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Journal of Research in Gender Studies

Volume 11(1) • 2021

The Institute of Smart Big Data Analytics • New York

Journal of Research in Gender Studies

VOLUME 11(1) • 2021

ADDLETON ACADEMIC PUBLISHERS • NEW YORK

Journal of Research in Gender Studies
An international peer-reviewed academic journal
Volume 11 / Number 1 / 2021
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Journal of Research in Gender Studies is published twice a year (July and December) by Addleton Academic Publishers, 30-18 50th Street, Woodside, New York, 11377. All papers in this journal have undergone editorial screening and anonymous double-blind peer-review. ISSN 2164-0262, eISSN 2378-3524.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 9–19, ISSN 2164-0262, eISSN 2378-3524

COVID-19-related Depression, Anxiety, and Psychological Stress in Sexual and Gender Minority Populations

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ABSTRACT. I draw on a substantial body of theoretical and empirical research on COVID-19-related depression, anxiety, and psychological stress in sexual and gender minority populations, and to explore this, I inspected, used, and replicated survey data from Chapman University, College Pulse, Course Hero, Ginger, Harvard Medical School, ICF, NASPA, Statista, UNC School of Medicine, University of Maryland/ SPH, and UPMC, performing analyses and making estimates regarding COVID-19-related trauma and mental distress among sexual and gender minority populations. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: sexual; gender; minority; COVID-19; depression; anxiety; stress

How to cite: Davis, R. (2021). "COVID-19-related Depression, Anxiety, and Psychological Stress in Sexual and Gender Minority Populations," *Journal of Research in Gender Studies* 11(1): 9–19. doi: 10.22381/JRGS11120211.

Received 8 November 2020 • Received in revised form 7 July 2021
Accepted 16 July 2021 • Available online 26 July 2021

1. Introduction

Mental health issues may exacerbate the medical and psychological vulnerabilities of LGBTQ+ populations (Lăzăroiu et al., 2018) throughout the COVID-19 pandemic outbreak (Byerly et al., 2019), configuring challenges as regards their psychological well-being. (Salerno et al., 2020) Economic declines intensify discrimination of LGBTQ+ individuals, cognitive, emotional, and behavioral disorders (Lăzăroiu, 2018) related to COVID-19 isolation, quarantine, and physical distancing. (Mattei et al., 2021) COVID-19 immoderately affects marginalized groups. (Wypler and Hoffelmeyer, 2020)

2. Conceptual Framework and Literature Review

Sexual and gender minority communities are bearing the brunt of psychological distress, anxiety, and depression throughout the COVID-19 crisis. (Gonzales et al., 2020) Quarantine situations are related to diminished psychological mental health among gender and sexual minorities. (Gato et al., 2021) Interaction with LGBTQ+ peers is challenging as a result of the extended time spent with unaware or unsupportive family members as regards a person's sexual orientation or gender identity. (Oginni et al., 2021) Pre-COVID-19 mental health discrepancies put at risk LGBTQ+ individuals to substandard outcomes. (Drabble and Eliason, 2021) LGBTQ+ people are concomitantly enduring general and identity-specific stressors due to COVID-19. (Fish et al., 2020) Sexual and gender minority communities have more recurring COVID-19-related physical, depression, and anxiety symptoms (Moore et al., 2021), as the current pandemic excessively affects marginalized groups (Kidd et al., 2021; Phillips II et al., 2020), configuring health inequities and biopsychosocial stressors experienced by LGBTQ+ people. Despondency, using substances to cope, prior mental health diagnosis, and anxiety are related to emotional and psychological distress. (Veldhuis et al., 2021)

3. Methodology and Empirical Analysis

I inspected, used, and replicated survey data from Chapman University, College Pulse, Course Hero, Ginger, Harvard Medical School, ICF, NASPA, Statista, UNC School of Medicine, University of Maryland/SPH, and UPMC, performing analyses and making estimates regarding COVID-19-related trauma and mental distress among sexual and gender minority populations. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear

patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

Major determinants such as permanent intolerance, family support, and prior mental health conditions related to the identity of sexual and gender minority communities affect their mental health during the COVID-19 pandemic. (Kamal et al., 2021) Physical distancing guidelines are associated with decreased levels of subsequent feelings of optimism, increased degrees of alcohol use, a reduced sense of networking with and admiration in relation to the LGBTQ+ community, and a diminished sense of minority emotional and psychological distress. (Scroggs et al., 2020) Sexual and gender minority populations display elevated levels of stress, anxiety, and depression, while being forced to contend with unjust or prejudicial treatment throughout the COVID-19 outbreak. (Kneale and Bécares, 2021) (Tables 1–8)

Table 1 LGBTQ+ people are facing high levels of substance use, psychological distress, and social isolation, and are receiving little emotional support during COVID-19

68%	met the clinical criteria for moderate or severe psychological distress.
20%	had issues accessing medical/mental health care
22%	had issues obtaining prescription meds.
44%	often felt very isolated from others
28%	received no social/emotional support.
29%	were drinking more alcohol since COVID-19
5%	reported more recreational cannabis use.
26%	heard their family make negative comments about LGBTQ+ people more often.
31%	were cautious about their actions around heterosexual/straight people more often.
40%	hid their LGBTQ+ identity from other people more often.
27%	of transgender/nonbinary individuals reported disrespect of their gender identities more often.
28%	lied to their families about being LGBTQ+ more often.
41%	suffered from severe psychological distress.

Sources: University of Maryland/SPH; my survey among 5,200 individuals conducted October 2020.

Table 2 How staying at home is affecting participants during COVID-19 pandemic (%)

	Disagree	Neutral	Agree
Being home so much is making me tense or stressed.	4	24	72
My living space feels very crowded and cramped.	5	26	69
I feel trapped at home.	7	34	59
Most days, I spend (almost) all my time at home.	8	7	85
I avoid going out of my house as much as possible right now.	7	11	82
I am spending much more time at home now than I did before the COVID-19 pandemic.	6	13	81

Sources: Chapman University; my survey among 5,200 individuals conducted October 2020.

Table 3 The emotional and mental impact of the COVID-19 pandemic on well-being: How individuals are responding to the stressors of isolation and quarantine.

92%	are frustrated with not being able to do what they normally enjoy doing
93%	are worried about their own health
89%	are worried about the health of loved ones
86%	feel that the anxiety and depression related to the emotional impact of the COVID-19 pandemic push them into the clinical category of what is diagnosable as a mental health condition

Sources: UNC School of Medicine; Harvard Medical School; my survey among 5,200 individuals conducted October 2020.

Table 4 COVID-19 health concerns and experiences. (%)

How worried are you that your local hospital(s) will not have the resources to treat all patients infected with COVID-19?	
Very worried	79
Somewhat worried	12
Not too worried	7
Not at all worried	2
Are you very concerned, concerned, or not very concerned about the spread of COVID-19 within your community?	
Very concerned	80
Concerned	17
Not very concerned	3
How worried are you that someone in your immediate family might catch COVID-19?	
Very worried	69
Somewhat worried	22
Not too worried	6
Not at all worried	3
How likely do you think it is that you, personally, will get sick with COVID-19?	
Very likely	62
Somewhat likely	21
Not too likely	11
Not at all likely	6

Sources: ICF; my survey among 5,200 individuals conducted October 2020.

Table 5 Have you done any of the following when you have felt stress or anxiety related to COVID-19? Select all that apply. (%)

Talked with a friend or family member about my stress or anxiety	79
Increased my time spent on social media	84
Looked up information about how to manage stress or anxiety online	72
Decreased my time spent reading/consuming news	54
Mental health session online or in-person (e.g. with a psychologist)	17
Decreased my time spent on social media	16

Sources: Course Hero; NASPA; College Pulse; my survey among 5,200 individuals conducted October 2020.

Physical distancing measures and restrictive regulations during the COVID-19 outbreak may indicate LGBTQ+ individuals have to remain at home for quite a long time, and typically in a hostile environment for them. (Suen et al., 2020) Prior experiences associated with cultural marginality, intolerance, and severe disapproval may result in LGBTQ+ persons postponing prompt medical care if developing COVID-19 symptoms. (Rosa et al., 2020) By having isolation, quarantine, and physical distancing implemented as a main COVID-19 prevention approach, older adults encounter escalated emotional and psychological distress-related seclusion. (Grullon et al., 2021)

Table 6 The effects of COVID-19 can potentially exacerbate pre-existing mental illnesses. (%, relevance, yes)

Mood disorders	
Since mood disorders are strongly reactive to stress, exacerbation of mood symptoms and relapses of manic and depressive episodes may occur.	87
Anxiety, stress and somatic disorders	
Unprecedented ongoing spread of virus, absence of definitive treatment, and recorded deaths can easily exacerbate anxious rumination (i.e. getting infected, loved ones falling ill).	89
Decreased perception of health and excessive worry even when minor COVID-19 related symptoms are present could have further somatic manifestations.	85
Triggering for individuals who have a history of other traumatic experiences.	88
Obsessive-compulsive disorder	
Tendency for biased information processing may increase sensitivity to panic related to pandemic threats and worsen negative behaviors.	89
Potential amplification of contamination obsessions and cleaning/washing compulsions with complications of functional impairments, dermatitis, and inhalation injuries from overuse of toxic cleaning supplies.	80
Psychosis	
Intensifying media coverage about the outbreak could worsen paranoia and shape delusional thinking (i.e. delusional parasitosis, medical/government mistrust, conspiracy theories related to infectious outbreak, misattribution of physical symptoms).	79
Substance use disorders	
Severe anxiety can precipitate relapse into alcohol and substance use in susceptible individuals trying to adapt to elevated stress levels.	74
Reduced access to alcohol due to business closures may lead to increased rates of acute withdrawal syndromes and presentation to hospitals for management of withdrawal (ambulatory or inpatient) or avoidance to reach out for help which could lead to serious withdrawal manifestations in vulnerable people.	73
Vaping/Smoking: Smoking suppresses immune function in the lungs and triggers inflammation. Both long-term smokers and e-cigarette users are at a heightened risk of developing chronic lung conditions, which have been associated with more severe cases of COVID-19.	70
Eating disorders	
Individuals may be at high risk of relapsing or worsening symptoms due to infection fears, the effect of isolation, and the shortage of adequate support through treatment.	71
Infection fears tend to increase the feeling of not being in control	72
People with eating disorders often manage a loss of control with a significant disruption of dietary or other extreme weight control behaviors such as restricting or binge-eating episodes.	69
The quarantine, creating the separation and restriction of movement, can contribute to the maintenance of the eating disorder psychopathology.	67

Sources: UPMC; my survey among 5,200 individuals conducted October 2020.

Table 7 % who have select feelings as a result of the COVID-19 outbreak. Select all that apply.

Feeling anxious about what is happening	83
Feeling lonely	72
Not wanting to watch news or read about COVID-19	69
Having a hard time falling asleep	47

Sources: Statista; my survey among 5,200 individuals conducted October 2020.

Table 8 The impact of the COVID-19 pandemic on collective mental health (%, yes, relevance)

Vulnerable populations have been particularly hard-hit, as COVID-19 has worsened already-present health inequities for older adults, low-income families, and people in substandard or congregate living conditions.	92
Once physical distancing measures are lifted, many people will still approach social activity with vigilance.	85
Public transportation, office environments, and other public fora may still cause anxiety for large swaths of the population.	78
If anxiety isn't addressed, it may lead to a diagnosable mental health disorder or endure for years to come.	82
Even when life does return to normal, perceived loss of control and sustained feelings of helplessness across social, economic, and health dimensions may persist.	79
COVID-related stress and anxiety are causing serious sleep disruptions. short-term consequences of sleep disruption include increased stress, emotional distress and mood disorders, and cognitive, memory, and performance deficits. Chronic sleep deprivation is associated with a number of physical and psychiatric problems, with men experiencing an increase in mortality.	75
Social isolation is creating barriers to recovery from substance use disorder.	60
Individual and collective grief from having lost loved ones and over having survived the pandemic when others didn't.	63

Sources: Ginger; my survey among 5,200 individuals conducted October 2020.

COVID-19 self-isolation and physical distancing policies configure high levels of stress, anxiety, and depression among gender and sexual minorities, and articulate plausible correlates of unsatisfactory mental health and psychological well-being. (Smith et al., 2020) Sexual and gender minority populations may preserve their resilience by participating in remote types of social assistance by virtual meetings with friends, family members, and LGBTQ+ community support groups. (Goldbach et al., 2020) LGBTQ+ individuals who know or suppose they have contaminated other people by COVID-19 are commonly at escalated risk of remorse and anxiety, intensified by the psychological or emotional congruity with infected persons. (Boden et al., 2021) Both anxiety and depression constitute adverse health outcomes related to the distressing character of the COVID-19 crisis. (Jones et al., 2021)

6. Conclusions and Implications

Sexual and gender minority communities may experience adverse changes in their mental health and psychological well-being. (Buspavanich et al., 2021) Sleep health, a decisive determinant and predictor of physical and mental health, has been negatively affected by the emotional and psychological distress and disruption brought about by the COVID-19 outbreak. (Millar et al., 2020) At growing risk of mental disorders, LGBTQ+ people are bearing the brunt of massive biopsychosocial stress, being an extremely vulnerable group when assessing the consequences of the COVID-19 crisis on mental health. (Hunt et al., 2021) Socioeconomic loss effects and decrease in gender-affirming services are relevant inequitable mediators of impact of COVID-19 on the mental health of sexual and gender minority populations, resulting in depression, anxiety, post-traumatic stress disorder, and substance use. (Restar et al., 2021) As limitations, this article focuses only on COVID-19-related depression, anxiety, and psychological stress in sexual and gender minority populations. Further research should consider sexual and gender minority-specific COVID-19-related stressors and psychosocial burdens.

Compliance with ethical standards

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This article does not require animal studies verification.

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This project has employed statistical analytical techniques standard in all statistical packages.

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All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1256687 from the Personalized Health Care Laboratory, Belfast. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 20–30, ISSN 2164-0262, eISSN 2378-3524

COVID-19 Sentiments, Attitudes, Habits, and Behaviors in LGBTQ+ Populations

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ABSTRACT. This paper analyzes the outcomes of an exploratory review of the current research on COVID-19 sentiments, attitudes, habits, and behaviors in LGBTQ+ populations. The data used for this study was obtained and replicated from previous research conducted by BMA, Chapman University, CHCF, FEMM, Ginger, LendingTree, MAP, Nursing Times, Rek et al. (2020), UPMC, and ValuePenguin. I performed analyses and made estimates regarding increased psychological distress among marginalized sexual and gender minority populations during the COVID-19 pandemic. Data collected from 5,400 respondents are tested against the research model. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: COVID-19; LGBTQ+; sentiment; attitude; habit; behavior

How to cite: Mitchell, K. (2021). "COVID-19 Sentiments, Attitudes, Habits, and Behaviors in LGBTQ+ Populations," *Journal of Research in Gender Studies* 11(1): 20–30. doi: 10.22381/JRGS11120212.

Received 12 November 2020 • Received in revised form 4 July 2021
Accepted 13 July 2021 • Available online 26 July 2021

1. Introduction

COVID-19-related emotionally draining conditions may lead to persisting mental health and developmental consequences among LGBTQ+ individuals. (Salerno et al., 2020) Substance use is grasped by sexual and gender minority populations as a way of handling apprehension, stress, seclusion, and dreariness during the COVID-19 outbreak. (Drabble and Eliason, 2021) Decreased LGBTQ+ community assistance and discontinuations in gender-affirming health care are predictors of emotional and psychological distress (Lăzăroiu et al., 2021) throughout the COVID-19 crisis. (Kidd et al., 2021)

2. Conceptual Framework and Literature Review

Behavioral health issues may be intensified by social seclusion, uncomfortable familial relationships, and diminished social assistance – all being impacted by COVID-19 physical distancing recommendations. (Moore et al., 2021) LGBTQ+ persons are particularly affected due to physical distancing mandates carried out to curb the transmission of COVID-19. (Fish et al., 2020) Invalidating LGBTQ+ protections in healthcare throughout the COVID-19 crisis has deteriorated the already insubstantial access to medical insurance. (Wypler and Hoffelmeyer, 2020) The COVID-19 outbreak may have considerably prolonged consequences on psychological distress and health behaviors, immoderately affecting sexual and gender minority populations. (Veldhuis et al., 2021) High degrees of unsatisfactory mental health are associated to a certain extent with experiences of massive, consistent, and deleterious discrimination among LGBTQ+ people. (Kneale and Bécares, 2021) The chronic stress sexual and gender minority communities endure due to systemic imbalance and marginalization has been aggravated by COVID-19. (Rosa et al., 2020) LGBTQ+ individuals have high degrees of depression and PTSD symptoms, in addition to COVID-19-related apprehensions and despondency (Lăzăroiu, 2018), associated with family assistance behaviors, constant intolerance, and prior mental health diagnoses. (Kamal et al., 2021)

3. Methodology and Empirical Analysis

The data used for this study was obtained and replicated from previous research conducted by BMA, Chapman University, CHCF, FEMM, Ginger, LendingTree, MAP, Nursing Times, Rek et al. (2020), UPMC, and ValuePenguin. I performed analyses and made estimates regarding increased psychological distress among marginalized sexual and gender minority populations during the COVID-19 pandemic. Data collected from 5,400 respondents are tested against the research model. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and

analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

A successful and coherent approach in COVID-19 spread decrease, physical distancing has impacted the mental health and psychological wellbeing of already vulnerable sexual and gender minority communities, shaping the sentiments, attitudes, habits, and behaviors of marginalized social identities. (Scroggs et al., 2020) Resilience can moderate COVID-19-related health inequities and biopsychosocial stressors that have led to cognitive, emotional, and behavioral disorders associated with isolation, quarantine, and physical distancing in LGBTQ+ individuals. (Goldbach et al., 2020) (Tables 1–11)

Table 1 The disproportionate impacts of COVID-19 on LGBTQ+ households

36%	of LGBTQ+ households have been unable to get medical care or delayed getting medical care for a serious problem.
24%	of LGBTQ+ households were both unable to get the health care they needed and had a negative health consequence as a result.
22%	of LGBTQ+ households were unable to get or delayed getting prescription drugs for a major health issue.
49%	of LGBTQ+ persons said they or someone in their home has had a serious problem coping with social and physical isolation.

Sources: MAP; my survey among 5,400 individuals conducted October 2020.

Table 2 COVID-19 intensifies the difficulties for LGBTQ+ populations. (%, relevance)

Physical distancing may be particularly difficult for LGBTQ+ individuals who may have been rejected by their families, who have not come out to their families and find themselves in lockdown with them and/or those who are facing mental health issues.	97
Domestic violence is more likely to be experienced by LGBTQ+ people, if they are confined with family who do not accept them, or in a location where they are subject to other forms of stigma.	96
LGBTQ+ people have significantly greater difficulties accessing quality sexual and reproductive health services due to stigma and discrimination, biases held by healthcare providers, and lower socioeconomic status, often linked with lower access to comprehensive health insurance, and are therefore more vulnerable.	95

Sources: FEMM; my survey among 5,400 individuals conducted October 2020.

Table 3 "Over the past 14 days I have been able to distance myself well from the stress/burden due to…" Select all that apply. (%)

worries about my health.	29
worries of not being able to get medical care.	27
worries about being sick with COVID-19 when I noticed first signs of symptoms such as fever, dry cough, breathing problems, sore throat, loss of smell/taste, headache or diarrhea etc.	25
increased conflicts with people close to me.	27
financial worries.	32
uncertainties regarding my job, training place, studies or school.	31
concerns for my own personal integrity	29
concerns for the integrity of family members or friends	28
fears of what the future will bring, or that I will not be able to cope with everything.	29
thoughts that it would be better to be dead.	2

Sources: Rek et al. (2020); my survey among 5,400 individuals conducted October 2020.

Table 4 How would you rate the change in stress you are experiencing at work compared to a week ago? (%)

Decreased significantly.	2
Decreased slightly.	5
Stayed the same.	22
Increased slightly.	25
Increased significantly.	46

Sources: CHCF; my survey among 5,400 individuals conducted October 2020.

Table 5 The COVID-19 pandemic will likely have negative psychosocial effects at both individual & societal levels. Select all that apply. (%)

Acute	
Fear and panic about acquiring or having the illness which can significantly impact human behavior and socialization, sometimes towards maladaptive and risky activities such as excessive drinking or using substances	92
Frustration and boredom from isolation and quarantine, limited physical contact with loved ones, and loss of usual daily routine	89
Stress related to inadequate supplies (i.e. food, medications, personal protective equipment and access to routine medical care as evidenced by panic shopping and hoarding of essential items)	84
Unclear, insufficient and constantly changing information about the pandemic from public health authorities which may increase fear/anxiety	80
Chronic	
Stigmatization, discrimination, marginalization, and avoidance of certain individuals out of fear and suspicion (i.e. "quarantined" individuals, elderly, healthcare workers, ethnic/religious groups, people with psychiatric illness and substance use disorder)	73
Coping with grief from losing loved ones to illness	74
Financial loss (i.e. healthcare costs, absence from work, economic burdens)	76
Reintegration to normal routines and societal functions	70

Sources: UPMC; my survey among 5,400 individuals conducted October 2020.

Young LGBTQ+ persons having a decreased socioeconomic status display an increased disruption in standard of living and an escalated level of financial strain during the COVID-19 outbreak. (Suen et al., 2020) Younger age, diminished annual income, present smoker, and having physical multimorbidity experience elevated cognitive, emotional, and behavioral disorders related to COVID-19 isolation, quarantine, and physical distancing. (Smith et al., 2020) LGBTQ+ individuals bear the brunt of adverse mental health outcomes as a result of COVID-19 (Lăzăroiu et al., 2018), being already vulnerable and deprived at immoderate risk. (Boden et al., 2021) LGBTQ+ people are at risk to COVID-19 pandemic-related mental health outcomes (e.g., stress, anxiety, and depression) because of particular social inconveniences, gender dissonance, and unsatisfactory mental health. (Jones et al., 2021)

Table 6 "Over the past 14 days I..." Select all that apply. (%)

have consumed substantially more alcohol than usual.	16
have smoked considerably more cigarettes than usual.	14
have consumed considerably more drugs (e.g. tranquilizers, sleeping pills or stimulants) than usual.	11
have felt a strong desire to consume addictive substances (alcohol, cigarettes, drugs).	15
have not been able to control my use of addictive substances (alcohol, cigarettes, drugs).	14
have had the excessive urge to wash and/or disinfect my hands again and again so that I do not become ill from germs or contamination.	9
have had the excessive urge to wash and/or disinfect my hands again and again so that I do not pass on germs or contamination to other people.	8
have visited my GP more often.	5
have avoided visits to my GP.	39

Sources: Rek et al. (2020); my survey among 5,400 individuals conducted October 2020.

Table 7 The impact of the COVID-19 pandemic on collective mental health (%, relevance, yes)

Vulnerable populations have been particularly hard-hit, as COVID-19 has worsened already-present health inequities for older adults, low-income families, and people in substandard or congregate living conditions.	92
Once physical distancing measures are lifted, many people will still approach social activity with vigilance.	90
Public transportation, office environments, and other public fora may still cause anxiety for large swaths of the population.	84
If anxiety is not addressed, it may lead to a diagnosable mental health disorder or endure for years to come.	85
Even when life does return to normal, perceived loss of control and sustained feelings of helplessness across social, economic, and health dimensions may persist.	82
COVID-related stress and anxiety are causing serious sleep disruptions. short-term consequences of sleep disruption include increased stress, emotional distress and mood disorders, and cognitive, memory, and performance deficits. Chronic sleep deprivation is associated with a number of physical and psychiatric problems, with men experiencing an increase in mortality.	83
Social isolation is creating barriers to recovery from substance use disorder.	73
Individual and collective grief from having lost loved ones and over having survived the pandemic when others didn't.	69

Sources: Ginger; my survey among 5,400 individuals conducted October 2020.

Table 8 Have you felt any of the following emotions over the last 30 days? Select all that apply. (%)

Anxious	82
Lonely	26
Exhausted	72
Angry	23
Happy	3

Sources: ValuePenguin; LendingTree; my survey among 5,400 individuals conducted October 2020.

Table 9 How would you rate your overall mental health and wellbeing right now? (%)

Very good.	2
Good.	5
Neither good nor bad.	14
Bad.	29
Very bad.	50

Sources: Nursing Times; my survey among 5,400 individuals conducted October 2020.

Table 10 Adults' perceptions of how COVID-19 pandemic has influenced their mental health (%)

	Less than normal	About the same as normal	More than normal
Feel down, depressed, or hopeless	9	24	67
Feel nervous, anxious, or on edge	8	18	74
Feel stressed	7	14	79

Sources: Chapman University; my survey among 5,400 individuals conducted October 2020.

Table 11 To what extent do you feel able to access the support for your wellbeing that you would like? (%)

To a significant extent.	10
To some extent.	54
Not really/Not at all.	16
Have not needed to access support.	14
Prefer not to say.	6

Sources: BMA; my survey among 5,400 individuals conducted October 2020.

Satisfactory, undisturbed, and consistent sleep brings about significant benefits upon physical and mental health, fortifying the capacity to handle emotional and psychological distress (Byerly et al., 2019; Lăzăroiu et al., 2020) among gender and sexual minorities. (Millar et al., 2020) Older LGBTQ+ individuals are at high risk for mental health conditions, intensified by COVID-19 social isolation (Lăzăroiu and Adams, 2020), quarantine, physical distancing, and loneliness. (Grullon et al., 2021) Access to mental healthcare and gender-affirming resources for LGBTQ+ persons has been seriously affected during the COVID-19 pandemic. (Buspavanich et al., 2021)

6. Conclusions and Implications

The consequences of COVID-19-related psychological distress and anxiety comprise exerting excessively the mental health infrastructure and likely burdening the health care system with patients who misrepresent other disorders for such a contagious virus. (Hunt et al., 2021) Consolidating access to gender-affirming services and reinforcing socioeconomic prospects and programmatic assistance would moderate the effects of COVID-19 outbreak environment on unsatisfactory mental health among sexual and gender minority communities. (Restar et al., 2021) Gendered norms, roles, and behaviors that LGBTQ+ persons comply with may shape the risk of infection and exposure to such a contagious virus, in addition to the social and economic ramifications of COVID-19 pandemic response approaches. (Morgan et al., 2021) As limitations, this article focuses only on COVID-19 sentiments, attitudes, habits, and behaviors in LGBTQ+ populations. Further research should consider cognitive, emotional, and behavioral disorders related to COVID-19 isolation, quarantine, and physical distancing among sexual and gender minority individuals.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1753027 from the Social Analytics Laboratory, Los Angeles, CA. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 31–40, ISSN 2164-0262, eISSN 2378-3524

COVID-19-related Mental Health Burden and Minority Stress, Marginalized Social Identities, and Experiences of LGBTQ+ Discrimination

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ABSTRACT. This article presents an empirical study carried out to evaluate and analyze COVID-19-related mental health burden and minority stress, marginalized social identities, and experiences of LGBTQ+ discrimination. Building my argument by drawing on data collected from ABC News, ACHA, ARI, ILGA-Europe, KFF, GWI, Harvard Medical School, HMN, NCAA, Pew Research Center, Statista, UNC School of Medicine, VMIAC, and Washington Post, I performed analyses and made estimates regarding the psychological consequences of COVID-19 among sexual and gender minority communities. Data collected from 5,700 respondents are tested against the research model. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: COVID-19; mental health; LGBTQ+; minority; stress; marginalization

How to cite: Gordon, A. (2021). "COVID-19-related Mental Health Burden and Minority Stress, Marginalized Social Identities, and Experiences of LGBTQ+ Discrimination," *Journal of Research in Gender Studies* 11(1): 31–40. doi: 10.22381/JRGS11120213.

Received 17 November 2020 • Received in revised form 8 July 2021
Accepted 14 July 2021 • Available online 26 July 2021

1. Introduction

Sexual and gender minority populations are bearing the brunt of cumulative consequences of COVID-19 as a result of specific social imbalances (Lăzăroiu et al., 2020) and mental health and substance use issues. (Salerno et al., 2021) A massive amount of LGBTQ+ persons have intensified their participation in heterogeneous detrimental mental health behaviors (Romm et al., 2021), resulting in cognitive, emotional, and behavioral disorders (Lăzăroiu et al., 2018) related to COVID-19 isolation, quarantine, and physical distancing.

2. Conceptual Framework and Literature Review

COVID-19 may have particularly affected the mental health and psychological wellbeing among LGBTQ+ individuals in terms of cognitive, emotional, and behavioral disorders related to isolation, quarantine, and physical distancing. (Baumel et al., 2021) Clarifying COVID-19-related predictors of preventive health behaviors (Lăzăroiu and Adams, 2020) is critical in LGBTQ+ persons because of the contribution of minority stress and internalized stigma in predetermining mental health behaviors. (Solomon et al., 2021) The COVID-19 outbreak has brought about important life disruptions for LGBTQ+ people, who already encounter and endure permeating and immoderate proportionality of social, behavioral, and mental health issues. (O'Brien et al., 2021) Gender and sexual minorities confront escalated and disproportionate risks of mental health issues as a result of structural exposure and prior health and social imbalances. (Jenkins et al., 2021) Transgender and gender-diverse youth experience specific mental health susceptibilities, with increased mental health and substance use service interruptions and decreased social assistance from their families. (Hawke et al., 2021) Lesbian women, especially in regions where same-sex behaviors are banned and result in intolerance, may be seriously impacted by isolation measures that disunite them from partners and preferred families. (Morgan et al., 2021)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from ABC News, ACHA, ARI, ILGA-Europe, KFF, GWI, Harvard Medical School, HMN, NCAA, Pew Research Center, Statista, UNC School of Medicine, VMIAC, and Washington Post, I performed analyses and made estimates regarding the psychological consequences of COVID-19 among sexual and gender minority communities. Data collected from 5,700 respondents are tested against the research model. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and

analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

COVID-19 public health surveillance architecture is unsuccessful as regards LGBTQ+ persons due to the unsystematic manner disease reporting data are gathered, inspected, and reported, together with specific health inequities and biopsychosocial stressors. (Sell and Krims, 2021) Long-term social isolation throughout the COVID-19 lockdown has negatively shaped the mental health and psychological wellbeing of LGBTQ+ people. (Tomar et al., 2021) Determining protective (e.g., family acceptance) and resilience-promoting drivers for LGBTQ+ youth is crucial. (Miller et al., 2020) (Tables 1–12)

Table 1 COVID-19 and specific impact on LGBTQ+ people (%, relevance)

LGBTQ+ people have significantly lower health outcomes due to stigma and discrimination, biases held by healthcare providers, and lower socioeconomic status, often linked with lower access to comprehensive health insurance, and are therefore more vulnerable.	97
Past experience of discrimination, stigma, gatekeeping, misgendering, and non-consented procedures can deter LGBTQ+ people from seeking medical care, leading to later entry into medical systems or no entry at all.	96
Medical quarantine and medical surveillance can be re-traumatising to intersex and trans people who have been subjected to non-consented medical testing or procedures and monitoring based on their sex characteristics and/or gender identity and expression.	95
Intersex people, who often have histories of hypermedicalisation, complex medical histories, and non-consented procedures, often need to travel long distances to access specialised care with a trusted provider. Lockdowns and travel restrictions severely limit this access.	95
For continuation of ongoing hormonal therapy and surgical aftercare for previously-conducted surgeries, delays or cancellations of care can lead to infection, surgical scaring and re-injury sometimes requiring additional surgical correction, chronic pain, hormone imbalances, osteoporosis, migraines, and de-transition, among others. Physical consequences are coupled with psychological consequences, such as depression, anxiety, heighted dysphoria, self-harm, suicidal ideation, and suicide attempts. Many intersex people, both those who identify as cis and as trans, need access to continuing care for hormones, and risk similar consequences when this care is suspended.	94

Sources: ILGA-Europe; my survey among 5,700 individuals conducted October 2020.

Table 2 % who have experienced each of the following due to worry or stress related to the COVID-19 outbreak. Select all that apply.

Trouble falling or staying asleep, or sleeping too much	54
Poor appetite or overeating	46
Difficulty in controlling the temper	36
Frequent headaches or stomachaches	15
Increasing alcohol or drug use	17
Worsening chronic conditions like diabetes or high blood pressure	14

Sources: KFF; my survey among 5,700 individuals conducted October 2020.

Table 3 Over the past 2 weeks, have you been concerned with the following? Select all that apply. (%)

How long the pandemic will last	89
How many more people will become infected	87
People you care about contracting COVID-19	92
Your personal sense of safety and security	89
Personally contracting COVID-19	91

Sources: HMN; ACHA; my survey among 5,700 individuals conducted October 2020.

Table 4 Mental health experiences during COVID-19.
Select all that apply. (%)

Anxiety and/or panic	84
Depression, low mood, and/or mood fluctuation	83
Loneliness, lack of physical support, and/or disconnection from others	75
Isolation induced emotional challenges	72
Lacking motivation, tired and/or fatigue related	69
Not much has changed and/or found positives from COVID-19	3
Stress	78
Anger, frustration and/or agitation	76
Self-harm and/or suicide	3
Hopelessness and/or despair	14
An increase in alcohol consumption	11
Low concentration and restlessness	54
Less functional and a loss of direction or focus	48
Too much work	62
Fear and shock	21
Triggering of previous traumas	17
Uncertainty	69
Struggles with helping others	47
Boredom	32

Sources: VMIAC; my survey among 5,700 individuals conducted October 2020.

Table 5 Thinking about the last couple of weeks of your own life, which of the following words best describe what you have been feeling the most? Up to three selected. (%)

Worried	84
Anxious	76
Grateful	19
Optimistic	7
Depressed	64
Untroubled	2
Numb	3
Pessimistic	36

Sources: ARI; my survey among 5,700 individuals conducted October 2020.

LGBTQ+ populations experience mental health disparities (Lăzăroiu et al., 2021), being unevenly impacted by the COVID-19 outbreak in terms of rates of stress, anxiety, and depression. (Woznicki et al., 2020) Vulnerable sub-populations (e.g., precariously accommodated or informally hired LGBTQ+ people) may strive to put into effect COVID-19 physical distancing and mandatory public health measures. (Wallach et al., 2020) Numerous LGBTQ+ persons have been constrained to remain at home with family members who show unwillingness or malevolence toward them, due to their identity, thus configuring gendered aspects of restrictive orders. (DeMulder et al., 2020)

Table 6 Individuals who say their mental health has been affected to the following extent during the outbreak. (%)

Greatly worsened	57
Slightly worsened	32
Not been affected	7
Slightly improved	3
Greatly improved	1

Sources: GWI; my survey among 5,700 individuals conducted October 2020.

Table 7 % who say they are very/somewhat concerned that they…

	will get COVID-19 and require hospitalization	might unknowingly spread COVID-19 to others
White	79	76
Black	82	78
Hispanic	81	77
18–29	74	66
30–49	76	72
50–64	78	78
65+	82	82
Upper income	77	70
Middle income	81	73
Lower income	85	80

Sources: Pew Research Center; my survey among 5,700 individuals conducted October 2020.

Table 8 Since the beginning of the COVID-19 outbreak, have you experienced an increase in any of the following feelings? Select all that apply. (%)

Anxiety	85
Stress	89
Loneliness	57
Connection to others	72
Depression	59
Panic	66
Compassion	85
Gratitude	69
Relaxation	3

Sources: GWI; my survey among 5,700 individuals conducted October 2020.

Table 9 To what extent are you worried about getting infected with COVID-19? (%)

Very concerned	42
Concerned	22
To some extent concerned	25
A little concerned	7
Very little concerned	4

Sources: Statista; my survey among 5,700 individuals conducted October 2020.

Table 10 Mental health concerns during COVID-19 pandemic (%, constantly)

Felt overwhelmed by all you had to do	56
Experienced sleep difficulties	52
Felt mentally exhausted	49
Felt very lonely	35
Felt a sense of loss	36
Felt sad	41
Felt overwhelming anxiety	39
Felt overwhelming anger	31
Felt things were hopeless	36
Felt so depressed that it was difficult to function	34

Sources: NCAA; my survey among 5,700 individuals conducted October 2020.

Table 11 % of respondents rating each COVID-19 pandemic-related emotional effect at least moderate in intensity

More difficulty sleeping	56
More worried about the health and safety of family members or friends	76
Being less productive	49
More worried about your personal health or safety	67
More anxious or ill at ease	59
Feeling more down or depressed	53
More frustrated about not being able to do what you usually enjoy doing	67

Sources: UNC School of Medicine; Harvard Medical School; my survey among 5,700 individuals conducted October 2020.

Table 12 Disrupted lives, elevated stress and soaring worry as a result of the COVID-19 pandemic (%)

Life disrupted somehow	14
Life disrupted a lot	86
Source of stress	96
Not a source of stress	4
Very/Somewhat worried	97
Not too/Not at all worried	3

Sources: ABC News; Washington Post; my survey among 5,700 individuals conducted October 2020.

Sexual and gender minority persons display increased degrees of emotional and psychological distress, symptoms associated with mood and anxiety disorders, self-inflicted violence, and suicidal ideation and behavior. (Rodriguez-Seijas et al., 2020) Marginalized populations such as sexual and gender minority individuals encounter relevant discrepancies in COVID-19 exposure, vulnerability, and treatment access, in addition to unsatisfactory levels of harnessing telehealth for mental health services and of primary care provider access. (Ruprecht et al., 2021) Experience of rejection, isolation, and discrimination can have adverse consequences on LGBTQ+ young people's competence in self-administering their mental health. (Town et al., 2021)

6. Conclusions and Implications

Community networking and perpetuating social activities even virtually can be instrumental in moderating adverse mental health symptoms throughout the COVID-9 pandemic. (Rodriguez-Seijas et al., 2020) Medical and psychological incidental gender-affirming care is critical in ensuring the health of LGBTQ+ populations. (van der Miesen et al., 2020) COVID-19 restrictions have significantly impacted the experiences of sexual and gender minority communities, particularly health and wellbeing issues, e.g., space misuse, growing feelings of seclusion, LGBTQ+ stress, and exposure to family violence. (Grant et al., 2021) Transgender people constitute a vulnerable community with an escalated rate of mental health problems, confronting psychological, physical, and social barriers throughout the COVID-19 crisis. (Gava et al., 2021) As limitations, this article focuses only on COVID-19-related mental health burden and minority stress, marginalized social identities, and experiences of LGBTQ+ discrimination. Further research should consider emotional and psychological distress among LGBTQ+ people in the context of COVID-19 pandemic.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1544697 from the Internet of Things-based Healthcare Monitoring Systems Research Unit, Melbourne. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Journal of Research in Gender Studies 11(1), 2021
pp. 41–50, ISSN 2164-0262, eISSN 2378-3524

LGBTQ+ Mental Health and Psychological Well-Being during the COVID-19 Pandemic: Negative Cognitive Emotions, Depressive Symptoms, and Extreme Anxiety

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ABSTRACT. Employing recent research results covering LGBTQ+ mental health and psychological well-being during the COVID-19 pandemic (negative cognitive emotions, depressive symptoms, and extreme anxiety), and building my argument by drawing on data collected from ACHA, Active Minds, AMS, APA, HMN, ICFJ, MQ, Pew Research Center, Rek et al. (2020), Statista, TCDJ/Columbia University, Viamo, and Williams Institute, I performed analyses and made estimates regarding COVID-19 related stressors and psychological symptoms among LGBTQ+ people. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: LGBTQ+; mental health; psychological well-being; COVID-19; anxiety

How to cite: Wells, R. (2021). "LGBTQ+ Mental Health and Psychological Well-Being during the COVID-19 Pandemic: Negative Cognitive Emotions, Depressive Symptoms, and Extreme Anxiety," *Journal of Research in Gender Studies* 11(1): 41–50. doi: 1022.381/JRGS11120214.

Received 19 November 2020 • Received in revised form 11 July 2021
Accepted 17 July 2021 • Available online 26 July 2021

1. Introduction

Gender identity, age, backing, and attitudes of acceptance are instrumental in establishing psychosocial determinants (Lăzăroiu, 2018) associated with the mental health of individuals with non-normative gender identities and sexualities throughout the COVID-19 pandemic. (Platero and López-Sáez, 2020) COVID-19 mandatory physical distancing measures may intensify depressive symptoms (Lăzăroiu et al., 2020) and hinder access to LGBTQ+ support groups and treatment services. (Kline, 2020)

2. Conceptual Framework and Literature Review

The COVID-19 crisis has worsened existing mental health imbalances for sexual and gender minority communities. (Kidd et al., 2021) Due to their health discrepancies and social downsides, the mental health of LGBTQ+ persons is aggravated as a result of the psychological trauma associated with the COVID-19 outbreak, resulting in elevated anxiety, depression, and feelings of seclusion. (Lee et al., 2021) The COVID-19 lockdown has exposed to view the unsustainability and temporary adequacy of deflection approaches functioning at intrapsychic, interpersonal, and intergroup stages of surviving for individuals enduring sexual orientation and gender identity threats. (Jaspal, 2021) Psychological and physical harms brought about by both sexual and gender minority stress may shape the mental health and psychological well-being of LGBTQ+ people. (Salerno et al., 2020) If the social stigma hostile to LGBTQ+ individuals increases, sexual and gender minority populations with mental health incongruities are at specific risk. (Drabble and Eliason, 2021) Sexual and gender minority persons may have an increased need for mental health services during the COVID-19 pandemic, with decreased opportunities for unthreatened, private, and affirming psychological assessment and care. (Moore et al., 2021) LGBTQ+ youth display emotional and psychological distress, annoyance, anxiety, and depression. (Fish et al., 2020)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from ACHA, Active Minds, AMS, APA, HMN, ICFJ, MQ, Pew Research Center, Rek et al. (2020), Statista, TCDJ/Columbia University, Viamo, and Williams Institute, I performed analyses and made estimates regarding COVID-19 related stressors and psychological symptoms among LGBTQ+ people. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and analyzed in SPSS to ensure the logic and randomizations were working as

intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

The COVID-19 crisis has immoderately affected the mental health of LGBTQ+ people (Kamal et al., 2021), increasing their levels of depressive symptoms, anxiety, and suicidal ideation and behaviors. (Wypler and Hoffelmeyer, 2020; Veldhuis et al., 2021) Continuous disruptions to ordinary activities without subsequent plans have impacted the expectations and mental health of sexual and gender minority populations, leading to negative cognitive emotions, depressive symptoms, and extreme anxiety. (Scroggs et al., 2020) Lower psychological resilience has been pivotal in the elevated psychological distress of LGBTQ+ individuals. (Hunt et al., 2021) (Tables 1–11)

Table 1 Many LGBTQ+ persons are at higher risk of serious illness related to COVID-19 (%, relevance)

LGBTQ+ people of color are more likely to experience the health and economic impacts of COVID-19 than non-LGBTQ+ White people, and are also more likely to follow public health measures such as getting tested for COVID-19 than non-LGBTQ+ White people.	98
LGBTQ+ persons are more likely to be concerned about getting sick from COVID-19, wearing a mask outside of the home, and practicing social distancing than their non-LGBTQ+ counterparts.	97
White LGBTQ+ people, LGBTQ+ people of color, and non-LGBTQ+ people of color are more likely to be concerned about getting sick with COVID-19, wearing a mask outside of the home, and practicing social distancing than non-LGBTQ+ White respondents.	96

Sources: Williams Institute; my survey among 6,100 individuals conducted October 2020.

Table 2 "Over the past 14 days I have been able to distance myself well from the stress/burden due to…" Select all that apply. (%)

worries about my health.	39
worries of not being able to get medical care.	37
worries about being sick with COVID-19 when I noticed first signs of symptoms such as fever, dry cough, breathing problems, sore throat, loss of smell/taste, headache or diarrhea etc.	27
increased conflicts with people close to me.	44
financial worries.	37
uncertainties regarding my job, training place, studies or school.	35
concerns for my own personal integrity	29
concerns for the integrity of family members or friends	28
fears of what the future will bring, or that I will not be able to cope with everything.	29
thoughts that it would be better to be dead.	4

Sources: Rek et al. (2020); my survey among 6,100 individuals conducted October 2020.

Table 3 How the stress and anxiety caused by the COVID-19 pandemic are having an effect on individuals' mental health. Select all that apply.

69%	are anxious about the possibility of getting COVID-19.
65%	are anxious about becoming seriously ill or dying from COVID-19.
76%	are anxious about the possibility of family and loved ones getting COVID-19.
55%	COVID-19 is having a serious impact on their mental health.
69%	have trouble sleeping (difficulty falling asleep, midnight awakening, and earlier awakening).

Sources: APA; my survey among 6,100 individuals conducted October 2020.

Table 4 How has your access to mental healthcare been affected by the COVID-19 pandemic? (%)

Much more difficult	62
Somewhat more difficult	29
No significant change in access	7
Less difficult	2

Sources: HMN; ACHA; my survey among 6,100 individuals conducted October 2020.

Table 5 In the past two weeks, how often have you… (%)

	Rarely or none of the time (less than 1 day)	Some or a little of the time (1–2 days)	Occasionally or a moderate amount of time (3–4 days)	Most or all of the time (5–7 days)
felt nervous, anxious, or on edge?	3	7	24	66
felt depressed?	3	8	26	63
felt lonely?	4	7	27	62
felt hopeful about the future?	4	9	29	58
had trouble sleeping?	4	10	28	58
had a physical reaction when thinking about the outbreak?	6	11	25	58

Sources: Pew Research Center; my survey among 6,100 individuals conducted October 2020.

Table 6 % at least somewhat concerned about unknowingly spreading COVID-19 to others?

Very concerned	75
Somewhat concerned	25

Sources: Statista; my survey among 6,100 individuals conducted October 2020.

Increased levels of prior health conditions may place the sexual and gender minority populations at growing risk of negative prognosis if infected by COVID-19. (Kneale and Bécares, 2021) Prolonged homophobic and transphobic cruel or unjust treatment and exclusion endured throughout the COVID-19 crisis has severe negative consequences on the mental health of LGBTQ+ people (Kneale and Bécares, 2021), with actual health issues and decreased social interaction with friends constituting the main determinants of cognitive, emotional, and behavioral disorders. (Suen et al., 2020) LGBTQ+ patients may be subjected to escalated distress associated with disconnection from the loved ones and/or preferred families. (Rosa et al., 2020)

Table 7 What individuals are doing to support their mental wellbeing during the COVID-19 pandemic. Select all that apply. (%)

Reading.	17
Doing things I enjoy (hobbies/fun activities).	27
Watching TV.	54
Listening to music.	31
Watching movies/Netflix/YouTube.	67
Surfing the Internet/computer.	68
Playing video games/PS4.	4
Playing games (board games/cards).	3
Learning new skills/an instrument.	2
Listening to the radio/podcasts.	3
Playing musical instruments.	1
Gardening.	3
Household chores (cooking/cleaning).	26
Social media/Keeping in touch online.	74
Talking on the phone/Video calls.	25
Texting.	20
Email.	54
Exercising/Fitness.	23
Walking.	23
Running.	5
Riding my bike.	5
Staying in the garden.	4
Going outside/Getting fresh air.	23
Watching the nature.	4
Mindfulness/Meditation.	2
Keeping myself distracted/Not thinking too much about it.	3
Relaxing.	6
Carrying on/Trying to act normally.	4
Varying my daily routine.	22
Walking the dog.	3
Not watching the news.	4
Being kept updated/Watching the news.	34
Staying away from social media.	3
Volunteering.	3
Sleeping.	10

Sources: AMS; MQ; my survey among 6,100 individuals conducted October 2020.

Table 8 Changes in emotional and physical health attributable to COVID-19

11%	report that they feel somewhat or very prepared to handle the virus.
82%	report feeling more anxious or stressed than usual because of the virus.
67%	report increased sadness or loneliness, and greater anger as a result of the virus.

Sources: Viamo; my survey among 6,100 individuals conducted October 2020.

Table 9 Main worries or concerns about the COVID-19.
Select all that apply. (%)

My family's health	86
My country's economic stability	74
My physical health	73
My parent's/older friends health	82
My economic situation	79
Food shortages	40
My mental health	74
My country's political stability	52
My job security	72
Rioting or looting	17

Sources: Statista; my survey among 6,100 individuals conducted October 2020.

Table 10 % who say COVID-19 has negatively impacted their mental health

Mental health has significantly worsened	28
It has caused stress or anxiety	95
It has brought disappointment or sadness	92
It has led to loneliness or isolation	64

Sources: Active Minds; my survey among 6,100 individuals conducted October 2020.

Table 11 % struggling to cope with the mental, physical, and personal impacts of the crisis. Select all that apply.

The psychological and emotional impacts of dealing with the COVID-19 crisis	89
The intense workload	79
Social isolation	47
The physical risk of contracting the virus or passing it on to others	84

Sources: ICFJ; TCDJ/Columbia University; my survey among 6,100 individuals conducted October 2020.

COVID-19 healthcare services with reduced restrictions of access (e.g., tele-health and online peer support groups) have been unsatisfactorily available for sexual and gender minority communities. (Buspavanich et al., 2021) LGBTQ+ individuals have endured escalated rates of anxiety associated with adverse health outcomes, but individuals with non-normative gender identities and sexualities having increased resilience can maintain their distress levels throughout the COVID-19 outbreak by accessing adaptability skills. (Goldbach et al., 2020) Interactions with accepting family and community represent essential protective determinants and sources of resiliency in sexual and gender minority populations. (Grullon et al., 2021) COVID-19 isolation, quarantine, and physical distancing measures have brought about particular social and help-seeking issues that may result in the severe deterioration of mental health among LGBTQ+ persons. (Jones et al., 2021)

6. Conclusions and Implications

Sexual minority-specific COVID-19-related stressors indicate relevant inconsistency in depressive and anxiety symptoms. (Suen et al., 2020) Escalated rates of anxiety, concern, and prior stress shape the mental health and psychological well-being of LGBTQ+ people. (Goldbach et al., 2020) COVID-19 isolation, quarantine, and physical distancing may constitute risk factors, moderators, and mediators of cognitive, emotional, and behavioral disorders in individuals with non-normative gender identities and sexualities. (Hunt et al., 2021) COVID-19 has directly influenced access to gender-affirming services and socioeconomic loss that are associated with unsatisfactory health outcomes (e.g., escalated rates of adverse mental health conditions) among sexual and gender minorities. (Restar et al., 2021) As limitations, this article focuses only on LGBTQ+ mental health and psychological well-being during the COVID-19 pandemic (negative cognitive emotions, depressive symptoms, and extreme anxiety). Further research should consider sexual and gender minority stress among LGBTQ+ populations during the COVID-19 pandemic.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1253687 from the Smart Healthcare Systems Research Unit, Brisbane. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 51–60, ISSN 2164-0262, eISSN 2378-3524

Sexual and Gender Minority-Specific COVID-19-related Stressors and Psychosocial Burdens

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ABSTRACT. I develop a conceptual framework based on a systematic and comprehensive literature review on sexual and gender minority-specific COVID-19-related stressors and psychosocial burdens. Building my argument by drawing on data collected from Benenden Health, CVN, Ginger, Harvard Medical School, ICF, LGBT Foundation, Rek et al. (2020), Strada Education Network, and UNC School of Medicine, I performed analyses and made estimates regarding the psychosocial consequences of the COVID-19 pandemic as experienced by LGBTQ+ individuals. The data for this research were gathered via an online survey questionnaire. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: sexual; gender; minority; COVID-19; stressor; psychosocial burden

How to cite: Phillips, A. (2021). "Sexual and Gender Minority-Specific COVID-19-related Stressors and Psychosocial Burdens," *Journal of Research in Gender Studies* 11(1): 51–60. doi: 10.22381/JRGS11120215.

Received 22 November 2020 • Received in revised form 13 July 2021
Accepted 18 July 2021 • Available online 26 July 2021

1. Introduction

Prior social and health dissimilarities are deep-seated in structural stigma targeting the identities of sexual and gender minority populations. (Morgan et al., 2021) Escalated alcohol use is related to high psychological distress among LGBTQ+ persons. (Salerno et al., 2021) Depressive symptoms and resilience may prevent intensification of adverse health behaviors throughout the COVID-19 pandemic. (Romm et al., 2021) Unsatisfactory mental health and psychological well-being in sexual and gender minority communities is mediated by growing COVID-19 fear and physical distancing. (Baumel et al., 2021)

2. Conceptual Framework and Literature Review

COVID-19 has seriously impacted the physical and mental health of sexual and gender minorities. (Solomon et al., 2021) Sexual minority individuals are enduring COVID-19-related quarantine orders in relation to family closeness and dynamics while bearing the brunt of isolation from LGBTQ+-specific supportive services. (O'Brien et al., 2021) Social connections are critical in grappling with heterogeneous psychosocial issues that may cause continual anguish or distress to sexual and gender minority populations. (Woznicki et al., 2020) With growing social exclusion and denigration together with decreased group-based mental health outcomes contingent on sexual and gender minority stress, social restrictions intended for curbing the transmission of COVID-19 may immoderately affect the mental health of LGBTQ+ persons. (Rodriguez-Seijas et al., 2020) For sexual minority individuals living in homes permeated by violent or hostile behavior, stay-at-home orders may be dreadful, intensifying their risk of abuse while safe places and supportive services are not convenient or are seriously restricted. (DeMulder et al., 2020) Systematic stigma and intolerance position LGBTQ+ persons at increased risk for adverse behaviors (e.g., substance abuse and risky sexual practices, resulting in cognitive, emotional, and behavioral disorders related to COVID-19 isolation, quarantine, and physical distancing. (Tomar et al., 2021)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from Benenden Health, CVN, Ginger, Harvard Medical School, ICF, LGBT Foundation, Rek et al. (2020), Strada Education Network, and UNC School of Medicine, I performed analyses and made estimates regarding the psychosocial consequences of the COVID-19 pandemic as experienced by LGBTQ+ individuals. The data for this research were gathered via an online survey questionnaire. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

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5. Results and Discussion

LGBTQ+ individuals who assimilate health, social, and/or structural exposures because of prior mental health conditions tend to come to grips with mental health decline and emotional and psychological distress during the COVID-19 pandemic. (Jenkins et al., 2021) For LGBTQ+ persons who benefit from specific supportive services, parasocial relationships are related to decreased well-being outcomes, likely being purposeful in reciprocation circumstances, but without substituting synergetic social support throughout the COVID-19 outbreak. (Woznicki et al., 2020) (Tables 1–8)

Table 1 LGBTQ+ health inequalities during the COVID-19 pandemic (%, relevance)

LGBTQ+ people may be particularly affected, as they are more likely to experience poor mental health, partly as a result of ongoing discrimination and marginalisation.	97
In LGBTQ+ communities, phone and online support is simply not an option for those who are unable to speak freely in front of others about their identity, as they are not out or are living in an unaccepting household.	97
Often substance and alcohol are used to cope with the impact of lifelong discrimination, marginalisation and isolation, together with the increased stress and anxiety caused by the pandemic.	97
Many LGBTQ+ victims are unable to access support as there is a lack of support provided for trans women and men who have been affected by domestic abuse.	97
LGBTQ+ people have had to isolate at home with LGBTQ+-phobic households, and abuse and discrimination will further heighten feelings of stress, anxiety and isolation as well as making people feel as though they are losing part of their identity.	96
A lack of access to LGBTQ+ specific spaces and a reduction in people's ability to socialise with other LGBTQ+ people is heightening isolation in these communities and making people feel that their LGBT identity is becoming invisible.	96
LGBTQ+ older people who have lived in a world hostile to their identities may be reluctant to access support due to fears of encountering discrimination, further exacerbating their isolation and lack of support.	96
The COVID-19 crisis is having a profound impact on the mental health and wellbeing, causing significant stress, anxiety, isolation, financial uncertainty and disruption to support services.	95
With older LGBTQ+ people particularly at risk from the virus it is likely that these groups will continue to face isolation even after social distancing measures begin to be loosened for the majority of the population.	95
LGBTQ+ people are more likely to have a "chosen family," which describes people viewing their close friends as their family, often due to family rejection. People may be less likely to live with their chosen family compared to their biological family so may be separated from those closest to them at this time.	94
Many LGBTQ+ people are isolated away from others in communities and are unable to access specific spaces.	94
Disruption to routines, a lack of access to usual support, reduced activity levels and changes in access to food are all contributing factors to worsening disordered eating and problems around body image, conditions often linked to poor mental health.	93
Many people who are isolating with LGBTQ+-phobic people will be unable to access support due to fear of outing themselves or causing further conflict.	93
LGBTQ+ people face a number of negative experiences	93

when accessing healthcare, including discrimination, services not meeting their needs, and having to deal with inappropriate questions or unwarranted curiosity about their identity.	
Homeless LGBTQ+ people are more likely to be in poor health, are less likely to be able to self-isolate effectively, and many will face barriers to accessing primary care without a fixed address.	92
The barriers that LGBTQ+ people face when accessing healthcare and support services include discrimination, or a perception of potential discrimination, based on sexual orientation or trans status, or a lack of understanding and training on how to adequately support LGBTQ+ people.	92
For many LGBTQ+ people having to rely on support from others can be incredibly anxiety-inducing as those providing support may not be accepting of LGBTQ+ identities. This is particularly concerning for older LGBTQ+ people who have grown up in a world hostile to their identities.	92

Sources: LGBT Foundation; my survey among 6,300 individuals conducted October 2020.

Table 2 % of respondents rating each COVID-19 pandemic-related emotional effect at least moderate in intensity

More difficulty sleeping	56
More worried about the health and safety of family members or friends	77
Being less productive	54
More worried about your personal health or safety	69
More anxious or ill at ease	68
Feeling more down or depressed	56
More frustrated about not being able to do what you usually enjoy doing	68

Sources: UNC School of Medicine; Harvard Medical School; my survey among 6,300 individuals conducted October 2020.

Table 3 What motivated you to use a technology-based emotional or mental health service such as online counseling or a mental health app? (%)

I feel like I need to do something to deal with COVID-19 stress	74
My regular counselor moved to online sessions	26

Sources: Ginger; my survey among 6,300 individuals conducted October 2020.

Health responses fashioned to curb the transmission of COVID-19 (Lăzăroiu and Adams, 2020) may disproportionately affect the mental health and psychological well-being (Byerly et al., 2019; Lăzăroiu et al., 2018) of sexual and gender minority communities who already bear the brunt of elevated psychiatric prevalence. (Rodriguez-Seijas et al., 2020) The adversities endured by LGBTQ+ persons as regards mental health and family support have increased throughout the COVID-19 crisis. (Woznicki et al., 2020) LGBTQ+ populations are depreciated by systemic intolerance and prolonged cruel or unjust treatment that configure dissimilarities (Lăzăroiu, 2018; Lăzăroiu et al., 2020) in levels of psychological stress and trauma. (Ruprecht et al., 2021)

Table 4 The need for stronger mental health recovery infrastructure. (%, relevance)

Trying to get tested for or being diagnosed with COVID-19, having greater concern for family, and higher perceived likelihood of getting sick are all significantly related to bad mental health.	92
Due to financial and health strains caused by the COVID-19, poorer mental health is reported, associated with increases in smoking and drinking behaviors.	77

Sources: ICF; my survey among 6,300 individuals conducted October 2020.

Table 5 Please select the words below that best describe the way you feel right now about the COVID-19 outbreak. Please select all that apply. (%)

Concerned	82
Cautious	74
Worried	77
Anxious	68
Hopeful	10
Afraid	39
Scared	37
Optimistic	9
Angry	18
Confused	28
Confident	8
Determined	7
Resigned	14
Surprised	11
Supported	5

Sources: Strada Education Network; my survey among 6,300 individuals conducted October 2020.

Table 6 Which of the following best describes how the COVID-19 pandemic has impacted your mental wellbeing, if at all? (%)

It impacted me negatively, I have never suffered from poor mental wellbeing and now I do.	25
It impacted me negatively, I have suffered from poor mental wellbeing in the past and this has caused it to come back.	33
It impacted me negatively, I suffer from poor mental wellbeing day-to-day and this has exacerbated it.	22
It did not impact me, I suffer from poor mental wellbeing day-to-day and this has not made it any worse.	12
It impacted me positively, my mental wellbeing is much better than it usually is.	3
It impacted me positively, my mental wellbeing is slightly better than it usually is.	3
I have never suffered from poor mental wellbeing.	2

Sources: Benenden Health; my survey among 6,300 individuals conducted October 2020.

Table 7 "Because of the COVID-19 pandemic, over the past 14 days I..." (%, yes)

have had upsetting dreams that replay part of the experience of the COVID-19 pandemic or are clearly related to it.	77
have had powerful images or memories that sometimes come into my mind in which I feel the experience of the COVID-19 pandemic is happening again in the here and now.	75
have avoided internal reminders of the experience of the COVID-19 pandemic (e.g. thoughts, feeling, or physical sensations).	72
have avoided external reminders of the experience of the COVID-19 pandemic (e.g. people, places, conversations, objects, activities, or situations).	63
have been "super-alert", watchful, or on guard.	58
have been feeling jumpy or easily startled.	43
have suffered from unforeseeable severe anxiety attacks (panic) with physical symptoms (e.g. palpitations, chest pain, dizziness).	45
have suffered from sleep problems, such as • difficulty falling asleep (< 30 minutes) • difficulty sleeping through the night • early morning awakening • fearful dreams or nightmares not about the COVID-19 pandemic • fearful dreams or nightmares about the COVID-19 pandemic	47
felt or behaved in a more irritable, rageful, angry	39

Sources: Rek et al. (2020); my survey among 6,300 individuals conducted October 2020.

Table 8 The mental health of individuals during the COVID-19 pandemic

74%	are concerned about their mental health because of physical distancing.
89%	worry that people who need mental health services won't be able to get help.
87%	are feeling anxious, lonely, isolated, and having trouble sleeping.

Sources: CVN; my survey among 6,300 individuals conducted October 2020.

The LGBTQ+ community is excessively impacted by adverse mental health outcomes, coming to grips with moderate to severe psychological distress, in addition to structural oppression, stigma, and discrimination during the COVID-19 pandemic. (Wallach et al., 2020) Social support is typically inversely associated with psychiatric symptoms, notwithstanding the LGBTQ+ status, articulating the mental health consequences of the COVID-19 crisis. (Rodriguez-Seijas et al., 2020) Inconvenienced by socially and structurally enabled intolerance and denied fairly balanced power, LGBTQ populations experience the detrimental psychosocial ramifications of persistent stress and isolation. (Phillips II et al., 2021) Deficiencies in support networks, personal resources, and support from friends and family among persons having non-normative sexualities and gender identities (Lăzăroiu et al., 2021) may lead to increased rates of anxiety and depression. (Platero and López-Sáez, 2020)

6. Conclusions and Implications

The psychological wellbeing of marginalized minority groups such as LGBTQ+ people with reduced or no access to social support services has been impacted by the COVID-19 pandemic. (Jaspal, 2021) Sexual and gender minority communities experience adverse mental health symptoms leading to cognitive, emotional, and behavioral disorders related to COVID-19 isolation, quarantine, and physical distancing. (Rodriguez-Seijas et al., 2020) Transgender and gender-diverse individuals represent a vulnerable group throughout the COVID-19 outbreak and are bearing the brunt of significant mental health consequences, in addition to increased levels of social support service disruption and diminished assistance from family members. (Hawke et al., 2021) The COVID-19 crisis may prolong latent health imbalances that necessitate perpetual action as regards LGBTQ+ individuals. (Kline, 2020) As limitations, this article focuses only on sexual and gender minority-specific COVID-19-related stressors and psychosocial burdens. Further research should consider COVID-19-related depression, anxiety, and psychological stress in sexual and gender minority populations.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1358647 from the Social Analytics Laboratory, Los Angeles, CA. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 61–70, ISSN 2164-0262, eISSN 2378-3524

COVID-19-related Stressors and Psychological Symptoms among Gender and Sexual Minorities

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ABSTRACT. Empirical evidence on COVID-19-related stressors and psychological symptoms among gender and sexual minorities has been scarcely documented in the literature. Using and replicating data from GMU/CCCC, Holmes et al. (2020), Ipsos MORI, LAC/DMH, LGBT Foundation, MQ, ONS, PHQ-9, Qualtrics, Rainbow Health Victoria, Statista, and YPCCC, I performed analyses and made estimates regarding the psychological effects of COVID-19 pandemic-related trauma among LGBTQ+ people. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: COVID-19; stressor; psychological symptom; gender; sexual; minority

How to cite: Robinson, R. (2021). "COVID-19-related Stressors and Psychological Symptoms among Gender and Sexual Minorities," *Journal of Research in Gender Studies* 11(1): 61–70. doi: 10.22381/JRGS11120216.

Received 24 November 2020 • Received in revised form 15 July 2021
Accepted 19 July 2021 • Available online 26 July 2021

1. Introduction

Sexual and gender minority populations experience social downsides and mental health incongruities intensified due to COVID-19 isolation, quarantine, and physical distancing. (Salerno et al., 2020) Emotional and psychological distress endured during the COVID-19 outbreak (Lăzăroiu, 2018) is associated with dissimilarities in perceptions of social support services and participation in online activities. (Rodriguez-Seijas et al., 2020) The COVID-19 lockdown has led to a disconnection from social networks and specialized assistance (Byerly et al., 2019) that are instrumental in helping LGBTQ+ persons to handle mental health challenges. (Kneale and Bécares, 2021)

2. Conceptual Framework and Literature Review

The adverse mental health outcomes of gender and sexual minorities have been immoderately affected by the COVID-19 pandemic. (Jenkins et al., 2021) LGBTQ+ persons have been burdened by health, social, and financial risks brought about by the COVID-19 crisis (Lăzăroiu and Adams, 2020) while confronting increased stressors specific to their sexual orientation, which significantly intensified their mental health issues. (Suen et al., 2020) For LGBTQ+ people having significant parasocial relationship strength, the link between seclusion and depression is more substandard than among individuals with non-normative gender identities and sexualities with decreased parasocial relationship strength. (Woznicki et al., 2020) Restrictive measures required throughout the COVID-19 outbreak (Lăzăroiu et al., 2020) have aggravated the prior health dissimilarities among vulnerable LGBTQ+ persons. (Tomar et al., 2021) Sexual minorities' increased compliance with physical distancing guidelines coheres with escalated feelings of distress. (Baumel et al., 2021) Lacking physical peer support throughout COVID-19 isolation, quarantine, and physical distancing orders (Lăzăroiu et al., 2018), LGBTQ+ youth have to endure incessant detrimental parental behavior and family rejection. (DeMulder et al., 2020) The COVID-19 pandemic has resulted in acute distress with imminent decreases in availability of social support services (Lăzăroiu et al., 2021), thus impacting the mental well-being of sexual and gender minority communities. (Rodriguez-Seijas et al., 2020)

3. Methodology and Empirical Analysis

Using and replicating data from GMU/CCCC, Holmes et al. (2020), Ipsos MORI, LAC/DMH, LGBT Foundation, MQ, ONS, PHQ-9, Qualtrics, Rainbow Health Victoria, Statista, and YPCCC, I performed analyses and made estimates regarding the psychological effects of COVID-19 pandemic-related trauma among LGBTQ+ people. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and

analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

The COVID-19 outbreak may have left numerous sexual and gender minority persons with limited social networks and specialized assistance due to living situations that necessitate keeping hidden their sexual orientation or gender identity. (Moore et al., 2021) LGBTQ+ individuals suffer from increased rates of anxiety, depression, acute stress, isolation, despondency, and use of substances to cope during the COVID-19 pandemic (Veldhuis et al., 2021) Parasocial relationship strength moderates the link between seclusion and depression. (Woznicki et al., 2020) (Tables 1–9)

Table 1 % of LGBTQ+ people who would like to access support for their mental health at this time.

69%	of black, Asian and minority ethnic LGBTQ+ people
53%	of disabled LGBTQ+ people
62%	of trans people
64%	of non-binary people

Sources: LGBT Foundation; my survey among 6,600 individuals conducted October 2020.

Table 2 How COVID-19 might impact on LGBTQ+ health and wellbeing (%, relevance)

Older LGBTQ+ people and those with underlying health conditions are at a greater risk of poor outcomes.	97
long periods of time spent at home can put pressure on relationships and immediate families. LGBTQ+ people will be impacted like everyone else, but also have some unique vulnerabilities.	97
There may be an increase in individuals struggling to manage their use of alcohol or drugs to the point where this has a negative impact on their lives. During a period of physical distancing, individuals may also have less access to resources or support networks to help them manage their alcohol or drug use more safely.	96
COVID-19 will impact already marginalised populations such as LGBTQ+ people in relation to security of housing and income.	96
Trans and gender diverse people may be reluctant to access medical support for COVID-19 due to a fear of discrimination or feeling unsafe in shared care spaces.	95
LGBTQ+ people who experience disabilities may be especially affected in the context of COVID-19, particularly in terms of accessing safe and affirming social care.	94

Sources: Rainbow Health Victoria; my survey among 6,600 individuals conducted October 2020.

Table 3 Mental health symptoms since COVID-19 outbreak. Select all that apply. (%)

More emotionally exhausted	67
Increased sadness in day-to-day life	59
More irritable	64
Feeling generally more confused	47
Increased insomnia	49
Increased anger	33
Increased feelings of guilt	14

Sources: Qualtrics; my survey among 6,600 individuals conducted October 2020.

Table 4 Are you worried about each of the following as a result of the spread of COVID-19? (%)

You or someone in your family getting sick from COVID-19	87
The healthcare system becoming overwhelmed by COVID-19 patients	86
Being unable to access medical care	85

Sources: YPCCC; GMU/CCCC; my survey among 6,600 individuals conducted October 2020.

Table 5 Understanding the mental health and emotional aspects of COVID-19. (%, yes)

You find increased concerns, anxieties and fears surround your health and safety, and that of family and friends.	92
You find that isolation, job insecurities and more remain pervasive in daily life.	75
Adjusting to the current conditions can bring about many stressful challenges, which require periods of adjustment.	78
Emotional stress and fear related to COVID-19 can be just as debilitating as any physical symptom.	87
Your emotional health can have a direct impact on your physical health.	85
Excessive worrying can affect your sleep, appetite and desire for activity, negatively affecting your physical health and ability to fight infection.	84
When you find yourself having severe depressive thoughts due to fear and/or isolation, you are afraid you might, intentionally or unintentionally, harm yourself or someone else.	11

Sources: LAC/DMH; my survey among 6,600 individuals conducted October 2020.

Table 6 How likely do you think it is for you to get infected by COVID-19? (%)

Very likely	16
Fairly likely	27
Neither, nor	23
Fairly unlikely	17
Very unlikely	9
Have already been ill	8

Sources: Statista; my survey among 6,600 individuals conducted October 2020.

Table 7 Have you or a member of your household experienced any of the following because of the spread of COVID-19? (%, yes)

Had trouble sleeping	68
Been unable to get adequate medical care	57
Been unable to visit family members who are at higher risk of infection	72

Sources: YPCCC; GMU/CCCC; my survey among 6,600 individuals conducted October 2020.

Decreased LGBTQ+ support is related to elevated psychological distress throughout the COVID-19 crisis. (Kidd et al., 2021) Sexual and gender minority populations are isolated as a result of quarantine and physical distancing measures, while social support services are needed because of possible cognitive, emotional, and behavioral disorders related to COVID-19. (Scroggs et al., 2020) Unsatisfactory LGBTQ+ mental health may not be evaluated without significant dedication and funding intended for remedying health imbalances intensified by the COVID-19 pandemic. (Kneale and Bécares, 2021) Individuals with non-normative gender identities and sexualities may face escalated risks for deficient COVID-19 outcomes, their socioeconomic marginalization being aggravated. (Morgan et al., 2021)

Table 8 Priority concerns about the impact of the COVID-19 pandemic on mental health. Select all that apply. (%)

Concerns about the impact on mental health about access to support and services (including medication) for both mental health and physical health issues.	93
Concerns about the mental health and wellbeing of vulnerable people, and the support available to them, including people with learning disabilities, people in psychiatric care, and homeless people.	94
Concerns about the mental health and wellbeing of healthcare professionals, and the support available to them.	92
Concerns about the mental health impacts on autistic adults and children.	89
Concerns about the mental health and wellbeing of informal (and family) carers.	89
Concerns about the mental health impacts of dealing with the practical challenges of the pandemic, including food and shopping, finances and economic issues, employment, staying safe, access to outside space and being able to plan for the future.	87
Concerns about being anxious, becoming anxious, the effects of anxiety, feeling overwhelmed and out of control (hopelessness) and facing uncertainty.	87
The mental health impacts of being concerned about becoming ill with COVID-19, dying and infecting others. Also includes concerns about testing, treatment and vaccines, as well as concerns about others not complying with social distancing guidelines.	88
Concerns about the mental health impacts of media reporting on the pandemic, of repeated accessing of news and social commentary, and the intensity of commentary about the pandemic on social media.	82
Concerns about how access to and quality of information might impact on people's mental health during the pandemic, including concerns about the government's response, guidance and communication.	80
Concerns about the mental health impacts caused by people and employers perceived not to be behaving responsibility or complying with government guidelines.	72
Concerns relating to becoming mentally ill as a result of the stress of the pandemic, including the exacerbation of existing mental illness and the impact on mental wellbeing at a societal level.	81
Concerns pertaining to a specific mental health issue, including agoraphobia, bipolar, depression, eating disorders, schizophrenia, OCD, psychosis, social phobia, paranoia, stress and panic attacks	79
Concerns about the impact of the pandemic on people's resilience, including their ability to cope and to adjust to normal life after it is over.	77
Concerns about suicide ideation and the suicide rate during and after the pandemic.	32
Concerns about the impact of the pandemic on personal motivation and its subsequent impact on mental health.	57
Concerns about people turning to drink and drugs to cope with the uncertainty and distress caused by the pandemic.	29

Concerns about people self-harming in response to the pandemic.	24
Concerns about the mental wellbeing of family members during the pandemic and of the impact of bereavement. Also includes concerns about the impact of social isolation and lockdown on family relationships, as well as issues such as domestic abuse.	44
Concerns relating to the potential mental health impacts of the pandemic on older people.	57
Concerns about the impact of isolation on people's mental health and wellbeing, including the impact of loneliness and issues faced by people with existing mental and physical health problems.	49
Concerns about the impact of lack of exercise on mental health and wellbeing.	38

Sources: MQ; Holmes et al. (2020); Ipsos MORI; my survey among 6,600 individuals conducted October 2020.

Table 9 Assessing the degree of an individual's depressive symptoms over the previous two weeks (%, yes)

Have you been bothered by having little interest or pleasure in doing things?	86
Have you been bothered by feeling down, depressed or hopeless?	82
Have you been bothered by having trouble falling or staying asleep, or sleeping too much?	68
Have you been bothered by feeling tired or having little energy?	75
Have you been bothered by having a poor appetite or overeating?	69
Have you been bothered by feeling negative about yourself or that you are a failure or have let yourself or your family down?	68
Have you been bothered by having trouble concentrating on things, such as reading the newspaper or watching television?	62
Have you been bothered by moving or speaking so slowly that other people could have noticed; or being so fidgety or restless that you have been moving around a lot more than usual?	55
Have you had thoughts that you would be better off dead, or of hurting yourself in some way?	7

Sources: ONS; PHQ-9; my survey among 6,600 individuals conducted October 2020.

COVID-19-related family conflict moderates the link between actual health issues and depressive symptoms: the adverse consequences of health problems on emotional and psychological distress are more significant among LGBTQ+ persons who are continuously an easy target for family conflict associated with gender identity and sexual orientation. (Suen et al., 2020) Exceptionally resilient LGBTQ+ individuals may be resistant to unanticipated and acute crises. (Goldbach et al., 2020) The mental health of gender and sexual minorities has been considerably affected by social determinants of biopsychosocial stressors. (Jenkins et al., 2021) Mental and sexual health disparities lead to heightened stress and escalated levels of suicidality among LGBTQ+ individuals during the COVID-19 pandemic. (Iacono et al., 2021)

6. Conclusions and Implications

Perceived social isolation is related to unsatisfactory mental health outcomes, configuring elevated psychiatric disorder prevalence in sexual and gender minority populations and the relevance of social support services during the COVID-19 pandemic. (Rodriguez-Seijas et al., 2020) Parasocial relationships may have a significant social-psychological function in LGBTQ+ individuals, mitigating unsupportive environments. (Woznicki et al., 2020) Consolidating resilience in sexual and gender minority populations throughout the COVID-19 outbreak may decrease the consequences of extended minority stress while constituting a crucial preventive measure against subsequent, unexpected acute distress. (Goldbach et al., 2020) LGBTQ+ persons are a marginalized group that may bear the brunt of COVID-19 health inequalities, and thus preventative health behaviors are decisive. (Solomon et al., 2021) As limitations, this article focuses only on COVID-19-related stressors and psychological symptoms among gender and sexual minorities. Further research should consider COVID-19-related health inequities and biopsychosocial stressors experienced by LGBTQ+ people.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1358657 from the Networked Algorithmic Sociality Research Unit, New York City. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 71–80, ISSN 2164-0262, eISSN 2378-3524

Cognitive, Emotional, and Behavioral Disorders Related to COVID-19 Isolation, Quarantine, and Physical Distancing among Sexual and Gender Minority Individuals

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ABSTRACT. Despite the relevance of cognitive, emotional, and behavioral disorders related to COVID-19 isolation, quarantine, and physical distancing among sexual and gender minority individuals, only limited research has been conducted on this topic. Using and replicating data from Gallup, GMU/CCCC, GWI, LGBT Foundation, Nursing Times, Rek et al. (2020), Rethink Mental Illness, Statista, The Trevor Project, The University of Melbourne, and YPCCC, I performed analyses and made estimates regarding COVID-19 pandemic-related stressors that may affect the psychological well-being of LGBTQ+ persons. The results of a study based on data collected from 6,400 respondents provide support for my research model. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: COVID-19; sexual; gender; minority; emotion; behavior

How to cite: Lăzăroiu, G. (2021). "Cognitive, Emotional, and Behavioral Disorders Related to COVID-19 Isolation, Quarantine, and Physical Distancing among Sexual and Gender Minority Individuals," *Journal of Research in Gender Studies* 11(1): 71–80. doi: 10.22381/JRGS11120217.

Received 24 November 2020 • Received in revised form 15 July 2021
Accepted 19 July 2021 • Available online 26 July 2021

1. Introduction

In addition to the pervasive distress associated with COVID-19 and expected morbidity, psychosocial interferences and disaffection contingent on measures planned to limit the transmission of such a contagious virus (Lăzăroiu and Adams, 2020) may affect the mental health and psychological well-being of sexual and gender minority populations through decreased prospects to participate in in-person social activities. (Rodriguez-Seijas et al., 2020)

2. Conceptual Framework and Literature Review

LGBTQ+ persons are immoderately affected by COVID-19, social support services, and public health responses. (Rodriguez-Seijas et al., 2020) Increased rates of mental health issues in sexual and gender minority communities due to intolerance and minority stress and reduced levels of social support articulate the psychosocial distress generated by the COVID-19 outbreak. (Ruprecht et al., 2021) Sheltering in place to limit the transmission of COVID-19 over prolonged intervals of time results in low psychological well-being among LGBTQ+ individuals. (Camargo et al., 2021) Seclusion mediates the link between family support and depression symptoms: family support has an adverse relationship with seclusion and depression symptoms, while seclusion has a positive association with depression symptoms. (Wozniccki et al., 2020) The indirect consequences of the COVID-19 crisis concerns on emotional and psychological distress through anxiety are moderated by distinct resilience. (Goldbach et al., 2020) Health-related vulnerabilities entrenched in social and political imbalances, obstacles to culturally adequate health care, and sexual orientation- and gender identity-related social stigma configure COVID-19-related exposures of LGBTQ+ people (Kline, 2020) who come to grips with both individual- and structural-level inequity, having constant unsatisfactory access to health care services. (Phillips II et al., 2021) Exemplifications of harassment and exclusion articulate perceived stress and depressive symptomology among sexual and gender minority populations throughout the COVID-19 pandemic. (Kneale and Bécares, 2021)

3. Methodology and Empirical Analysis

Using and replicating data from Gallup, GMU/CCCC, GWI, LGBT Foundation, Nursing Times, Rek et al. (2020), Rethink Mental Illness, Statista, The Trevor Project, The University of Melbourne, and YPCCC, I performed analyses and made estimates regarding COVID-19 pandemic-related stressors that may affect the psychological well-being of LGBTQ+ persons. The results of a study based on data collected from 6,400 respondents provide support for my research model. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from sub-

sequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

LGBTQ+ persons are putting up with heterogeneous kinds of sexuality or gender-based intolerance (e.g., harassment and exclusion) throughout the COVID-19 pandemic. (Kneale and Bécares, 2021) Sexual and gender minority-specific COVID-19-related stressors encompass decreased connection to the LGBTQ+ community and social services. (Suen et al., 2020) (Tables 1–13)

Table 1 % of LGBTQ+ people who are concerned that this situation is going to lead to substance or alcohol misuse or trigger a relapse.

24%	of black, Asian and minority ethnic LGBTQ+ people
26%	of disabled people
25%	of trans people
26%	of non-binary people

Sources: LGBT Foundation; my survey among 6,400 individuals conducted October 2020.

Table 2 The impacts of the COVID-19 pandemic on mental health care disparities, discrimination, and suicide among LGBTQ+ people

37%	seriously considered attempting suicide.
68%	reported symptoms of generalized anxiety disorder.
58%	reported symptoms of major depressive disorder.
44%	have wanted counseling from a mental health professional, but did not receive it.
88%	said it was important that a crisis line include a focus on LGBTQ+ people, should they need it.
74%	stated that their mental health was poor most of the time or always during COVID-19.
42%	said that COVID-19 impacted their ability to express their sexual orientation.
54%	of transgender and nonbinary individuals said that COVID-19 impacted their ability to express their gender identity.
84%	stated that COVID-19 made their living situation more stressful.
57%	reported that they had experienced discrimination based on their sexual orientation or gender identity.
27%	found their home to be LGBTQ-affirming.

Sources: The Trevor Project; my survey among 6,400 individuals conducted October 2020.

Table 3 Do you feel any of the following emotions when you think about COVID-19? (%, yes)

Compassionate	82
Hopeful	12
Anxious	69
Afraid	38
Helpless	59
Overwhelmed	68
Bored	24
Angry	29
Disgusted	33
Depressed	57
Lonely	39
Panicked	41
Confused	29

Sources: YPCCC; GMU/CCCC; my survey among 6,400 individuals conducted October 2020.

Table 4 Mental health services for people living with severe mental illness (%, relevance)

People who are severely affected by mental illnesses such as schizophrenia or bipolar disorder, or live with severe anxiety or depression, have been hard hit by both the changes to formal mental health services and the wider implications of the lockdown, such as sharp, sudden changes to routine and the removal of coping mechanisms such as seeing friends or peer support groups.	93
Their mental health had worsened during COVID-19 as a result of receiving less support from mental health services.	91
Being unable to access the medication needed for their mental health has made their mental health worse.	90

Sources: Rethink Mental Illness; my survey among 6,400 individuals conducted October 2020.

Table 5 Are you wondering whether you are infected with COVID-19? (%)

I'm wondering about this a lot.	61
I'm wondering about this a little.	27
I'm mostly not wondering about this.	9
I'm not wondering about this at all.	3

Sources: Statista; my survey among 6,400 individuals conducted October 2020.

Table 6 Individuals who say they have experienced an increase in the following feelings since the beginning of the COVID-19 outbreak. Select all that apply. (%)

Anxiety	82
Stress	86
Loneliness	27
Connection to others	24
Depression	27
Panic	33
Compassion	42
Gratitude	29
Relaxation	3/3

Sources: GWI; my survey among 6,400 individuals conducted October 2020.

Multiply-marginalized sexual and gender minority persons are highly vulnerable for unsatisfactory COVID-19 pandemic outcomes. (Moore et al., 2021) Discontinuity and intermission in gender-affirming health care are not related to escalated psychological distress (Lăzăroiu et al., 2018) throughout the COVID-19 outbreak. (Kidd et al., 2021) LGBTQ+ individuals who have health issues (Iacono et al., 2021) and diminished social interaction with friends during the COVID-19 crisis display elevated degrees of depressive and anxiety symptoms. (Suen et al., 2020) LGBTQ+ youth with access to the LGBTQ+ community can self-manage their mental health more smoothly, as a result of subsequent social support and acceptance. (Town et al., 2021)

Table 7 "Because of the COVID-19 pandemic, over the past 14 days I have felt stressed or burdened a lot by…" Select all that apply. (%)

living in a small accommodation.	22
being in quarantine.	27
taking over school lessons.	17
the curfew.	43
being in home office.	27
customer service.	39
worries about my health.	76
worries of not being able to get medical care.	83
worries about being sick with COVID-19 when I noticed first signs of symptoms such as fever, dry cough, breathing problems, sore throat, loss of smell/taste, headache or diarrhea.	84
increased conflicts with people close to me.	29
financial worries.	37
uncertainties regarding my job, training place, studies or school.	34
concerns for my own personal safety.	33
concerns for the integrity of family members or friends.	69
fears of what the future will bring, or that I won't be able to cope with everything.	67
thoughts that it would be better to be dead.	2

Sources: Rek et al. (2020); my survey among 6,400 individuals conducted October 2020.

Table 8 Have you experienced any of these thoughts, feelings, or reactions associated with the COVID-19 pandemic? Select all that apply. (%)

Feeling stressed or overwhelmed	93
Anxiety, worry, or fear	91
Racing thoughts	84
Sadness, tearfulness, loss of interest in usual enjoyable activities	87
Physical symptoms, such as increased heart rate, stomach upset, fatigue, or other uncomfortable sensations	69
Frustration, irritability, or anger	68
Restlessness or agitation	67
Feeling helpless	62
Difficulty concentrating or sleeping	57
Feeling disconnected from others	42
Apprehension about going to public spaces	49
Trouble relaxing	42

Sources: The University of Melbourne; my survey among 6,400 individuals conducted October 2020.

Table 9 Perceived risk of getting infected with COVID-19 (%)

Perceived low to no risk	8
Perceived moderate to high risk	92

Sources: Statista; my survey among 6,400 individuals conducted October 2020.

Table 10 Please rate the level of anxiety you are experiencing now compared with before the start of the COVID-19 pandemic. (%)

I feel a lot more anxious than usual.	57
I feel a little more anxious than usual.	33
I feel the same as usual.	7
I feel a little less anxious than usual.	2
I feel a lot less than anxious usual.	1

Sources: Nursing Times; my survey among 6,400 individuals conducted October 2020.

Table 11 How worried are you that you or someone in your family will be exposed to COVID-19? (%)

Very worried.	59
Somewhat worried.	29
Not too worried.	10
Not worried at all.	2

Sources: Gallup; my survey among 6,400 individuals conducted October 2020.

Table 12 Feelings about personal problems and control during the COVID-19 pandemic. Select all that apply. (%)

Everything has been going my way.	7
I can't control important matters in my life.	56
Difficulties are piling up so high that I won't be able to deal with them.	69
I'm uncertain about my ability to deal with problems.	49

Sources: Statista; my survey among 6,400 individuals conducted October 2020.

Table 13 % who reported select mental health challenges affecting their productivity since the COVID-19 outbreak. Select all that apply.

Difficulty in concentrating	49
Taking longer to do a task	47
Difficulty in thinking, reasoning or deciding	45
Putting off challenging work	39
Difficulty in juggling tasks or responsibilities	37

Sources: Statista; my survey among 6,400 individuals conducted October 2020.

Perceptions of seclusion may be positively related to, and time spent interacting virtually may be adversely associated with, mental health outcomes (Lăzăroiu, 2018) during the COVID-19 pandemic. (Rodriguez-Seijas et al., 2020) Resilience may function as a barrier against the consequences of concerns as regards COVID-19 (Lăzăroiu et al., 2020) on the route from anxiety to physical health problems. (Goldbach et al., 2020) Parasocial relationship strength moderates the link between family support and seclusion: significant parasocial relationship strength mitigates the link between family support and seclusion in contrast with reduced parasocial relationship strength. (Woznicki et al., 2020) Sexual and gender minority populations are immoderately affected by COVID-19 and its socio-economic effects. (Morgan et al., 2021)

6. Conclusions and Implications

Resilience may assist LGBTQ+ individuals in handling COVID-19 emotional and psychological distress. (Goldbach et al., 2020) At significant parasocial relationship strength, the link between family support and seclusion is diminished in comparison with a decreased parasocial relationship strength situation. (Woznicki et al., 2020) The COVID-19 crisis is interfering with health, social, and structural imbalances (Byerly et al., 2019) that generate unsatisfactory outcomes for gender and sexual minorities (Radusky et al., 2021), with consequences on mental health, emotional reactions, stress, coping, substance use, suicidal ideation and behavior, and self-inflicted violence. (Jenkins et al., 2021) Internalized social stigma in relation to sexual orientation and gender minority status (Lăzăroiu et al., 2021) can affect COVID-19 preventative health behaviors. (Solomon et al., 2021) As limitations, this article focuses only on cognitive, emotional, and behavioral disorders related to COVID-19 isolation, quarantine, and physical distancing among sexual and gender minority individuals. Further research should consider COVID-19 sentiments, attitudes, habits, and behaviors in LGBTQ+ populations.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1053697 from the Personalized Health Care Laboratory, Belfast. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 81–90, ISSN 2164-0262, eISSN 2378-3524

Emotional and Psychological Distress among LGBTQ+ People in the Context of COVID-19 Pandemic

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ABSTRACT. Based on an in-depth survey of the literature, the purpose of the paper is to explore emotional and psychological distress among LGBTQ+ people in the context of COVID-19 pandemic. Using and replicating data from ACHA, CDC, Ginger, GWI, HMN, LGBT Foundation, NHS, Pew Research Center, Statista, UGMH, and The Williams Institute, I performed analyses and made estimates regarding the psychological effects of COVID-19 pandemic trauma on mental health burden among LGBTQ+ individuals. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: psychological distress; LGBTQ+; COVID-19; behavior; mental health

How to cite: Green, L. (2021). "Emotional and Psychological Distress among LGBTQ+ People in the Context of COVID-19 Pandemic," *Journal of Research in Gender Studies* 11(1): 81–90. doi: 10.22381/JRGS11120218.

Received 28 November 2020 • Received in revised form 12 July 2021
Accepted 17 July 2021 • Available online 26 July 2021

1. Introduction

Throughout the COVID-19 pandemic, sexual and gender minority populations have endured verbal, physical, and sexual harassment, threats of aggression, exclusion from activities, unintentional disclosure of sexual orientation and gender identity or other kinds of unacceptable treatment as being (perceived as being) LGBTQ+. (Kneale and Bécares, 2021) The proportion to which LGBTQ+ persons are impacted by the COVID-19 crisis is contingent on their circumstances, which are influenced by extended systems and structures of cruel or harmful treatment and authority, due to the socially articulated (Lăzăroiu and Adams, 2020) and context-specific character of gender, and the convergence with additional social stratifiers. (Morgan et al., 2021)

2. Conceptual Framework and Literature Review

The implementation of COVID-19 physical distancing measures disallows sexual minority individuals to interact in LGBTQ+ spaces. (Suen et al., 2020) Parasocial relationship strength moderates the link between seclusion and depression symptoms: significant parasocial relationship strength decreases the link between seclusion and depression symptoms in contrast to diminished parasocial relationship strength. (Woznicki et al., 2020) Community networking and social support services, pivotal in furthering and preserving resilience for LGBTQ+ persons, are quite impossible to access throughout the COVID-19 pandemic because of isolation, quarantine, and physical distancing orders. (Goldbach et al., 2020) Reduced social connectedness (Lăzăroiu et al., 2018) and growing time spent by virtual socialization are related to increased mental health. (Rodriguez-Seijas et al., 2020) LGBTQ+ persons are bearing the brunt of a decline in mental health, heightened challenging emotions, and coping ability during the COVID-19 crisis. (Jenkins et al., 2021) With decreased social support from family members and specialized services, LGBTQ+ people might be socially secluded in places that are not quite considerate of their sexual orientation and gender identity. (Hawke et al., 2021) Convergent types of marginalization (Lăzăroiu et al., 2020; Lăzăroiu et al., 2021; Mihăilă, 2017) configure mental health-related vulnerabilities that can be aggravated throughout the COVID-19 outbreak. (Kline, 2020)

3. Methodology and Empirical Analysis

Using and replicating data from ACHA, CDC, Ginger, GWI, HMN, LGBT Foundation, NHS, Pew Research Center, Statista, UGMH, and The Williams Institute, I performed analyses and made estimates regarding the psychological effects of COVID-19 pandemic trauma on mental health burden among LGBTQ+ individuals. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that occur at different points in the survey process. Test data was populated and analyzed in SPSS to ensure the logic and randomizations were working as

intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

As access to mental health care and social support services is decreased by the COVID-19 crisis, optimizing resilience may assist sexual and gender minority populations in more resourcefully handling unexpected declines in assistance. (Goldbach et al., 2020) Heterogeneous types of structural violence have articulated social circumstances that increase the probability of LGBTQ+ persons to be exposed to COVID-19 and be infected, and decrease the feasibility of receiving prompt and adequate treatment after contracting such a contagious virus. (Ruprecht et al., 2021) Minority stress triggers mental health imbalances. (Rodriguez-Seijas et al., 2020) (Tables 1–10)

Table 1 % of LGBTQ+ people who have had a medical appointment cancelled

43%	of black, Asian and minority ethnic LGBTQ+ people
45%	of disabled LGBTQ+ people
42%	of trans people
40%	of non-binary people
44%	of LGBTQ+ people aged 50+.

Sources: LGBT Foundation; my survey among 5,800 individuals conducted October 2020.

Table 2 Vulnerabilities to COVID-19 among LGBTQ+ people (%, relevance)

The public health response to the COVID-19 pandemic, including shelter-in-place orders and social distancing, may exacerbate existing risk factors for suicide.	89
LGBTQ+ people may experience discomfort or discrimination in healthcare settings, potentially making them less likely to seek needed care and more likely to receive poor care.	94
LGBTQ+ people feel concerned that, if they express their gender identity, they could be denied good medical care.	87
Those who live alone and may be disconnected from family and other networks may need special assistance related to health care and daily living.	89
Many LGBTQ+ people experience conflict or rejection from their families due to their gender identity.	93
Official orders to mitigate the spread of coronavirus, like "stay-at-home" orders, may place LGBTQ+ people in situations where they must shelter with family members who do not accept their gender identity and may place them at added risk for intimate partner violence.	94

Sources: The Williams Institute; my survey among 5,800 individuals conducted October 2020.

Table 3 Short Warwick-Edinburgh Mental Wellbeing Scale statements (%, yes)

I've been feeling optimistic about the future.	27
I've been feeling useful.	44
I've been feeling relaxed.	3
I've been dealing with problems well.	9
I've been thinking clearly.	7
I've been feeling close to other people.	62
I've been able to make up my own mind about things.	26

Sources: NHS; my survey among 5,800 individuals conducted October 2020.

Table 4 What are your biggest personal concerns in regard to the COVID-19 outbreak? Select all that apply. (%)

Getting seriously sick from the virus	83
One of my family members getting seriously sick from the virus	82
Boredom/Isolation	67
The strain on my local healthcare services during this time	76
My mental health worsening	67

Sources: GWI; my survey among 5,800 individuals conducted October 2020.

Table 5 What motivated you to use a technology-based emotional or mental health service such as online counseling or a mental health app? (%)

I feel like I need to do something to deal with COVID-19 stress	74
My regular counselor moved to online sessions	26

Sources: Ginger; my survey among 5,800 individuals conducted October 2020.

Table 6 In the past 7 days, how often have you had physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart, when thinking about your experience with the COVID-19 outbreak? (%)

Rarely or none of the time (less than 1 day)	7
Some or a little of the time (1–2 days)	11
Occasionally or a moderate amount of time (3–4 days)	30
Most or all of the time (5–7 days)	52

Sources: Pew Research Center; my survey among 5,800 individuals conducted October 2020.

Table 7 % with adverse mental health symptoms, increased substance use, or suicidal ideation during the COVID-19 pandemic. Select all that apply.

Started or increased substance use to cope with COVID-19 pandemic-related stressor emotions	21
Seriously considered suicide	2
One or more adverse mental or behavioral health symptom(s): anxiety/depression/trauma/stressor-related disorder	84

Sources: Statista; CDC; my survey among 5,800 individuals conducted October 2020.

Table 8 Symptoms of mental health conditions and levels of psychological well-being. Select all that apply. (%)

Depression	57
Suicidal ideation	3
Anxiety	69
Flourishing	2
Serious psychological distress	29
Loneliness	25
Resilience	9

Sources: HMN; ACHA; my survey among 5,800 individuals conducted October 2020.

Extended stay-at-home orders have impacted the mental health of LGBTQ+ persons who need essential physical supportive peer groups. (DeMulder et al., 2020) Perceptions of seclusion and virtual interaction are associated with alterations in mental health outcomes. (Rodriguez-Seijas et al., 2020) The continuing dissimilarities faced by sexual and gender minority communities prevent ensuring prolonged health equity. (Ruprecht et al., 2021) Absence of family acceptance is an obstacle to self-monitoring of mental health. (Town et al., 2021) Modifications in mental health, substance use, situations of aggression, and access to health care and social services are identifiable among LGBTQ+ individuals during the COVID-19 pandemic. (Radusky et al., 2021)

Table 9 The impact of COVID-19 on mental health and psychosocial well-being (%, relevance)

The impact of the COVID-19 pandemic on mental health is complex, diverse and wide ranging, affecting all parts of societies and populations.	92
Those with existing poor mental health are facing a number of risks including increased rates of mental ill health and disruption to treatment, medications and the lifeline of support services.	91
COVID-19 has had a huge impact on mental health services and caused disruption to care and treatment.	90
Demand for face-to-face mental health services has reportedly significantly decreased due to fear of infection, especially among older people.	88
Playing a crucial role in fighting the outbreak and saving lives, frontline workers are under exceptional stress and while deaths of health workers are rising, the mental ill health rates are rising faster still.	89
Frontline healthcare workers are at particularly high risk of mental ill health, including suicide attempts, the risk of burnout and stigmatization.	88
Dedicated teams providing mental health support for health workers should include the introduction of personal screening for stress and mental health illness involving an assessment of occupational exposure to COVID-19, prior history of stress and mental health conditions, new personal and family stressors arising since the pandemic onset, and current presenting problems including increased use of alcohol or drugs.	87
People who test positive for COVID-19 have to cope with fear, anxiety and uncertainty about their condition, as well as physical discomfort and separation from loved ones.	90
For those who have loved ones affected by COVID-19 they face worry and separation. People who experience the death of a family member often do not have the opportunity to be present in their last moments, or to hold funerals which can have a profound effect on grieving and impact mental health.	89
Some COVID-19 patients may experience stigma, discrimination and intimidation, possibly leading to them to hide the illness to avoid such discrimination, preventing them from seeking health care, and discouraging them from adopting healthy behaviors, all of which undermining efforts to control the pandemic while increasing levels of fear and depression for those patients and their families.	91
The elderly are at high risk of mental ill health due to the anticipated long periods of social distancing and the accompanying isolation and loneliness.	90
There may be a worsening of cognitive decline in older populations, who may be one of the last groups for whom lockdown measures are lifted.	89
Social isolation, reduced physical activity and reduced cognitive stimulation all increase the risk of cognitive decline and dementia, and for some there is an inability to understand and follow public health advice.	87
In humanitarian settings affected by conflict and natural disaster, the mental health challenges are huge but often overlooked.	83
The current pandemic is adding an extraordinary level of stress to already	86

vulnerable populations due to insecurity of housing and food, combined with feelings of helplessness and despair.	
COVID-19 may further exacerbate existing mental health conditions, trigger new conditions, and limit the access of those with pre-existing conditions to the already scarce mental health services they had.	89
Fear, loneliness, sadness and anxiety are common as people are afraid of infection, dying, losing family members, losing their income or livelihoods, being socially isolated and separated from loved ones.	88
For those in psychiatric institutions and care homes the necessary infection prevention and control measures must be provided to stop the spread of COVID-19 while giving care for those affected by COVID-19, without discrimination.	89
Emergency mental health and psychosocial support should be scaled up especially for those most at risk of mental ill health during the pandemic including health care workers.	90
Mental health services and support needs to be incorporated in all aspects of the response including conducting national public health campaigns that promote mental health and psychosocial wellbeing, that explain COVID-19 and signpost mental health services, while address misinformation, stigma and discrimination for all citizens.	91

Sources: UGMH; my survey among 5,800 individuals conducted October 2020.

Table 10 Symptoms of mental health conditions and levels of psychological well-being (%, yes)

Depression	67
Suicidal ideation	6
Anxiety	79
Flourishing	2
Serious psychological distress	30
Loneliness	45
Resilience	8

Sources: HMN; ACHA; my survey among 5,800 individuals conducted October 2020.

LGBTQ+ individuals display unsatisfactory mental and physical health, and quality of life, and increased stress, social isolation and loneliness, emotional and psychological distress, and weariness during the COVID-19 crisis. (Fish et al., 2021) The link between seclusion and depression symptoms is diminished in comparison with a reduced parasocial relationship strength situation. (Woznicki et al., 2020) The COVID-19 isolation, quarantine, and physical distancing measures have considerably affected the psychological well-being and sexual health in sexual and gender minority communities, resulting in cognitive, emotional, and behavioral disorders. (Nelson et al., 2020) COVID-19-related substance use disorders immoderately impacts socially vulnerable populations such as LGBTQ+ people. (Melin et al., 2021) Tailored mental health supports are needed for marginalized LGBTQ+ individuals throughout the COVID-19 pandemic. (Iacono et al., 2021)

6. Conclusions and Implications

Parasocial relationship strength moderates the links between family support and seclusion, and depression symptoms, among LGBTQ+ individuals who live with their family throughout the COVID-19 crisis. (Woznicki et al., 2020) Social drinking by use of social networking sites has become gradually noticeable during shelter-in-place orders so as for users to struggle against social isolation, loneliness, dreariness, and emotional and psychological distress of coping with such a contagious virus. (Cerezo et al., 2021) COVID-19 isolation, quarantine, and physical distancing measures may impact sexual health, affecting access to HIV prevention supplies and altering sexual behavior and mental health, while intensifying feelings of vulnerability and mitigating community support connections among socially marginalized groups such as LGBTQ+ communities. (Ferraz et al., 2021) As limitations, this article focuses only on emotional and psychological distress among LGBTQ+ people in the context of COVID-19 pandemic. Further research should consider COVID-19-related mental health burden and minority stress, marginalized social identities, and experiences of LGBTQ+ discrimination.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1256647 from the Smart Healthcare Systems Research Unit, Brisbane. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 91–100, ISSN 2164-0262, eISSN 2378-3524

Sexual and Gender Minority Stress among LGBTQ+ Populations during the COVID-19 Pandemic

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ABSTRACT. The purpose of this study was to empirically examine sexual and gender minority stress among LGBTQ+ populations during the COVID-19 pandemic. Building my argument by drawing on data collected from ACHA, ARI, CDC, Chapman University, Commonwealth Fund, GMU/CCCC, GWI, HHD, HMN, ICFJ, LGBT Foundation, PHW, Rek et al. (2020), Statista, TCDJ/Columbia University, The University of Southern California, and YPCCC, I performed analyses and made estimates regarding sexual and gender minority-based stressors among LGBTQ+ persons during the COVID-19 pandemic. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: sexual; gender; minority; stress; LGBTQ+; COVID-19

How to cite: Campbell, K. (2021). "Sexual and Gender Minority Stress among LGBTQ+ Populations during the COVID-19 Pandemic," *Journal of Research in Gender Studies* 11(1): 91–100. doi: 10.22381/JRGS11120219.

Received 17 November 2020 • Received in revised form 12 July 2021
Accepted 18 July 2021 • Available online 26 July 2021

1. Introduction

LGBTQ+ groups may be at discriminatory risk of coming to grips with stress or depressive symptomology. (Kneale and Bécares, 2021) Both sexual and gender minority persons experience psychiatric incongruities of a comparative character, entrenched in minority stress processes associated with their marginalized identities. (Rodriguez-Seijas et al., 2020) Stay-at-home orders and social service closures have caused LGBTQ+ people to pass up specialized assistance from community sources. (Hawke et al., 2021) Intrinsic social and structural conditions (Lăzăroiu and Adams, 2020; Mihăilă, 2017) bring about vulnerability for negative mental health outcomes among individuals with non-normative gender identities and sexualities. (Jenkins et al., 2021)

2. Conceptual Framework and Literature Review

Family conflict associated with sexual orientation and gender identity considerably resulted in the discrepancy in depressive and anxiety symptoms, configuring sexual and gender minority-specific COVID-19-related stressors. (Suen et al., 2020) Levels of emotional and psychological distress and rates of resilience may be dissimilar among LGBTQ+ individuals without health insurance. (Goldbach et al., 2020) Seclusion mediates the link between family support and depression symptoms, while parasocial relationship strength moderates the links between family support and seclusion, and seclusion and depression, but parasocial relationship does not relevantly moderate the link between family support and depression symptoms. (Woznicki et al., 2020) The prolonged consequences of COVID-19 may gradually affect the mental health and psychological well-being (Lăzăroiu et al., 2018) in sexual and gender minority communities. (Rodriguez-Seijas et al., 2020) Internalized stigma is associated with decreased compliance with COVID-19 preventative health behaviors in LGBTQ+ persons. (Solomon et al., 2021) The COVID-19 crisis may intensify risk for and aggravate prior mental health issues (Lăzăroiu et al., 2021) among particularly vulnerable groups, such as LGBTQ+ persons. (Hawke et al., 2021) Increasing access to inexpensive, culturally adequate, and first-rate healthcare among LGBTQ+ populations would ensure prolonged health equity. (Ruprecht et al., 2021)

3. Methodology and Empirical Analysis

Building my argument by drawing on data collected from ACHA, ARI, CDC, Chapman University, Commonwealth Fund, GMU/CCCC, GWI, HHD, HMN, ICFJ, LGBT Foundation, PHW, Rek et al. (2020), Statista, TCDJ/ Columbia University, The University of Southern California, and YPCCC, I performed analyses and made estimates regarding sexual and gender minority-based stressors among LGBTQ+ persons during the COVID-19 pandemic. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

4. Survey Methods and Materials

The interviews were conducted online and data were weighted by five variables (age, race/ethnicity, gender, education, and geographic region) using the Census Bureau's American Community Survey to reflect reliably and accurately the demographic composition of the United States. Any survey which did not reach greater than 50% completion was removed from subsequent analysis to ensure quality. The data was weighted in a multistep process that accounts for multiple stages of sampling and nonresponse that

occur at different points in the survey process. Test data was populated and analyzed in SPSS to ensure the logic and randomizations were working as intended before launching the survey. To ensure high-quality data, data quality checks were performed to identify any respondents showing clear patterns of satisficing. The cumulative response rate accounting for non-response to the recruitment surveys and attrition is 2.5%. The break-off rate among individuals who logged onto the survey and completed at least one item is 0.2%. Sampling errors and test of statistical significance take into account the effect of weighting. Question wording and practical difficulties in conducting surveys can also introduce error or bias into the findings of opinion polls. The sample weighting was accomplished using an iterative proportional fitting process that simultaneously balanced the distributions of all variables. Stratified sampling methods were used and weights were trimmed not to exceed 3. Average margins of error, at the 95% confidence level, are +/-2%. The design effect for the survey was 1.3. For tabulation purposes, percentage points are rounded to the nearest whole number. The precision of the online polls was measured using a Bayesian credibility interval. Confirmatory factor analysis was employed to test for the reliability and validity of measurement instruments. Descriptive statistical analysis and multivariate inferential tests were undertaken for the survey responses and for the purpose of variable reduction in regression modeling. Multivariate analyses, and not univariate associations with outcomes, are more likely to factor out confounding covariates and more precisely determine the relative significance of individual variables. Independent *t*-tests for continuous variables or chi-square tests for categorical variables were employed. An Internet-based survey software program was utilized for the delivery and collection of responses. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. An informed e-consent was obtained from individual participants. Study participants were informed clearly about their freedom to opt out of the study at any point of time without providing justification for doing so.

5. Results and Discussion

Resilience may moderate anxiety and adverse physiological symptoms endured by individuals with non-normative gender identities and sexualities throughout the COVID-19 crisis. (Goldbach et al., 2020) LGBTQ+ persons display increased prevalence of heterogeneous types of psychosocial dysfunction. (Rodriguez-Seijas et al., 2020) COVID-19 has decreased the ability of gender and sexual minorities to interact, negatively impacting their mental health and psychological well-being. (Nelson et al., 2020) (Tables 1–14)

Table 1 % of LGBTQ+ people who were unable to access medication or were worried that they might not be able to access medication

40%	of black, Asian and minority ethnic LGBTQ+ people
38%	of disabled LGBTQ+ people
48%	of trans people
24%	of non-binary people
22%	of LGBTQ+ people aged 50+.

Sources: LGBT Foundation; my survey among 5,600 individuals conducted October 2020.

Table 2 % struggling to cope with the mental, physical, and personal impacts of the crisis. Select all that apply.

The psychological and emotional impacts of dealing with the COVID-19 crisis	92
The intense workload	89
Social isolation	84
The physical risk of contracting the virus or passing it on to others	85

Sources: ICFJ; TCDJ/Columbia University; my survey among 5,600 individuals conducted October 2020.

Table 3 Adverse mental and behavioral health during the COVID-19 pandemic. Select all that apply.

58%	reported having at least one adverse mental or behavioral health condition.
49%	reported symptoms of anxiety or depressive disorder.
39%	reported symptoms of a trauma- and stressor-related disorder.
11%	said that they started using substances or increased substance use to cope with stress or emotions.
4%	reported having seriously considered suicide in the past month.

Sources: CDC; my survey among 5,600 individuals conducted October 2020.

Table 4 Over the last 2 weeks, how often have you been bothered by the following problems? (%)

	Not at all	Several days	More than half the days	Nearly every day
Feeling nervous, anxious or on edge	1	11	27	61
Not being able to stop or control worrying	1	10	26	63
Little interest or pleasure in doing things	2	12	25	61
Feeling down, depressed, or hopeless	2	12	26	60

Sources: HHD; my survey among 5,600 individuals conducted October 2020.

Table 5 Do you feel any of the following emotions when you think about COVID-19? (%, yes)

Compassionate	86
Hopeful	37
Anxious	79
Afraid	78
Helpless	77
Overwhelmed	79
Bored	24
Angry	47
Disgusted	31
Depressed	57
Lonely	28
Panicked	29
Confused	28

Sources: YPCCC; GMU/CCCC; my survey among 5,600 individuals conducted October 2020.

Table 6 % who reported select mental health symptoms since the COVID-19 outbreak. Select all that apply.

More emotionally exhausted	69
Increased sadness in day-to-day life	39
More irritable	34
Feeling generally more confused	39
Increased insomnia	37
Increased anger	24
Increased feelings of guilt	25

Sources: Statista; my survey among 5,600 individuals conducted October 2020.

Table 7 Mental health and physical well-being since COVID-19 shutdown. (%)

A lot/A little better than six weeks ago.	2
No change.	9
A little/A lot worse than six weeks ago.	89

Sources: ARI; my survey among 5,600 individuals conducted October 2020.

Without a deprivation in social support services, parasocial relationships are an indication of the beneficial social connections in short supply because of COVID-19. (Woznicki et al., 2020) Individuals with non-normative gender identities and sexualities bear the brunt of heterogeneous coinciding types of social marginalization that can be intensified throughout the COVID-19 outbreak. (Kline, 2020) Sexual and gender minority populations are at escalated risk for intense/risky drinking and substance use, which may be worsened by emotional and psychological distress related to the COVID-19 crisis and endeavors to reduce its development, resulting in job loss, modified work schedules, social isolation, and loneliness. (Bochicchio et al., 2021)

Table 8 How participants report coping with the COVID-19 pandemic (%)

	Never/Rarely	Sometimes	Often/ Very often
Gave up trying to deal with it.	62	17	21
Used alcohol or drugs to help me get through it.	75	14	11
Said things to let my unpleasant feelings escape.	40	27	33
Turned to activities to take my mind off things (e.g., work, TV, gardening, exercise).	9	24	67
Got advice or help from other people about what to do.	14	27	59
When I go out in public, I wear a face mask.	6	14	80
Got comfort and understanding from someone.	11	28	61
Trying to find comfort in my religion or spiritual beliefs.	20	24	56
Looked for something good in what is happening.	10	29	61
Took action to try to make the situation better.	12	38	50

Sources: Chapman University; my survey among 5,600 individuals conducted October 2020.

Table 9 Getting needed mental healthcare during COVID-19.

Among those who needed and wanted to get care, % able to get help from a professional	36
% who reported experiencing stress, anxiety, and/or great sadness that was difficult to cope with alone	67

Sources: Commonwealth Fund; my survey among 5,600 individuals conducted October 2020.

Table 10 How do you currently perceive the risk of the COVID-19 pandemic? "I am worried that…" (%, yes)

I have no means of control over the COVID-19 pandemic.	77
I will infect myself with COVID-19.	68
people close to me are infected with COVID-19.	59
I will infect other people with COVID-19.	27
the consequences of the COVID-19 pandemic will greatly affect me personally.	76
in case of infection with COVID-19 the consequences for my health will be severe.	72
I will die of COVID-19.	29
people close to me will die of COVID-19.	27

Sources: Rek et al. (2020); my survey among 5,600 individuals conducted October 2020.

Table 11 "In the last week…" Select all that apply. (%, yes)

have you felt lonely?	27
have you felt isolated?	25
have you been worrying about your mental health and wellbeing?	87

Sources: PHW; my survey among 5,600 individuals conducted October 2020.

Table 12 In the past two weeks, have you felt …
Select all that apply. (yes, %)

that you were unable to control the important things in your life?	79
confident about your ability to handle personal problems?	11
that things were going your way?	7
difficulties were piling up so high that you could not overcome them?	69

Sources: The University of Southern California; my survey among 5,600 individuals conducted October 2020.

Table 13 How would you say that your mental health has been affected, if at all, during the COVID-19 crisis? (%)

Greatly worsened	48
Slightly worsened	40
Not been affected	7
Slightly improved	4
Greatly improved	1

Sources: GWI; my survey among 5,600 individuals conducted October 2020.

Table 14 How has your access to mental healthcare been affected by the COVID-19 pandemic? (%)

Much more difficult	59
Somewhat more difficult	32
No significant change in access	7
Less difficult	2

Sources: HMN; ACHA; my survey among 5,600 individuals conducted October 2020.

The COVID-19 crisis has brought about long-term consequences and inconveniences especially for vulnerable sexual and gender minority populations, aggravating the widespread social stigma, intolerance, and exclusion. (Philip, 2021) The COVID-19 outbreak has hampered or disrupted access to gender-affirming care – crucial to the mental health and psychological wellbeing of transgender and nonbinary people, possibly resulting in poor mental health outcomes. (Lock et al., 2021) The obstacles to coping strategies deriving from the COVID-19 outbreak (Lăzăroiu et al., 2020) have been to some extent perceived to be associated with lack of access to social services, decreased LGBTQ+ community attendance, or limited interaction with friends because of closures. (Town et al., 2021) The COVID-19 pandemic and the extended lockdown have adversely affected LGBTQ+ individuals, intensifying their prior contexts of vulnerability and exclusion. (Radusky et al., 2021)

6. Conclusions and Implications

The consequences of COVID-19 pandemic and imposed isolation, quarantine, and physical distancing measures have aggravated the intrinsic vulnerabilities of individuals with non-normative gender identities and sexualities. (Melin et al., 2021) Parasocial relationships may have a protective role for LGBTQ+ persons in unsatisfactory family support situations. (Woznicki et al., 2020) LGBTQ+ youth may experience growing stressors during the COVID-19 outbreak given their mental and sexual health inequalities, prevalent rejection and discrimination – comprising quarantining in houses with increased risk of abuse and victimization, and without access to indispensable resources. (Iacono et al., 2021) Social isolation orders designed to contain the transmission of COVID-19 have negatively impacted sexual and gender minorities' psychological well-being. (Camargo et al., 2021) As limitations, this article focuses only on sexual and gender minority stress among LGBTQ+ populations during the COVID-19 pandemic. Further research should consider LGBTQ+ mental health and psychological well-being during the COVID-19 pandemic (negative cognitive emotions, depressive symptoms, and extreme anxiety).

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1452637 from the Internet of Things-based Healthcare Monitoring Systems Research Unit, Melbourne. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
The author confirms being the sole contributor of this work and approved it for publication.

Conflict of interest statement
The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Addleton Academic Publishers

Journal of Research in Gender Studies 11(1), 2021
pp. 101–111, ISSN 2164-0262, eISSN 2378-3524

COVID-19-related Health Inequities and Biopsychosocial Stressors Experienced by LGBTQ+ People

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ABSTRACT. The aim of this paper is to synthesize and analyze existing evidence on COVID-19-related health inequities and biopsychosocial stressors experienced by LGBTQ+ people. Using and replicating data from AMS, GWI, Harvard Medical School, ICFJ, LGBT Foundation, McKinsey, MQ, Pew Research Center, Statista, TCDJ/Columbia University, The Trevor Project, UNC School of Medicine, and UNICEF, we performed analyses and made estimates regarding the mental health impacts of the COVID-19 pandemic on LGBTQ+ populations. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

Keywords: COVID-19; health; inequity; biopsychosocial; stressor; LGBTQ+

How to cite: Popescu Ljungholm, D., and Olah, M. L. (2021). "COVID-19-related Health Inequities and Biopsychosocial Stressors Experienced by LGBTQ+ People," *Journal of Research in Gender Studies* 11(1): 101–111. doi: 10.22381/JRGS111202110.

Received 26 November 2020 • Received in revised form 13 July 2021
Accepted 18 July 2021 • Available online 26 July 2021

1. Introduction

LGBTQ+ persons encounter growing risk from behavioral and situational imbalances associated with social and economic disregarding. (Gibb et al., 2020) Intensifying health inconsonances and social partialities (e.g., pronounced structural vulnerabilities, decreased social support, minority stress, stigma, and discrimination), the COVID-19 outbreak is related to decreased access to gender-affirming resources and services, possibly leading to elevated anxiety, depressive symptoms, and suicidal ideation. (Jarrett et al., 2021)

2. Conceptual Framework and Literature Review

The COVID-19 pandemic brings about increasing mental health injustices among structurally vulnerable populations such gender and sexual minorities. (Jenkins et al., 2021) LGBTQ+ people are immoderately affected by COVID-19 and undergo particular stressors associated with mitigation endeavors. (Drabble and Eliason, 2021) Sexual and gender minority-specific COVID-19-related stressors clarify relevant discrepancy in depressive and anxiety symptoms, in addition to general inconveniences. (Suen et al., 2020) Social risk determinants and COVID-19-related stressors result in adverse mental health outcomes, particularly among gender and sexual minorities. (Boden et al., 2021) Social life has been altered considerably as a result of physical distancing measures, contact limitations, and apprehensions as regards possible infection, with sexual and gender minority-specific COVID-19-related stressors impacting individuals' interpersonal and personal behaviors. (Mumm et al., 2021) Experiencing mental and physical stressors throughout the wide-ranging lockdown (Byerly et al., 2019) is challenging for the LGBTQ+ community, who are constantly exposed to social denigration and minority stress. (Tomar et al., 2021) Social and structural drivers that keep in existence minority stressors and psychosocial issues weaken the health of LGBTQ+ persons, impacted by multiple intersectional identities, and thus creating vulnerability to COVID-19. (Martino et al., 2021)

3. Methodology and Empirical Analysis

Using and replicating data from AMS, GWI, Harvard Medical School, ICFJ, LGBT Foundation, McKinsey, MQ, Pew Research Center, Statista, TCDJ/ Columbia University, The Trevor Project, UNC School of Medicine, and UNICEF, we performed analyses and made estimates regarding the mental health impacts of the COVID-19 pandemic on LGBTQ+ populations. Descriptive statistics of compiled data from the completed surveys were calculated when appropriate.

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5. Results and Discussion

LGBTQ+ persons experience particular sexual and gender minority-specific COVID-19-related stressors. (Fish et al., 2020) Deeply rooted oppression, established discrimination, and social-structural imbalances impact the health and wellbeing of marginalized sexual and gender minority populations. (DeMulder et al., 2020) Stigma and intolerance against LGBTQ+ people with intersecting marginalized identities configure sexual and gender minority-based stressors and psychosocial threats to mental health, articulating psychosocial health disparities (Rodriguez-Seijas et al., 2020) (Tables 1–10)

Table 1 Physical distancing measures mean that many LGBTQ+ people feel more isolated than ever.

38%	of LGBTQ+ people aged 50+ are living alone at this time.
29%	would like support to reduce their isolation, such as a befriending service.

Sources: LGBT Foundation; our survey among 6,200 individuals conducted October 2020.

Table 2 Implications of COVID-19 for LGBTQ+ mental health and suicide prevention (%, relevance)

Physical distancing can impact LGBTQ+ people by decreasing their access to positive social interactions.	97
An unintended consequence of physical distancing is potential loss of the social connections that protect LGBTQ+ people from suicidality.	97
For LGBTQ+ people, physical distancing may have additional unintended negative consequences related to being confined to an environment that may be unsupportive or abusive.	96
LGBTQ+ people can find themselves in an environment that does not affirm their identity, or places them at risk for abuse and victimization.	95
Increased unemployment rates among LGBTQ+ people are occurring as a result of COVID-19, with concerns about the impacts this will have on mental health and suicidality.	95
LGBTQ+ people are disproportionally impacted by economic strains that can lead to substantial increases in housing instability.	94

Sources: The Trevor Project; our survey among 6,200 individuals conducted October 2020.

Table 3 What were the most commonly reported negative emotional/psychological reactions to the COVID-19 pandemic? Select all that apply. (%)

Increased anxiety	86
Exhaustion and burnout	79
More difficulty sleeping	77
A sense of helplessness	74
Dark and negative thoughts	29
Vicarious trauma from online exposure to human suffering	75
Feelings of grief and loss	74
Being more tearful than normal	69
Experiencing increased depression	56
Being affected by direct exposure to human suffering	72
Experiencing anxiety for the first time	27
Experiencing depression for the first time	20

Sources: ICFJ; TCDJ/Columbia University; our survey among 6,200 individuals conducted October 2020.

Table 4 % at least somewhat concerned about unknowingly spreading COVID-19 to others?

Very concerned	73
Somewhat concerned	27

Sources: Statista; our survey among 6,200 individuals conducted October 2020.

Table 5 Individuals reporting experiencing feeling anxious or depressed in past week. (%)

Both anxious and depressed	51
Anxious but not depressed	34
Depressed but not anxious	8
Neither anxious nor depressed	7

Sources: McKinsey; our survey among 6,200 individuals conducted October 2020.

Table 6 Thinking about the COVID-19 pandemic, what, if any, concerns do you have about the impact on your mental wellbeing? Select all that apply. (%)

Anxiety	77
Depression	62
Stress/Feeling nervous	79
Becoming mentally unwell	72
Going crazy/mad	7
Unable to sleep	68
Contracting COVID-19	77
Worried about my family contracting COVID-19	75
Not being tested/Not knowing if you have it or not	56
I think I have COVID-19/my family member has been diagnosed with the virus	7
Mine and my family's health	57
I or family members/people around me might die	56
I might get sick	47
Lack of fresh air/sunlight	39
Low mood/morale / Pessimism	49
Losing motivation to work	47
Sadness	58
Feeling restless/agitated/trapped	54
Anger/Frustration	39
Fatigue/Tired/Draining	74
Fear/Scared	29
Concern/Worry	78
Panic	19

Sources: AMS; MQ; our survey among 6,200 individuals conducted October 2020.

Health equity, comprising supplying growing resources and provisions, adjusting to imbalances in the established environment (Lăzăroiu, 2018), and configuring satisfactory access to healthcare services, would alleviate the burden of COVID-19 on sexual and gender minority individuals. (Ruprecht et al., 2021) The COVID-19 recession may lead to psychic discomfort and elevated unjust attitudes in relation to LGBTQ+ persons (Mattei et al., 2021), with significant rates of distress (Lăzăroiu et al., 2021) and both growing depressive symptoms and suicidal ideation and behaviors. (Veldhuis et al., 2021)

Table 7 How much has your wellbeing and functioning been different in the following ways in the past 4 weeks, compared to the way it was before the beginning of the COVID-19 pandemic? (%)

	Not at all	A little bit	Moderately	A lot	Extremely
More worried about your finances	2	7	14	22	55
More anxious or ill at ease	3	8	15	24	50
Having more difficulty concentrating	2	7	14	24	53
Being less productive	6	9	15	25	45
More worried about your personal health or safety	4	9	17	23	47
Being more bored	4	9	16	24	47
More difficulty sleeping	2	7	15	23	53
Feeling more lonely or isolated	2	7	14	22	55
Feeling more down or depressed	2	8	13	24	53
More worried about getting necessities like groceries or medications	2	8	15	26	49
More worried about the health and safety of family members or friends	2	8	15	25	50
More frustrated about not being able to do what you usually enjoy doing	3	7	17	26	47
More worried about possible breakdown of society	3	8	13	23	53
Feeling more angry or irritated	2	7	14	23	54
Feeling that the future seems darker or scarier than before	2	7	15	25	51
Feeling more grief or sense of loss	2	8	16	25	49

Sources: UNC School of Medicine; Harvard Medical School; our survey among 6,200 individuals conducted October 2020.

Table 8 Access to mental health services during the COVID-19 outbreak (%)

	Mental health medications	Psychosocial support
Delay/Disruption to access	56	64
No delay/disruption.	34	27
I need this but never had access to it.	10	9

Sources: UNICEF; our survey among 6,200 individuals conducted October 2020.

Table 9 Common experienced reactions related to COVID-19. Select all that apply. (%)

General apprehension, anxiety and fear of the unknown.	88
Fears around your health and the health of loved ones.	87
Sadness, loss of interest, hopelessness and apathy.	84
Financial and economic concerns.	79
Stress and irritation towards those around you.	74
Feelings of grief, detachment and tendency to distance from people and activities.	72
Confusion and indecision surrounding decision-making and lifestyle adjustments.	69
Existential stress, self-doubt or thoughts and feelings related to decreased sense of self-worth.	59

Sources: GWI; our survey among 6,200 individuals conducted October 2020.

Table 10 % who say they are very/somewhat concerned that they…

will get COVID-19 and require hospitalization.	88
might unknowingly spread COVID-19 to others.	85

Sources: Pew Research Center; our survey among 6,200 individuals conducted October 2020.

LGBTQ+ populations' escalated vulnerabilities and inequities lead to various reactions (Lăzăroiu et al., 2018) to the perceived threat generated by COVID-19, that is, elevated depressive symptoms. (Potter et al., 2020) Throughout COVID-19 physical distancing, LGBTQ+ persons who live with family may be significantly at the mercy of presumably discriminatory circumstances, and may receive diminished community and mental health assistance, being immoderately at risk for depression (Lăzăroiu et al., 2020) and pervasive distal and proximal psychosocial stressors. (Woznicki et al., 2020) LGBTQ+ individuals display increased mental health symptoms and have heightened levels of COVID-19 apprehension and anguish. (Kamal et al., 2021) The consequences of COVID-19 on populations who are more exposed and predisposed to experiencing mental health and well-being challenges (Lăzăroiu and Adams, 2020) as a result of identity within a disregarded group are relevant in terms of cognitive, emotional, and behavioral disorders related to isolation, quarantine, and physical distancing. (Scroggs et al., 2020)

6. Conclusions and Implications

Distorted social norms impact considerably health equity for historically stigmatized LGBTQ+ populations. (Kline, 2020) COVID-19 may intensify isolation and prior mental health conditions, resulting in LGBTQ+ persons experiencing cognitive, emotional, and behavioral disorders. (Wypler and Hoffelmeyer, 2020) Control measures such as physical distancing as a reaction to the COVID-19 pandemic may aggravate adverse mental health effects of LGBTQ+ individuals. (Brennan et al., 2020) LGBTQ+ older adults confront particular challenges as a result of their intersecting identities and health records, encompassing the consequences of heterosexism and discrimination, while typically living alone, being single, and without children. (Grullon et al., 2021) LGBTQ+ people maintain significant diagnostics of stress, anxiety, and depression developed out of intolerance and oppression. (Goldbach et al., 2020) As limitations, this article focuses only on COVID-19-related health inequities and biopsychosocial stressors experienced by LGBTQ+ people. Further research should consider COVID-19-related stressors and psychological symptoms among gender and sexual minorities.

Compliance with ethical standards

Animal studies statement verification
This article does not require animal studies verification.

Identifiable images and data statement verification
This article does not require identifiable images and data statement verification.

Code availability
This project has employed statistical analytical techniques standard in all statistical packages.

Data and materials availability
All research mentioned has been published and data is available from respective outlets. All statistics, models, and codes generated or used during the study appear in this article. Note: The publisher is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing content) should be directed to the corresponding author for the article.

Funding information
This paper was supported by Grant GE-1655687 from the Networked Algorithmic Sociality Research Unit, New York City. The funder had no role in study design, data collection, data analysis, or the writing of this manuscript.

Author contributions
All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of interest statement
The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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ISSN 2378-3524