reported high COVID-19 anxiety over time to determine if they go on to develop specific anxiety disorders in the future could also provide insight into the lasting effect of the COVID-19 pandemic.

References

- Alberts, N. M., Hadjistavropoulos, H. D., Jones, S. L., & Sharpe, D. (2013). The Short Health Anxiety Inventory: A systematic review and meta-analysis. *Journal of Anxiety Disorders*, 27(1), 68-78. <https://doi.org/10.1016/j.janxdis.2012.10.009>
- Ahorsu, D. K., Lin, C. Y., Imani, V., Saffari, M., Griffiths, M. D., & Pakpour, A. H. (2020). The Fear of COVID-19 Scale: Development and initial validation. *International Journal of Mental Health and Addiction*. Advance online publication. <https://doi.org/10.1007/s11469-020-00270-8>
- Akbari, M., Spada, M. M., Nikčević, A. V., & Zamani, E. (2021). The relationship between fear of COVID-19 and health anxiety among families with COVID-19 infected: The mediating role of metacognitions, intolerance of uncertainty, and emotion regulation. *Clinical Psychology & Psychotherapy*, 28(6), 1354-1366. <http://doi.org/10.1002/cpp.2628>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Arpaci, I., Karataş, K., & Baloğlu, M. (2020). The development and initial tests for the psychometric properties of the COVID-19 Phobia Scale (C19P-S). *Personality and Individual Differences*, 164, Article 110108. <https://doi.org/10.1016/j.paid.2020.110108>.
- Asmundson, G. J., Rachor, G., Drakes, D. H., Boehme, B. A., Paluszek, M. M., & Taylor, S. (2022). How Does COVID Stress Vary Across the Anxiety-Related Disorders? Assessing Factorial Invariance and Changes in COVID Stress Scale Scores During the Pandemic. *Journal of Anxiety Disorders*, Article 102554. <https://doi.org/10.1016/j.janxdis.2022.102554>

- Aydın, O., Balıkcı, K., Arslan, Y., Ünal-Aydın, P., Müezzini, E., & Spada, M. M. (2021). The combined contribution of fear and perceived danger of COVID-19 and metacognitions to anxiety levels during the COVID-19 pandemic. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*. Advance online publication. <https://doi.org/10.1007/s10942-021-00429-9>
- Bailey, R., & Wells, A. (2015). Development and initial validation of a measure of metacognitive beliefs in health anxiety: The MCQ-HA. *Psychiatry Research*, 230(3), 871-877. <https://doi.org/10.1007/s10608-015-9701-9>
- Bailey, R., & Wells, A. (2016). Is metacognition a causal moderator of the relationship between catastrophic misinterpretation and health anxiety? A prospective study. *Behaviour Research and Therapy*, 78, 43-50. <https://doi.org/10.1016/j.brat.2016.01.002>
- Blakey, S. M., Reuman, L., Jacoby, R. J., & Abramowitz, J. S. (2015). Tracing “Fearbola”: Psychological predictors of anxious responding to the threat of ebola. *Cognitive Therapy and Research*, 39(6), 816-825. <https://doi.org/10.1007/s10608-015-9701-9>
- Brand, J., McKay, D., Wheaton, M. G., & Abramowitz, J. S. (2013). The relationship between obsessive compulsive beliefs and symptoms, anxiety and disgust sensitivity, and Swine Flu fears. *Journal of Obsessive-Compulsive and Related Disorders*, 2(2), 200-206. <https://doi.org/10.1016/j.jocrd.2013.01.007>
- Busetta, G., Campolo, M. G., Fiorillo, F., Pagani, L., Panarello, D., & Augello, V. (2021). Effects of COVID-19 lockdown on university students' anxiety disorder in Italy. *Genus*, 77(1), 1-16. <https://doi.org/10.1186/s41118-021-00135-5>

- Carleton, R. N. (2016). Into the unknown: A review and synthesis of contemporary models involving uncertainty. *Journal of Anxiety Disorders*, 39, 30–43.
<https://doi.org/10.1016/j.janxdis.2016.02.007>
- Coelho, C. M., Suttiwan, P., Arato, N., & Zsido, A. N. (2020). On the nature of fear and anxiety triggered by COVID-19. *Frontiers in Psychology*, 11, Article 3109.
<https://doi.org/10.3389/fpsyg.2020.581314>
- Coloma-Carmona, A., & Carballo, J. L. (2021). Predicting PTSS in general population during COVID-19 pandemic: The mediating role of health anxiety. *Journal of Affective Disorders*, 294, 329-336. <https://doi.org/10.1016/j.jad.2021.07.032>
- Deacon, B., & Olatunji, B. O. (2007). Specificity of disgust sensitivity in the prediction of behavioral avoidance in contamination fear. *Behaviour Research and Therapy*, 45(9), 2110-2120. <https://doi.org/10.1016/j.brat.2007.03.008>
- Foa, E. B., Huppert, J. D., Leiberg, S., Langner, R., Kichic, R., Hajcak, G., & Salkovskis, P. M. (2002). The Obsessive-Compulsive Inventory: Development and validation of a short version. *Psychological Assessment*, 14(4), 485-496. <https://doi.org/10.1037/1040-3590.14.4.485>
- Fontenelle, L. F., & Miguel, E. C. (2020). The impact of COVID-19 in the diagnosis and treatment of obsessive-compulsive disorder. *Depression and Anxiety*, 37(6), 510-511.
<https://doi.org/10.1002/da.23037>
- Grant, J. E., Drummond, L., Nicholson, T. R., Fagan, H., Baldwin, D. S., Fineberg, N. A., & Chamberlain, S. R. (2021). Obsessive-compulsive symptoms and the Covid-19 pandemic: A rapid scoping review. *Neuroscience & Biobehavioral Reviews*.
<https://doi.org/10.1016/j.neubiorev.2021.10.039>

- Grøtte, T., Solem, S., Myers, S. G., Hjemdal, O., Vogel, P. A., Güzey, I. C., Hansen, B., Nordahl, H.M., & Fisher, P. (2016). Metacognitions in obsessive-compulsive disorder: A psychometric study of the Metacognitions Questionnaire-30. *Journal of Obsessive-Compulsive and Related Disorders*, 11, 82-90. <https://doi.org/10.1016/j.jocrd.2016.09.002>
- Hashemi, S. G. S., Hosseinneshad, S., Dini, S., Griffiths, M. D., Lin, C. Y., & Pakpour, A. H. (2020). The mediating effect of the cyberchondria and anxiety sensitivity in the association between problematic internet use, metacognition beliefs, and fear of COVID-19 among Iranian online population. *Heliyon*, 6(10), Article e05135. <https://doi.org/10.1016/j.heliyon.2020.e05135>
- Houck, P. R., Spiegel, D. A., Shear, M. K., & Rucci, P. (2002). Reliability of the self-report version of the Panic Disorder Severity Scale. *Depression and Anxiety*, 15(4), 183-185. <https://doi.org/10.1002/da.10049>
- Khosravani, V., Asmundson, G. J., Taylor, S., Bastan, F. S., & Ardestani, S. M. S. (2021). The Persian COVID stress scales (Persian-CSS) and COVID-19-related stress reactions in patients with obsessive-compulsive and anxiety disorders. *Journal of Obsessive-Compulsive and Related Disorders*, 28, Article 100615. <https://doi.org/10.1016/j.jocrd.2020.100615>
- Kibbey, M. M., Fedorenko, E. J., & Farris, S. G. (2021). Anxiety, depression, and health anxiety in undergraduate students living in initial US outbreak "hotspot" during COVID-19 pandemic. *Cognitive Behaviour Therapy*, 50(5), 409-421. <https://doi.org/10.1080/16506073.2020.1853805>

- Knowles, K. A., Jessup, S. C., & Olatunji, B. O. (2018). Disgust in anxiety and obsessive-compulsive disorders: Recent findings and future directions. *Current Psychiatry Reports, 20*(9), 1-10. <https://doi.org/10.1007/s11920-018-0936-5>
- Knowles, K. A., & Olatunji, B. O. (2021). Anxiety and safety behavior usage during the COVID-19 pandemic: The prospective role of contamination fear. *Journal of Anxiety Disorders, 77*, 102323. <https://doi.org/10.1016/j.janxdis.2020.102323>
- Kroenke, K., Spitzer, R. L., & Williams, J. B. (2002). The PHQ-15: Validity of a new measure for evaluating the severity of somatic symptoms. *Psychosomatic Medicine, 64*(2), 258-266. <https://doi.org/10.1097/00006842-200203000-00008>
- Lee, S. A. (2020). Coronavirus Anxiety Scale: A brief mental health screener for COVID-19 related anxiety. *Death Studies, 44*(7), 393-401. <https://doi.org/10.1080/07481187.2020.1748481>
- Lee, S. A., Mathis, A. A., Jobe, M. C., & Pappalardo, E. A. (2020). Clinically significant fear and anxiety of COVID-19: A psychometric examination of the Coronavirus Anxiety Scale. *Psychiatry Research, 290*, Article 113112. <https://doi.org/10.1016/j.psychres.2020.113112>
- Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36*(4), 455–470. [https://doi.org/10.1016/S0005-7967\(97\)10031-6](https://doi.org/10.1016/S0005-7967(97)10031-6)
- McKay, D., Yang, H., Elhai, J., & Asmundson, G. J. (2020). Anxiety regarding contracting COVID-19 related to interoceptive anxiety sensations: The moderating role of disgust propensity and sensitivity. *Journal of Anxiety Disorders, 73*, Article 102233. <https://doi.org/10.1016/j.janxdis.2020.102233>

- Mertens, G., Duijndam, S., Smeets, T., & Lodder, P. (2021). The latent and item structure of COVID-19 fear: A comparison of four COVID-19 fear questionnaires using SEM and network analyses. *Journal of Anxiety Disorders*, 81, Article 102415.
<https://doi.org/10.1016/j.janxdis.2021.102415>
- Mertens, G., Gerritsen, L., Duijndam, S., Salemink, E., & Engelhard, I. M. (2020). Fear of the coronavirus (COVID-19): Predictors in an online study conducted in March 2020. *Journal of Anxiety Disorders*, 74, Article 102258. <https://doi.org/10.1016/j.janxdis.2021.102415>
- Meşterelu, I., Rîmbu, R., Blaga, P., & Stefan, S. (2021). Obsessive-compulsive symptoms and reactions to the COVID-19 pandemic. *Psychiatry Research*, 302, Article 114021.
<https://doi.org/10.1016/j.psychres.2021.114021>
- Morey, L. C. (1991). *The Personality Assessment Inventory professional manual*. Psychological Assessment Resources.
- Nikčević, A. V., & Spada, M. M. (2020). The COVID-19 anxiety syndrome scale: Development and psychometric properties. *Psychiatry research*, 292, Article 113322.
<https://doi.org/10.1016/j.psychres.2020.113322>
- Nordahl, H., & Wells, A. (2017). Testing the metacognitive model against the benchmark CBT model of social anxiety disorder: Is it time to move beyond cognition? *PloS one*, 12(5), Article e0177109. <https://doi.org/10.1371/journal.pone.0177109>
- Ojalehto, H. J., Abramowitz, J. S., Hellberg, S. N., Butcher, M. W., & Buchholz, J. L. (2021). Predicting COVID-19-related anxiety: The role of obsessive-compulsive symptom dimensions, anxiety sensitivity, and body vigilance. *Journal of Anxiety Disorders*, 83, Article 102460. <https://doi.org/10.1016/j.janxdis.2021.102460>

- Olatunji, B. O., Cisler, J. M., Deacon, B. J., Connolly, K., & Lohr, J. M. (2007a). The Disgust Propensity and Sensitivity Scale-Revised: Psychometric properties and specificity in relation to anxiety disorder symptoms. *Journal of Anxiety Disorders*, 21(7), 918-930. <https://doi.org/10.1016/j.janxdis.2006.12.005>
- Olatunji, B. O., Lohr, J. M., Sawchuk, C. N., & Tolin, D. F. (2007b). Multimodal assessment of disgust in contamination-related obsessive-compulsive disorder. *Behaviour Research and Therapy*, 45(2), 263-276. <https://doi.org/10.1016/j.brat.2006.03.004>
- Paluszek, M. M., Asmundson, A. J., Landry, C. A., McKay, D., Taylor, S., & Asmundson, G. J. (2021). Effects of anxiety sensitivity, disgust, and intolerance of uncertainty on the COVID stress syndrome: A longitudinal assessment of transdiagnostic constructs and the behavioural immune system. *Cognitive Behaviour Therapy*, 50(3), 191-203. <https://doi.org/10.1080/16506073.2021.1877339>
- Panteleimon, V., Dialehti, K. M., Alik, N. V., Prodromos, T., Eleni, P., Vasiliki, H., & Ioannis, D. (2021). A systematic review of questionnaires assessing the psychological impact of COVID-19. *Psychiatry Research*, 305, Article 114183. <https://doi.org/10.1016/j.psychres.2021.114183>
- Penney, A. M., Rachor, G. S., & Deleurme, K. A. (2020). Differentiating the roles of intolerance of uncertainty and negative beliefs about worry across emotional disorders. *Journal of Experimental Psychopathology*, 11(4), 1-22. <https://doi.org/10.1177/2043808720970072>
- Perna, G., & Caldirola, D. (2020). COVID-19 and panic disorder: Clinical considerations for the most physical of mental disorders. *Brazilian Journal of Psychiatry*, 43, 110-111. <https://doi.org/10.1590/1516-4446-2020-1235>

- Price, P. C., Jhangiani, R. S., & Chiang, I. A. (2015). *Research methods in psychology* (2nd Canadian Edition). The Saylor Foundation.
- Reiss, S., Peterson, R. A., Gursky, D. M., & McNally, R. J. (1986). Anxiety sensitivity, anxiety frequency and the prediction of fearfulness. *Behaviour Research and Therapy*, 24(1), 1-8. [https://doi.org/10.1016/0005-7967\(86\)90143-9](https://doi.org/10.1016/0005-7967(86)90143-9)
- Ritchie, H., Mathieu, E., Rod  s-Guirao, L., Appel, C., Giattino, C., Ortiz-Ospina, E., Hasell, J., Macdonald, B., Beltekian, D., & Roser, M. (2020). Coronavirus Pandemic (COVID-19). *Our World in Data*. Retrieved March 18, 2022, from <https://ourworldindata.org/coronavirus>
- Saint, S. A., & Moscovitch, D. A. (2021). Effects of mask-wearing on social anxiety: An exploratory review. *Anxiety, Stress, & Coping*, 34(5), 487-502. <https://doi.org/10.1080/10615806.2021.1929936>
- Salkovskis, P. M., Rimes, K. A., Warwick, H. M. C., & Clark, D. M. (2002). The Health Anxiety Inventory: Development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine*, 32, 843–853. <https://doi.org/10.1017/S0033291702005822>
- Satici, B., Saricali, M., Satici, S. A., & Griffiths, M. D. (2020). Intolerance of uncertainty and mental wellbeing: Serial mediation by rumination and fear of COVID-19. *International Journal of Mental Health and Addiction*, 15, 1-12. <https://doi.org/10.1007/s11469-020-00305-0>
- Spitzer, R. L., Kroenke, K., Williams, J. B., & L  we, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, 166(10), 1092-1097. <https://doi.org/10.1001/archinte.166.10.1092>

- Tabachnick, B. G., & Fidell, L. S. (2013) *Using multivariate statistics* (6th ed.). Pearson Education.
- Taha, S., Matheson, K., Cronin, T., & Anisman, H. (2014). Intolerance of uncertainty, appraisals, coping, and anxiety: The case of the 2009 H 1 N 1 pandemic. *British Journal of Health Psychology*, 19(3), 592-605. <https://doi.org/10.1111/bjhp.12058>
- Taylor, S. (2019). *The psychology of pandemics: Preparing for the next global outbreak of infectious disease*. Cambridge Scholars Publishing.
- Taylor, S., & Asmundson, G. J. (2004). *Treating health anxiety: A cognitive-behavioral approach*. Guilford Press.
- Taylor, S., Landry, C., Paluszek, M., Fergus, T. A., McKay, D., & Asmundson, G. J. (2020). Development and initial validation of the COVID Stress Scales. *Journal of Anxiety Disorders*, 72, Article 102232. <https://doi.org/10.1016/j.janxdis.2020.102232>
- Taylor, S., Zvolensky, M. J., Cox, B. J., Deacon, B., Heimberg, R. G., Ledley, D. R., Abramowitz, J. S., Holaway, R. M., Sandin, B., Stewart, S. H., Coles, M., Eng, W., Daly, E. S., Arrindell, W. A., Bouvard, M., & Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment*, 19(2), 176-188. <https://doi.org/10.1037/1040-3590.19.2.176>
- Thibodeau, M. A., Carleton, R. N., McEvoy, P. M., Zvolensky, M. J., Brandt, C. P., Boelen, P. A., Mahoney, A. E. J., Deacon, B. J., & Asmundson, G. J. (2015). Developing scales measuring disorder-specific intolerance of uncertainty (DSIU): A new perspective on transdiagnostic. *Journal of Anxiety Disorders*, 31, 49-57. <https://doi.org/10.1016/j.janxdis.2015.01.006>

- Tull, M. T., Edmonds, K. A., Scamaldo, K. M., Richmond, J. R., Rose, J. P., & Gratz, K. L. (2020). Psychological outcomes associated with stay-at-home orders and the perceived impact of COVID-19 on daily life. *Psychiatry Research*, 289, Article 113098. <https://doi.org/10.1016/j.psychres.2020.113098>
- Waqas, M., Hania, A., & Hongbo, L. (2020). Psychological predictors of anxious responses to the COVID-19 pandemic: Evidence from Pakistan. *Psychiatry Investigation*, 17(11), 1096. <https://doi.org/10.30773/pi.2020.0167>
- Warren, A. M., Zolfaghari, K., Fresnedo, M., Bennett, M., Pogue, J., Waddimba, A., Zvolensky, M., Carlbring, P., & Powers, M. B. (2021). Anxiety sensitivity, COVID-19 fear, and mental health: Results from a United States population sample. *Cognitive Behaviour Therapy*, 50(3), 204-216. <https://doi.org/10.1080/16506073.2021.1874505>
- Wells, A., & Cartwright-Hatton, S. (2004). A short form of the Metacognitions Questionnaire: Properties of the MCQ-30. *Behaviour Research and Therapy*, 42(4), 385-396. [https://doi.org/10.1016/S0005-7967\(03\)00147-5](https://doi.org/10.1016/S0005-7967(03)00147-5)
- Wheaton, M. G., Abramowitz, J. S., Berman, N. C., Fabricant, L. E., & Olatunji, B. O. (2012). Psychological predictors of anxiety in response to the H1N1 (swine flu) pandemic. *Cognitive Therapy and Research*, 36(3), 210-218. <https://doi.org/10.1007/s10608-011-9353-3>
- Wheaton, M. G., Messner, G. R., & Marks, J. B. (2021). Intolerance of uncertainty as a factor linking obsessive-compulsive symptoms, health anxiety and concerns about the spread of the novel coronavirus (COVID-19) in the United States. *Journal of Obsessive-Compulsive and Related Disorders*, 28, Article 100605. <https://doi.org/10.1016/j.jocrd.2020.100605>

Appendix A

Consent Form



Consent Form

Project Title: Anxiety and Beliefs About COVID-19

Researcher(s):

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Purpose of the Research:

The purpose of this study is to investigate the link between anxiety symptoms and anxiety-related beliefs and COVID-19-related fear, stress, and anxiety in an undergraduate sample. Additionally, the study aims to examine how COVID-19 anxiety, anxiety symptoms, and anxiety-related beliefs are related to undergraduate students' opinions of their current school circumstances and pandemic experience.

Procedures:

- As a participant, you will be asked to complete a variety of online questionnaires regarding your anxiety related to COVID-19, any anxiety symptoms you are experiencing, and any anxiety-related beliefs that you have.
- You will also be asked for your opinions related to COVID-19's effects on undergraduate students' experiences.
- You may complete the survey anywhere that you feel comfortable and that has a secure internet connection.
- This study will take approximately 45-60 minutes to complete.
- You may skip any questions that you are uncomfortable with answering and you are free to withdraw from the study at any time without penalty.
- At the end of the study, you will be debriefed on the purpose of the study.

Potential Risks:

- The study is of minimal risk. There are no known or anticipated risks associated with participation in this research. Though unlikely, you may feel discomfort upon disclosing personal information. Please feel free to skip any questions that you feel uncomfortable answering. You may also withdraw at any time without loss of course credit.
- Upon completion of the study, you will be provided with a debriefing form that will contain contact information for a list of services at your disposal should you experience any residual distress.

Potential Benefits:

- For participating in the study, you may be eligible to receive up to 2% course credit.
- You will gain knowledge about how research in the field of psychology is conducted.
- You will be contributing to the psychological literature on COVID-19 anxiety and its relation to anxiety symptoms and anxiety-related beliefs.
- You will leave with a better understanding of your own thoughts and anxiety.

Compensation:

- You may be eligible to earn up to 2% toward your final grade in your psychology course for taking part in this study. Details about how credit is awarded are described in your course outline provided by your professor, and you may contact the research pool coordinator, Danielle Strierner (striernerd@macewan.ca), if you have additional questions.

Confidentiality/Anonymity:

- The responses you provide in this study are anonymous. There will be no questions that require you to provide identifying information or any information that would reveal your identity. Therefore, upon submitting your data you will not be able to withdraw your responses, as we are unable to match you to your data.
- Data for this survey is collected through Qualtrics which is located in United States of America. As such, the data is subject to American privacy and security laws. This survey or questionnaire does not ask for personal identifiers or any information that may be used to identify you. The company servers may record incoming IP addresses of the computer that you use to access the survey, but the company asserts that no connection is made between your data and your computer's IP address. The privacy and security policy for the on-line survey company can be found at: <https://www.qualtrics.com/privacy-statement/> and at: <https://www.qualtrics.com/security-statement/>

Anticipated use of the data and dissemination of the results:

- The data collected will only be used for research purposes. The anonymous data gathered in this study may be presented at academic conferences or in research publications. The data will be reported in aggregate form, so that it will not be possible to identify individuals. Your confidentiality is assured.

Right to withdraw:

- Your participation is voluntary. You are free to skip any questions that you do not wish to answer.
- You may withdraw from the study for any reason, at any time, without explanation or penalty of any sort. To do so, simply discontinue your completion of the questionnaires by closing your browser window.
- Whether you decided to participate or not in the study will have no effect on your treatment or standing within your class.

Questions or Concerns:

- If you have questions or concerns regarding this study, please contact Layton Byam (byaml@mymacewan.ca) or Dr. Alexander Penney (alexander.penney@macewan.ca). Contact information for the researchers is also provided at the top of this document.
- You can request a summary of this study once all the data has been collected and analyzed.

Questions or Concerns about Ethical Conduct:

- This project has been approved on ethical grounds by the MacEwan University Research Ethics Board.
- Any questions regarding your rights as a participant may be addressed to the Board at 780-497-4280 or REB@macewan.ca.

Documenting Consent:

- I hereby agree to participate in the study described above. I understand that consent does not constitute a waiver of legal rights in the event of research-related harm.

Filling out this form indicates that I have read and understand the description provided. I consent to participate in the research project.

___ **I consent, and wish to participate in the study**

___ **I do not consent, and do not wish to participate**

Appendix B

Measures Used in the Present Study

Demographics Questionnaire

We would appreciate your responses to the following questions.

1) What sex were you assigned at birth, meaning on your original birth certificate?

- ☐ Male
- ☐ Female
- ☐ Unsure/don't know
- ☐ Prefer not to answer
- ☐ Other (please specify): _____

2) What is your current gender/gender identity?

- ☐ Male
- ☐ Female
- ☐ Trans Man - Female to Male (FtM)
- ☐ Trans Woman - Male to Female (MtF)
- ☐ Two-Spirit
- ☐ Non-Binary
- ☐ Unsure/Don't know
- ☐ Prefer not to answer
- ☐ Other (please specify): _____

3) Age: _____

4) Which of the following best describes your racial/ethnic identity?

- ☐ Caucasian (White)
- ☐ Black
- ☐ Indigenous/Aboriginal
- ☐ Latino/Hispanic/Caribbean
- ☐ South American (e.g., Brazilian, Chilean, Peruvian, etc.)
- ☐ African
- ☐ Scandinavian
- ☐ Eastern European (e.g., Russian, Ukrainian, Romanian, etc.)
- ☐ Middle Eastern
- ☐ Israeli

- ☐ East Asian (e.g., Chinese, Japanese, Korean, etc.)
- ☐ Southeast Asian (e.g., Malaysian, Filipino, Vietnamese, etc.)
- ☐ Mixed race
- ☐ Unsure/Don't know
- ☐ Prefer not to answer
- ☐ Other (please specify): _____

5) What is your current marital status?

- ☐ Single
- ☐ Dating
- ☐ Married/common law
- ☐ Divorced/separated
- ☐ Widowed

6) Are you currently employed?

- ☐ Full Time
- ☐ Part Time
- ☐ Retired
- ☐ No

7) Are you currently a MacEwan University student?

- ☐ Yes – Full Time
- ☐ Yes – Part Time
- ☐ No

8) Please list any mental health or medical conditions that you have previously been diagnosed with by a medical doctor, counsellor, or other professional:

☐ None

Condition A: _____ Condition D: _____

Condition B: _____ Condition E: _____

Condition C: _____ Condition F: _____

COVID-19 Demographics

We would appreciate your responses to the following questions.

1) Have you tested positive for the coronavirus at any point?

☐ Yes

☐ No

2) Do you believe you likely contracted the coronavirus at some point, but were not tested at the time?

☐ Yes

☐ No

3) How many times have you been tested for the coronavirus? _____

4) Do you consider yourself to be at an increased risk of experiencing severe outcomes if you were to contract the coronavirus?

☐ Yes

☐ No

5) Are you attending any classes/lectures/labs in-person, on campus, this semester?

☐ Yes

☐ No

6) Have you been (or do you plan to in the near future) coming to campus in-person for non-instructional activities (e.g., studying, volunteering, work, etc.)?

☐ Yes

☐ No

CSS

The following asks about various kinds of worries that you might have experienced over the past seven days. In the following statements, we refer to coronavirus as "the virus".

Please note: "self-isolation" refers to voluntary separation from others.

	Not at all 0	Slightly 1	Moderately 2	Very 3	Extremely 4
1. I am worried about catching the virus	0	1	2	3	4
2. I am worried that I can't keep my family safe from the virus	0	1	2	3	4
3. I am worried that our healthcare system won't be able to protect my loved ones	0	1	2	3	4
4. I am worried our healthcare system is unable to keep me safe from the virus	0	1	2	3	4
5. I am worried that basic hygiene (e.g., handwashing) is not enough to keep me safe from the virus	0	1	2	3	4
6. I am worried that social distancing is not enough to keep me safe from the virus	0	1	2	3	4
7. I am worried about grocery stores running out of food	0	1	2	3	4
8. I am worried that grocery stores will close down	0	1	2	3	4
9. I am worried about grocery stores running out of cleaning or disinfectant supplies	0	1	2	3	4
10. I am worried about grocery stores running out of cold or flu remedies	0	1	2	3	4
11. I am worried about grocery stores running out of water	0	1	2	3	4
12. I am worried about pharmacies running out of prescription medicine	0	1	2	3	4
13. I am worried that foreigners are spreading the virus in my country	0	1	2	3	4
14. If I went to a restaurant that specialized in foreign foods, I'd be worried about catching the virus	0	1	2	3	4

	Not at all 0	Slightly 1	Moderately 2	Very 3	Extremely 4
15. I am worried about coming into contact with foreigners because they might have the virus	0	1	2	3	4
16. If I met a person from a foreign country, I'd be worried that they might have the virus	0	1	2	3	4
17. If I was in an elevator with a group of foreigners, I'd be worried that they're infected with the virus	0	1	2	3	4
18. I am worried that foreigners are spreading the virus because they're not as clean as we are	0	1	2	3	4
19. I am worried that if I touched something in a public space (e.g., handrail, door handle), I would catch the virus	0	1	2	3	4
20. I am worried that if someone coughed or sneezed near me, I would catch the virus	0	1	2	3	4
21. I am worried that people around me will infect me with the virus	0	1	2	3	4
22. I am worried about taking change in cash transactions	0	1	2	3	4
23. I am worried that I might catch the virus from handling money or using a debit machine	0	1	2	3	4
24. I am worried that my mail has been contaminated by mail handlers	0	1	2	3	4

Please read each statement and indicate how frequently you have experienced each problem during the past seven days. In the following statements, we refer to coronavirus as "the virus".

	Never	Rarely	Sometimes	Often	Almost Always
	0	1	2	3	4
25. I had trouble concentrating because I kept thinking about the virus	0	1	2	3	4
26. Disturbing mental images about the virus popped into my mind against my will	0	1	2	3	4
27. I had trouble sleeping because I worried about the virus	0	1	2	3	4
28. I thought about the virus when I didn't mean to	0	1	2	3	4
29. Reminders of the virus caused me to have physical reactions, such as sweating or a pounding heart	0	1	2	3	4
30. I had bad dreams about the virus	0	1	2	3	4

The following items ask about checking behaviours. During the past seven days, how much have you done the following because of concerns about coronavirus? In the following statements, we refer to coronavirus as "the virus".

	Never	Rarely	Sometimes	Often	Almost Always
	0	1	2	3	4
31. Searched the Internet for treatments for the virus	0	1	2	3	4
32. Asked health professionals (e.g., doctors or pharmacists) for advice about the virus	0	1	2	3	4
33. Checked YouTube videos about the virus	0	1	2	3	4
34. Checked your own body for signs of infection (e.g., taking your temperature)	0	1	2	3	4
35. Sought reassurance from friends or family about the virus	0	1	2	3	4
36. Checked social media posts concerning the virus	0	1	2	3	4

CAS

How often have you experienced the following activities over the last 2 weeks?

Not at all	Rare, less than a day or two	Several days	More than 7 days	Nearly every day over the last 2 weeks
0	1	2	3	4

1. I felt dizzy, lightheaded, or faint, when I read or listened to news about the coronavirus.

0	1	2	3	4
---	---	---	---	---

2. I had trouble falling or staying asleep because I was thinking about the coronavirus.

0	1	2	3	4
---	---	---	---	---

3. I felt paralyzed or frozen when I thought about or was exposed to information about the coronavirus.

0	1	2	3	4
---	---	---	---	---

4. I lost interest in eating when I thought about or was exposed to information about the coronavirus.

0	1	2	3	4
---	---	---	---	---

5. I felt nauseous or had stomach problems when I thought about or was exposed to information about the coronavirus.

0	1	2	3	4
---	---	---	---	---

CP19-S

Following the coronavirus pandemic, people have begun to experience some of the difficulties listed below. Please read each statement carefully but without spending too much time on it. Consider your own situation throughout the last week including today and rate your agreement with each statement by selecting the corresponding number. Please complete all the statements to the best of your ability.

	Strongly Disagree 1	Disagree 2	Agree 3	Generally Agree 4	Strongly Agree 5
1. The fear of coming down with coronavirus makes me very anxious.	1	2	3	4	5
2. I experience serious stomachaches out of the fear of coronavirus.	1	2	3	4	5
3. After the coronavirus pandemic, I feel extremely anxious when I see people coughing.	1	2	3	4	5
4. The possibility of food supply shortage due to the coronavirus pandemic causes me anxiety.	1	2	3	4	5
5. I am extremely afraid that someone in my family might become infected by the coronavirus.	1	2	3	4	5
6. I experience serious chest pain out of the fear of coronavirus.	1	2	3	4	5
7. After the coronavirus pandemic, I actively avoid people I see sneezing.	1	2	3	4	5
8. The possibility of shortages in cleaning supplies due to the coronavirus pandemic causes me anxiety.	1	2	3	4	5
9. News about coronavirus-related deaths causes me great anxiety.	1	2	3	4	5
10. I experience tremors due to the fear of coronavirus.	1	2	3	4	5
11. Following the coronavirus pandemic, I have noticed that I spend extensive periods of time cleaning my hands.	1	2	3	4	5
12. I stock food due to the fear of coronavirus.	1	2	3	4	5

	Strongly Disagree 1	Disagree 2	Agree 3	Generally Agree 4	Strongly Agree 5
13. Uncertainties surrounding coronavirus cause me enormous anxiety.	1	2	3	4	5
14. I experience sleep problems out of the fear of coronavirus.	1	2	3	4	5
15. The fear of coming down with coronavirus seriously impedes my social relationships.	1	2	3	4	5
16. After the coronavirus pandemic, I do not feel relaxed unless I constantly check on my supplies at home.	1	2	3	4	5
17. The pace that coronavirus has spread causes me great panic.	1	2	3	4	5
18. Coronavirus makes me so tense that I find myself unable to do the things I previously had no problem doing.	1	2	3	4	5
19. I am unable to curb my anxiety of catching coronavirus from others.	1	2	3	4	5
20. I argue passionately (or want to argue) with people I consider to be behaving irresponsibly in the face of coronavirus.	1	2	3	4	5

FCV-19S

Strongly Disagree 1	Disagree 2	Neither Agree nor Disagree 3	Agree 4	Strongly Agree 5
1. I am most afraid of coronavirus.				
1	2	3	4	5
2. It makes me uncomfortable to think about coronavirus.				
1	2	3	4	5
3. My hands become clammy when I think about coronavirus.				
1	2	3	4	5
4. I am afraid of losing my life because of coronavirus.				
1	2	3	4	5
5. When watching news and stories about coronavirus on social media, I become nervous or anxious.				
1	2	3	4	5
6. I cannot sleep because I'm worrying about getting coronavirus.				
1	2	3	4	5
7. My heart races or palpitates when I think about getting coronavirus.				
1	2	3	4	5

PHQ-15

During the <i>past 4 weeks</i> , how much you been bothered by any of the following problems?	Not Bothered at All	Bothered a Little	Bothered a Lot
a. Stomach pains	0	1	2
b. Back pains	0	1	2
c. Pain in your arms, legs, or joints (knees, hips, etc.)	0	1	2
d. Menstrual cramps or other problems with your periods [Women only]	0	1	2
e. Headaches	0	1	2
f. Chest pain	0	1	2
g. Dizziness	0	1	2
h. Fainting spells	0	1	2
i. Feeling your heart pound or race	0	1	2
j. Shortness of breath	0	1	2
k. Pain or problems with sexual intercourse	0	1	2
l. Constipation, loose bowels, or diarrhea	0	1	2
m. Nausea, gas, or indigestion	0	1	2
n. Feeling tired or having low energy	0	1	2
o. Trouble sleeping	0	1	2

SHAI

Each question in this section consists of a group of four statements. Please read each group of statements carefully and then select the one which best describes your feelings, **over the past six months**. Identify the statement by circling the letter next to the statement. It may be that more than one statement applies, in which case, please circle any that are applicable.

1. (a) I do not worry about my health.
 (b) I occasionally worry about my health.
 (c) I spend much of my time worrying about my health.
 (d) I spend most of my time worrying about my health.

2. (a) I notice aches/pains less than most other people (of my age).
 (b) I notice aches/pains as much as most other people (of my age).
 (c) I notice aches/pains more than most other people (of my age).
 (d) I am aware of aches/pains in my body all the time.

3. (a) As a rule I am not aware of bodily sensations or changes.
 (b) Sometimes I am aware of bodily sensations or changes.
 (c) I am often aware of bodily sensations or changes.
 (d) I am constantly aware of bodily sensations or changes.

4. (a) Resisting thoughts of illness is never a problem.
 (b) Most of the time I can resist thoughts of illness.
 (c) I try to resist thoughts of illness but am often unable to do so.
 (d) Thoughts of illness are so strong that I no longer even try to resist them.

5. (a) As a rule I am not afraid that I have a serious illness.
 (b) I am sometimes afraid that I have a serious illness.
 (c) I am often afraid that I have a serious illness.
 (d) I am always afraid that I have a serious illness.

6. (a) I do not have images (mental pictures) of myself being ill.
 (b) I occasionally have images of myself being ill.
 (c) I frequently have images of myself being ill.

- (d) I constantly have images of myself being ill.
7. (a) I do not have any difficulty taking my mind off thoughts about my health.
(b) I sometimes have difficulty taking my mind off thoughts about my health.
(c) I often have difficulty in taking my mind off thoughts about my health.
(d) Nothing can take my mind off thoughts about my health.
8. (a) I am lastingly relieved if my doctor tells me there is nothing wrong.
(b) I am initially relieved, but the worries sometimes return later.
(c) I am initially relieved, but the worries always return later.
(d) I am not relieved if my doctor tells me there is nothing wrong.
9. (a) If I hear about an illness I never think I have it myself.
(b) If I hear about an illness I sometimes think I have it myself.
(c) If I hear about an illness I often think I have it myself.
(d) If I hear about an illness I always think I have it myself.
10. (a) If I have a bodily sensation or change I rarely wonder what it means.
(b) If I have a bodily sensation or change I often wonder what it means.
(c) If I have a bodily sensation or change I always wonder what it means.
(d) If I have a bodily sensation or change I must know what it means.
11. (a) I usually feel at very low risk for developing a serious illness.
(b) I usually feel at fairly low risk for developing a serious illness.
(c) I usually feel at moderate risk for developing a serious illness.
(d) I usually feel at high risk for developing a serious illness.
12. (a) I never think I have a serious illness.
(b) I sometimes think I have a serious illness.
(c) I often think I have a serious illness.
(d) I usually think that I am seriously ill.

13. (a) If I notice an unexplained bodily sensation I don't find it difficult to think about other things.
(b) If I notice an unexplained bodily sensation I sometimes find it difficult to think about other things.
(c) If I notice an unexplained bodily sensation I often find it difficult to think about other things.
(d) If I notice an unexplained bodily sensation I always find it difficult to think about other things.
14. (a) My family/friends would say I do not worry enough about my health.
(b) My family/friends would say I have a normal attitude to my health.
(c) My family/friends would say I worry too much about my health.
(d) My family/friends would say I am a hypochondriac.

For the following questions, please think about what it might be like if you had a serious illness of a type which particularly concerns you (such as heart disease, cancer, multiple sclerosis and so on). Obviously it may not be possible to know for definite what it would be like; please give your best estimate of what you think might happen, basing your estimate on what you know about yourself and serious illness in general.

15. (a) If I had a serious illness I would still be able to enjoy things in my life quite a lot.
(b) If I had a serious illness I would still be able to enjoy things in my life a little.
(c) If I had a serious illness I would be almost completely unable to enjoy things in my life.
(d) If I had a serious illness I would be completely unable to enjoy life at all.
16. (a) If I developed a serious illness there is a good chance that modern medicine would be able to cure me.
(b) If I developed a serious illness there is a moderate chance that modern medicine would be able to cure me.
(c) If I developed a serious illness there is a very small chance that modern medicine would be able to cure me.

- (d) If I developed a serious illness there is no chance that modern medicine would be able to cure me.
17. (a) A serious illness would ruin some aspects of my life.
(b) A serious illness would ruin many aspects of my life.
(c) A serious illness would ruin almost every aspect of my life.
(d) A serious illness would ruin every aspect of my life.
18. (a) If I had a serious illness I would not feel that I had lost my dignity.
(b) If I had a serious illness I would feel that I had lost a little of my dignity.
(c) If I had a serious illness I would feel that I had lost quite a lot of my dignity.
(d) If I had a serious illness I would feel that I had totally lost my dignity.

GAD-7

Over the **last 2 weeks**, please indicate how often have you been bothered by the following problems by selecting the appropriate number.

	Not at All 0	Several Days 1	More Than Half the Days 2	Nearly Every Day 3
1. Feeling nervous, anxious, or on edge.	0	1	2	3
2. Not being able to stop or control worrying.	0	1	2	3
3. Worrying too much about different things.	0	1	2	3
4. Trouble relaxing.	0	1	2	3
5. Being so restless that it is hard to sit still.	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid as if something awful might happen.	0	1	2	3

If you checked off **any** problems, how **difficult** have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not Difficult at All	Somewhat Difficult	Very Difficult	Extremely Difficult
☐	☐	☐	☐

OCI-R

The following statements refer to experiences that many people have in their everyday lives. Choose the number that best describes how much that experience has distressed or bothered you during the **past month**. The numbers refer to the following verbal labels:

Not at all 0	A little 1	Moderately 2	A lot 3	Extremely 4
1. I have saved up so many things that they get in the way.				
0	1	2	3	4
2. I check things more often than necessary.				
0	1	2	3	4
3. I get upset if objects are not arranged properly.				
0	1	2	3	4
4. I feel compelled to count while I am doing things.				
0	1	2	3	4
5. I find it difficult to touch an object when I know it has been touched by strangers or certain people.				
0	1	2	3	4
6. I find it difficult to control my own thoughts.				
0	1	2	3	4
7. I collect things I don't need.				
0	1	2	3	4
8. I repeatedly check doors, windows, drawers, etc.				
0	1	2	3	4
9. I get upset if others change the way I have arranged things.				
0	1	2	3	4

Not at all 0	A little 1	Moderately 2	A lot 3	Extremely 4
10. I feel I have to repeat certain numbers.				
0	1	2	3	4
11. I sometimes have to wash or clean myself simply because I feel contaminated.				
0	1	2	3	4
12. I am upset by unpleasant thoughts that come into my mind against my will.				
0	1	2	3	4
13. I avoid throwing things away because I am afraid I might need them later.				
0	1	2	3	4
14. I repeatedly check gas and water taps and light switches after turning them off.				
0	1	2	3	4
15. I need things to be arranged in a particular order.				
0	1	2	3	4
16. I feel that there are good and bad numbers.				
0	1	2	3	4
17. I wash my hands more often and longer than necessary.				
0	1	2	3	4
18. I frequently get nasty thoughts and have difficulty in getting rid of them.				
0	1	2	3	4

SIAS

For each question, please select an option to indicate the degree to which you feel the statement

is characteristic or true of you. The rating scale is as follows:

0 = Not at all characteristic or true of me

1 = Slightly characteristic or true of me

2 = Moderately characteristic or true of me

3 = Very characteristic or true of me

4 = Extremely characteristic or true of me

1. I get nervous if I have to speak with someone in authority (teacher, boss, etc.).

0 1 2 3 4

2. I have difficulty making eye contact with others.

0 1 2 3 4

3. I become tense if I have to talk about myself or my feelings.

0 1 2 3 4

4. I find difficulty mixing comfortably with the people I work with.

0 1 2 3 4

5. I find it easy to make friends of my own age.

0 1 2 3 4

6. I tense-up if I meet an acquaintance on the street.

0 1 2 3 4

7. When mixing socially, I am uncomfortable.

0 1 2 3 4

8. I feel tense if I am alone with just one person.

0 1 2 3 4

9. I am at ease meeting people at parties, etc.

0 1 2 3 4

10. I have difficulty talking with other people.

0 1 2 3 4

11. I find it easy to think of things to talk about.

0 1 2 3 4

0 = Not at all characteristic or true of me

1 = Slightly characteristic or true of me

2 = Moderately characteristic or true of me

3 = Very characteristic or true of me

4 = Extremely characteristic or true of me

12. I worry about expressing myself in case I appear awkward.

0 1 2 3 4

13. I find it difficult to disagree with another's point of view.

0 1 2 3 4

14. I have difficulty talking to an attractive person of the opposite sex.

0 1 2 3 4

15. I find myself worrying that I won't know what to say in social situations.

0 1 2 3 4

16. I am nervous mixing with people I don't know well.

0 1 2 3 4

17. I feel I'll say something embarrassing when talking.

0 1 2 3 4

18. When mixing in a group, I find myself worrying I will be ignored.

0 1 2 3 4

19. I am tense mixing in a group.

0 1 2 3 4

20. I am unsure whether to greet someone I know only slightly.

0 1 2 3 4

SPS

For each question, please select an option to indicate the degree to which you feel the statement is characteristic or true of you. The rating scale is as follows:

0 = Not at all characteristic or true of me

1 = Slightly characteristic or true of me

2 = Moderately characteristic or true of me

3 = Very characteristic or true of me

4 = Extremely characteristic or true of me

1. I become anxious if I have to write in front of other people.

0 1 2 3 4

2. I become self-conscious when using public toilets.

0 1 2 3 4

3. I can suddenly become aware of my own voice and of others listening to me.

0 1 2 3 4

4. I get nervous that people are staring at me as I walk down the street.

0 1 2 3 4

5. I fear I may blush when I am with others.

0 1 2 3 4

6. I feel self-conscious if I have to enter a room where others are already seated.

0 1 2 3 4

7. I worry about shaking or trembling when I'm watched by other people.

0 1 2 3 4

8. I would get tense if I had to sit facing other people on a bus or a train.

0 1 2 3 4

9. I get panicky that others might see me faint or be sick or ill.

0 1 2 3 4

10. I would find it difficult to drink something if in a group of people.

0 1 2 3 4

11. It would make me feel self-conscious to eat in front of a stranger in a restaurant.

0 1 2 3 4

0 = Not at all characteristic or true of me

1 = Slightly characteristic or true of me

2 = Moderately characteristic or true of me

3 = Very characteristic or true of me

4 = Extremely characteristic or true of me

12. I am worried people will think my behaviour is odd.

0 1 2 3 4

13. I would get tense if I had to carry a tray across a crowded cafeteria.

0 1 2 3 4

14. I worry I'll lose control of myself in front of other people.

0 1 2 3 4

15. I worry I might do something to attract the attention of other people.

0 1 2 3 4

16. When in an elevator, I am tense if people look at me.

0 1 2 3 4

17. I can feel conspicuous standing in a line.

0 1 2 3 4

18. I can get tense when I speak in front of other people.

0 1 2 3 4

19. I worry my head will shake or nod in front of others.

0 1 2 3 4

20. I feel awkward and tense if I know people are watching me.

0 1 2 3 4

PDSS

Several of the following questions refer to panic attacks and limited symptom attacks. For this questionnaire, we define a *panic attack* as a sudden rush of fear or discomfort accompanied by at least 4 of the symptoms listed below. In order to qualify as a sudden rush, the symptoms must peak within 10 minutes. Episodes like panic attacks but having fewer than 4 of the listed symptoms are called *limited symptom attacks*. Here are the symptoms to count:

- | | |
|-------------------------------|---|
| • Rapid or pounding heartbeat | • Dizziness or faintness |
| • Sweating | • Feelings of unreality |
| • Trembling or shaking | • Numbness or tingling |
| • Breathlessness | • Chills or hot flashes |
| • Feeling of choking | • Fear of losing control or going crazy |
| • Chest pain or discomfort | • Fear of dying |
| • Nausea | |
-

Please circle the appropriate number below:

1. How many panic and limited symptom attacks did you have during the past week?

- 0 = No panic or limited symptom episodes
- 1 = No full panic attacks and no more than 1 limited symptom attack/day
- 2 = 1 or 2 full panic attacks and/or multiple limited symptom attacks/day
- 3 = More than 2 full attacks but not more than 1/day on average
- 4 = Full panic attacks occurred more than once a day, more days than not

2. If you had any panic attacks or limited symptom attacks during the past week, how distressing (uncomfortable, frightening) were they while they were happening? If you had more than one, give an average rating.

- 0 = Not at all distressing, or no panic or limited symptom attacks during the past week
- 1 = Mildly distressing
- 2 = Moderately distressing
- 3 = Severely distressing
- 4 = Extremely distressing

3. During the past week, how much have you worried or felt anxious about when your next panic attack would occur, or about fears related to the attacks (for example, that they could mean you have physical or mental health problems or could cause you social embarrassment)?

0 = Not at all

1 = Occasionally or only mildly

2 = Frequently or moderately

3 = Very often or to a very disturbing degree

4 = Nearly constantly and to a disabling extent

4. During the past week, were there any places or situations (e.g., public transportation, movie theaters, crowds, bridges, tunnels, shopping malls, being alone) you avoided, or felt afraid of (uncomfortable in, wanted to avoid or leave), because of fear of having a panic attack? Please rate your level of fear and avoidance this past week.

0 = None: no fear or avoidance

1 = Mild: occasional fear and/or avoidance, but I could usually confront or endure the situation.

2 = Moderate: noticeable fear and/or avoidance, but still manageable.

3 = Severe: extensive fear and avoidance.

4 = Extreme: pervasive disabling fear and/or avoidance.

5. During the past week, were there any activities (e.g., physical exertion, sexual relations, taking a hot shower or bath, drinking coffee, watching an exciting or scary movie) that you avoided, or felt afraid of, because they caused physical sensations like those you feel during panic attacks or that you were afraid might trigger a panic attack? Please rate your level of fear and avoidance of those activities this past week.

0 = No fear or avoidance of situations or activities because of distressing physical sensations

1 = Mild: occasional fear and/or avoidance

2 = Moderate: noticeable avoidance, but still manageable

3 = Severe: extensive fear and avoidance

4 = Extreme: pervasive and disabling avoidance

6. During the past week, how much did the above symptoms altogether (panic and limited symptom attacks, worry about attacks, and fear of situations and activities because of attacks) interfere with your ability to work or carry out your responsibilities at home? (If your work or home responsibilities were less than usual this past week, answer how you think you would have done if the responsibilities had been usual.)

0 = No interference with work or home responsibilities

1 = Slight interference with work or home responsibilities, but I could do nearly everything I could if I didn't have these problems.

2 = Significant interference with work or home responsibilities, but I still could manage to do the things I needed to do.

3 = Substantial impairment in work or home responsibilities; there were many important things I couldn't do because of these problems.

4 = Extreme, incapacitating impairment such that I was essentially unable to manage any work or home responsibilities.

7. During the past week, how much did panic and limited symptom attacks, worry about attacks and fear of situations and activities because of attacks interfere with your social life? (If you didn't have many opportunities to socialize this past week, answer how you think you would have done if you did have opportunities.)

0 = No interference

1 = Slight interference with social activities, but I could do nearly everything I could if I didn't have these problems.

2 = Significant interference with social activities, but I could manage to do most things if I made the effort.

3 = Substantial impairment in social activities; there are many social things I couldn't do because of these problems.

4 = Extreme, incapacitating impairment, such that there was hardly anything social I could do.

ASI-3

Please circle the number that best corresponds to how much you agree with each item. If any items concern something that you have never experienced (e.g., fainting in public) answer on the basis of how you think you might feel *if you had* such an experience. Otherwise, answer all items on the basis of your own experience. Be careful to circle only one number for each item and please answer all items.

Very little	A little	Some	Much	Very Much
0	1	2	3	4

1. It is important for me not to appear nervous.

0 1 2 3 4

2. When I cannot keep my mind on a task, I worry that I might be going crazy.

0 1 2 3 4

3. It scares me when my heart beats rapidly.

0 1 2 3 4

4. When my stomach is upset, I worry that I might be seriously ill.

0 1 2 3 4

5. It scares me when I am unable to keep my mind on a task.

0 1 2 3 4

6. When I tremble in the presence of others, I fear what people might think of me.

0 1 2 3 4

7. When my chest feels tight, I get scared that I won't be able to breathe properly.

0 1 2 3 4

8. When I feel pain in my chest, I worry that I am going to have a heart attack.

0 1 2 3 4

Very little	A little	Some	Much	Very Much
0	1	2	3	4
9. I worry that other people will notice my anxiety.				
0	1	2	3	4
10. When I feel “spacey” or spaced out I worry that I may be mentally ill.				
0	1	2	3	4
11. It scares me when I blush in front of people.				
0	1	2	3	4
12. When I notice my heart skipping a beat, I worry that there is something seriously wrong with me.				
0	1	2	3	4
13. When I begin to sweat in a social situation, I fear people will think negatively of me.				
0	1	2	3	4
14. When my thoughts seem to speed up, I worry that I might be going crazy.				
0	1	2	3	4
15. When my throat feels tight, I worry that I could choke to death.				
0	1	2	3	4
16. When I have trouble thinking clearly, I worry that there is something wrong with me.				
0	1	2	3	4
17. I think it would be horrible for me to faint in public.				
0	1	2	3	4
18. When my mind goes blank, I worry there is something terribly wrong with me.				
0	1	2	3	4

DPSS-R

This questionnaire consists of 16 statements about disgust. Please read each statement and think how often it is true for you, then select the option that is closest to this.

Never 1	Rarely 2	Sometimes 3	Often 4	Always 5
1. I avoid disgusting things.				
1	2	3	4	5
2. When I feel disgusted, I worry that I might pass out.				
1	2	3	4	5
3. It scares me when I feel nauseous.				
1	2	3	4	5
4. I think disgusting items could cause me illness/ Infection.				
1	2	3	4	5
5. I feel repulsed.				
1	2	3	4	5
6. Disgusting things make my stomach turn.				
1	2	3	4	5
7. I screw up my face in disgust.				
1	2	3	4	5
8. When I notice that I feel nauseous, I worry about vomiting.				
1	2	3	4	5
9. When I experience disgust, it is an intense feeling.				
1	2	3	4	5
10. I experience disgust.				
1	2	3	4	5

Never 1	Rarely 2	Sometimes 3	Often 4	Always 5
11. It scares me when I feel faint.				
1	2	3	4	5
12. I become disgusted more easily than other people.				
1	2	3	4	5
13. I worry that I might swallow a disgusting thing.				
1	2	3	4	5
14. I find something disgusting.				
1	2	3	4	5
15. It embarrasses me when I feel disgusted.				
1	2	3	4	5
16. I think feeling disgust is bad for me.				
1	2	3	4	5

DSIU

GAD + SAD + OCD + HA + PTSD + MDD

Please select the answer that best corresponds to how much you agree with each item.

Not at all	A little bit	Moderately	Quite a bit	Extremely
0	1	2	3	4

1. I worry because I can't be sure about everything.

0	1	2	3	4
---	---	---	---	---

2. I am anxious in social situations because I don't know for sure what people think of me.

0	1	2	3	4
---	---	---	---	---

3. I often repeat doing things more than necessary in order to be certain.

0	1	2	3	4
---	---	---	---	---

4. I can't be sure how bad it would be if I had a disease, and that bothers me.

0	1	2	3	4
---	---	---	---	---

5. I avoid talking about a stressful experience from my past because I'm unsure whether or not it will bother me.

0	1	2	3	4
---	---	---	---	---

6. I feel down because I am unsure how I will cope with my daily life.

0	1	2	3	4
---	---	---	---	---

7. I spend too much time worrying about things I can't be certain about.

0	1	2	3	4
---	---	---	---	---

8. I can't be myself in social situations when I'm not sure whether or not I will be embarrassed.

0	1	2	3	4
---	---	---	---	---

	Not at all 0	A little bit 1	Moderately 2	Quite a bit 3	Extremely 4
9. I need to work at something until I am sure it is done right.	0	1	2	3	4
10. It bothers me that there is no way to know for sure that I am healthy.	0	1	2	3	4
11. I avoid thinking about stressful experiences from my past because I'm not sure how it will make me feel.	0	1	2	3	4
12. I get upset because I can't know if I will ever feel better about life.	0	1	2	3	4
13. I try to control my worry, but it's hard because I can't be sure something bad won't happen.	0	1	2	3	4
14. I get anxious when I'm not sure how a social interaction will turn out.	0	1	2	3	4
15. When I'm not sure if I did something right, I will do it again until it feels right.	0	1	2	3	4
16. I worry about catching a disease because I can't be sure that won't happen.	0	1	2	3	4
17. I avoid talking about a stressful experience from my past because I can't be certain people will understand.	0	1	2	3	4
18. I feel down because I am uncertain whether or not there is a point to anything.	0	1	2	3	4

PD

For this questionnaire, we define a *panic attack* as a sudden rush of fear or discomfort accompanied by at least 4 of the symptoms listed below. In order to qualify as a sudden rush, the symptoms must peak within 10 minutes. Here are the symptoms to count:

- Rapid or pounding heartbeat
- Sweating
- Trembling or shaking
- Breathlessness
- Feeling of choking
- Chest pain or discomfort
- Nausea
- Dizziness or faintness
- Feelings of unreality
- Numbness or tingling
- Chills or hot flashes
- Fear of losing control or going crazy
- Fear of dying

Please select the answer that best corresponds to how much you agree with each item.

Not at all	A little bit	Moderately	Quite a bit	Extremely
0	1	2	3	4

1. I'm anxious because I can't be certain when my next panic attack will be.

0	1	2	3	4
---	---	---	---	---

2. It bothers me not knowing what could happen when I have a panic attack.

0	1	2	3	4
---	---	---	---	---

3. I worry when unsure whether or not I will have a panic attack.

0	1	2	3	4
---	---	---	---	---

SP

The next series of items are about things or situations that you fear most (e.g., heights, snakes, flying, elevators). Please answer the following questions while keeping in mind what you fear most, even if you are not very fearful of anything. Please select the answer that best corresponds to how much you agree with each item.

Not at all	A little bit	Moderately	Quite a bit	Extremely
0	1	2	3	4

1. It is better for me to avoid my fear and be safe than to face it and be unsure of the consequences.

0	1	2	3	4
---	---	---	---	---

2. I get anxious because I can't be certain what would happen if I faced my fear.

0	1	2	3	4
---	---	---	---	---

3. I spend a lot of time making sure I don't need to face my fear.

0	1	2	3	4
---	---	---	---	---

MCQ-HA

This questionnaire is concerned with beliefs people have regarding thinking about their health. Please read each item and then state how much you generally agree with it by choosing the appropriate number. Please respond to all the items. There are no right or wrong answers.

Do Not Agree 1	Agree Slightly 2	Agree Moderately 3	Agree Very Much 4	
1. Thinking of illness could change my health.	1	2	3	4
2. I cannot have peace of mind so long as I have my physical symptoms.	1	2	3	4
3. I will be punished for thinking I am in good health.	1	2	3	4
4. Thinking negatively could increase my chances of disease.	1	2	3	4
5. Worrying about illness is likely to make it happen.	1	2	3	4
6. Some thoughts have the power to make me ill.	1	2	3	4
7. Dwelling on thoughts of illness is uncontrollable.	1	2	3	4
8. Thinking the worse about my symptoms will keep me safe.	1	2	3	4
9. Worrying about my health will damage my body.	1	2	3	4
10. If I think positively about physical symptoms, I will be caught off guard.	1	2	3	4
11. Worrying about my health will help me cope.	1	2	3	4
12. I have no control over thinking about my health.	1	2	3	4
13. Only if I have a diagnosis will I be able to stop worrying.	1	2	3	4
14. Thinking positively about my health will tempt	1	2	3	4

fate and I will become ill.

INF

Please respond to all the items, there are no right or wrong answers.

False; Not at all True 0	Slightly True 1	Mainly True 2	Very True 3
1. My favourite poet is Raymond Kertezc.			
0	1	2	3
2. Sometimes I get ads in the mail that I don't really want.			
0	1	2	3
3. My favourite sports event on television is the high jump.			
0	1	2	3
4. Most people would rather win than lose.			
0	1	2	3
5. My favourite hobbies are archery and stamp-collecting.			
0	1	2	3
6. I don't like to have to buy things that are overpriced.			
0	1	2	3
7. Most people look forward to a trip to the dentist.			
0	1	2	3
8. In my free time I might read, watch TV, or just relax.			
0	1	2	3

Appendix C

Debriefing Form



Debriefing Form

Thank you for your participation. We would like to tell you more about the study you just participated in. The broad purpose of the study is to look at the link between anxiety disorder symptoms and anxiety-related beliefs and COVID-19-related fear, stress, and anxiety in an undergraduate sample. Additionally, the study aims to examine how COVID-19 anxiety, anxiety symptoms, and anxiety-related beliefs are related to undergraduate student opinions of their current school circumstances and pandemic experience.

Given the brief existence of COVID-19, there has been limited research conducted on COVID-19 anxiety. Research has found that anxiety has increased since the start of the COVID-19 pandemic. Furthermore, it has been found that pre-existing anxiety disorders are significantly related to COVID-19 anxiety.

While researchers have found that COVID-19 anxiety is related to a few anxiety symptoms and anxiety-related beliefs, earlier research has made use of broad measures of anxiety to measure COVID-19 anxiety. This study intends to look at particular anxiety symptoms and anxiety-related beliefs. Additionally, this study is the first to use multiple measures of COVID-19 anxiety.

The present study uses self-report questionnaires to collect data on multiple factors, such as COVID-19 fear, stress, and anxiety, along with a variety of anxiety symptoms and anxiety-related beliefs. Opinions related to COVID-19 and its effect on undergraduate students' experience are also collected. The purpose is to discover links between these various factors.

Findings may provide a greater understanding of the relationships between COVID-19 and anxiety disorder symptoms and beliefs. Findings will also add to the literature on the measurement of COVID-19 anxiety. Results may additionally provide understanding as to how COVID-19 anxiety relates to undergraduate students' opinions of their experience.

Please Note: Your participation in this study does not mean that you have an anxiety disorder. The present study does not diagnose you, nor does your participation suggest you have above average levels of anxiety. If you have any lingering distress upon completing this study, please see the services listed below.

In the event of a personal emergency or if you require immediate medical assistance, please contact **9-1-1** immediately. Additionally, you may wish to speak to your health care professional if you experience any lingering distress following the completion of the study.

MacEwan University's Wellness and Psychological services offer free counseling to students online or on campus in room **7-103A**. Wellness and Psychological services can be contacted by e-mail at **WPS@MacEwan.ca** or by phone at **780-497-5064**. Crisis Response is available at **780-482-HELP (4357)**.

If you have any further questions about the study, you can contact the researchers directly via email (Layton Byam: **ByamL@MyMacEwan.ca** or Dr. Alexander Penney: **Alexander.Penney@MacEwan.ca**).

We would like to thank you once again for participating in this study.