# Psychological characteristics of university students during a pandemic in relation to first generation, minority status, and gender

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The Covid pandemic has affected the lives of university students in multiple ways. Our goal was to assess several measures of psychological measures in university students amid the pandemic in addition to asking them to rate the impact of the pandemic on their lives and education. We were particularly interested in differences based on gender, minority, and first-generation university student status. A sample of students ($N$ = 124) at a South-eastern university in the United States responded online to measures of academic self-efficacy, imposter syndrome, conscientiousness, resilience, pandemic fatigue, hope, empathy, and flow, as well as questions about the impact of the pandemic and demographic questions. The majority of the sample reported both their lives and educations being negatively affected by the pandemic. Women scored higher than males on pandemic fatigue and emotional contagion empathy. Minority students scored significantly higher on resilience compared to non-minority students, but we found no significant differences on other measures and no differences on any of the measures based on first-generation status. The severity of the pandemic on all university students' psychological well-being may explain the lack of differences between first-generation and non-first-generation students. Higher education institutions should consider the needs and strengths of different populations of students in evaluating how to best support their psychological well-being.

Keywords: first-generation students; university students; higher education; imposter syndrome; resilience

The SARS-CoV-2 (COVID-19) virus was announced to the world in late 2019 and spread at an exponential rate. On March 11, 2020, The World Health Organization (WHO) declared the COVID-19 virus a pandemic (Interactive Timeline-World Health Organization, 2020). Worldwide, university students and their families learned that there would be changes to campus operations as a result of the pandemic, such as students not returning to campus and courses shifting to online. At first, many students thought this would be a temporary situation; however, they soon learned returning to campus was not feasible due to the number of people contracting the virus, and an incomprehensible number of people dying from the virus.

Some campuses tried extending spring break for several weeks, but the virus spread so rapidly that university campuses either attempted virtual learning or closed until Fall 2020. Variants of the virus resulted in further campus closings, mandatory mask-wearing, and social distancing requirements, in addition to economic impacts. The pandemic had effects on mental health; the most prevalent mental health issues included an increased prevalence of generalized anxiety disorders (Cao et al., 2020), and Wang et al (2020a) reported that over 66% of university students reported depressive symptoms (p. 6). Yao et al. (2022) also found sleep disturbances and well as high levels of anxiety in healthcare workers, and Deng et al (2021) reported in a meta-analysis on depression, anxiety, and sleeping disturbances reported that 33% of higher education students suffered from sleep during the COVID-19 pandemic.

According to the World Health Organization (WHO, https://covid19.who.int/), on 05 December 2022, 640,395,651 deaths had been reported, and the number of fatalities from the Covid-19 pandemic was increasing daily. Educators in all disciplines were not exempt from feelings of terror. Educators had not only their own families to care for but also felt extreme responsibility to their students as they were under pressure to create inventive, creative, and engaging ways of educating their students via virtual course delivery. Nationally and internationally, researchers watched and observed the chaos that colleges and universities were enduring. Instructors, many of whom had never taught an online course, now were expected to teach in an unfamiliar environment to students who may have inadequate computer skills, different academic abilities, and levels of family support.

**First-generation university students**

One university population that could have been negatively affected by the pandemic is First-generation university students (FGS). Stebleton and Jehangir (2020) operationally defined the term First-Generation Students as being "inherently multidimensional and diverse and are entering social and institutional contexts that are unfamiliar to their families" (p.3).

According to a large research study, the Student Experience in the Research University, (SERU) Consortium survey consisted of over 28,000 undergraduate students with 26% responding as FGS. In this large study consisting of nine universities, the following important facts were found regarding FGS during the pandemic: 1) financial hardships, 2) FGS were twice as worried about being able to afford the next academic year's tuition, 3) FGS are less likely to live in safe environments free from abuse (physical, emotional, drug, or alcohol) and more likely to experience food and housing insecurity, 4) FGS have more challenges with online instruction due to lack of technology necessary to complete online learning compared to continuing-generation students (Soria, et al., n.p., para 1). The study showed a significant disadvantage for FGS compared to non-FGS during the pandemic.

First-generation university students (FGS) are a heterogeneous population meaning that they are diverse by gender, age, race, and/or ethnicity; however, a "significant proportion of FGS are racially minoritized" (Ives & Castillo-Montoya, 2020, p.140). FGS may be at a disadvantage in succeeding in university due to the lack of social support and mentoring by parents with a university degree. Although FGS may have been encouraged to attend university by their parents, the parents may not be equipped to answer important questions on manoeuvring through the academic world. Toutkoushian et al. (2018) stated that depending on how the term "first-generation students" is

operationally defined (e.g. including stepparents, foster parents, and adoptive parents) "the percentage of FGS can range from 22% to 77% based on the researcher's definition" (p. 2).

The challenges many FGS face did not begin when they applied for university. For example, non-FGS may have had advanced placement (AP) classes in high school which may have prepared the students for upcoming university classes, where FGS did not have that opportunity. Gillen-O'Neal (2021) reported that FGS may "lack a sense of belonging and student engagement in comparison to non-FGS" (p.45). Additionally, the authors found FGS did not have the same connections to school in general, or with help-seeking behaviors. When factoring in Covid during students' junior and senior years in high school, the gap between those FGS and non-FGS may have become larger. As mentioned previously, a large portion of FGS is also racially minoritised students who may not have role models especially if they are attending universities that hire predominately White faculty members.

**Race**

Ahn and Dominguez-Villegas (2022) reported multiracial students are more likely to cancel or postpone their educational studies during the pandemic. Some studies are showing no psychological differences between White and racial/ethnic minoritised undergraduates during the pandemic (Kecojevic et al., 2021; Trammell et al., 2021). However, other studies have shown that "White students reported more symptoms, including sleep problems and perceived stress, than did African American students" (Charles et al.,2021). Additionally, Charles et al (2021) found "White students reported more symptoms of anger, anxiety, sleep problems, perceived stress, and alcohol use than did African American students. African American students reported more symptoms of mania and psychosis than did White students" (n.p.). Due to the plethora of studies on the impact the COVID-19 pandemic had on university students including race/ethnic similarities and differences, we included race when comparing students on our set of psychology measurements.

**Gender**

Based on current studies in the literature on university student's mental health during the pandemic, females are reporting higher levels of both anxiety and depression than males (Wang et al., 2020b), in addition, overall well-being is reported higher in male university students (Kecojevic et al., 2021; Lee et al., 2021; Prowse et al., 2021; Wan). Hathaway et al (2021) found 82 % of their participants responded moderately to high on the Perceived Stress Scale (PSS, Cohen, 1983) which measures "the degree to which situations in one's life are appraised as stressful" (Hathaway, 2021, n.p.). Females scored significantly higher than males indicating life stressors during the pandemic had a more significant impact on females. Based on differences found between males and females we added gender as one of our variables.

The purpose of the present study was to assess several measures of psychological well-being in university students as well as ask them how they had been affected by the pandemic. More specifically, we compared minority and non-minority students, as well as students who were or were not first-generation, and women and men, on the measures of psychological well-being. Below we provide an overview of the psychological variables that we measured (Academic Self Efficacy, Impostor Syndrome, Conscientiousness, Lockdown/Pandemic Fatigue, Hope, Empathy, and Flow) in addition to providing background on potential differences related to minority/non-minority and FGS status.

**Psychological measurements**

**Academic self-efficacy.** Academic (ASE) primarily indicates one's self-perceived confidence to successfully perform a particular academic task and has been described as "individuals' convictions that they can successfully perform given academic tasks at designated levels" (Schunk, 1991, p. 191). ASE "represents a context-specific and relatively future-oriented judgment about one's confidence for successfully performing an upcoming subject-specific academic task" (Bong & Skaalvik, 2003, p.

1). ASE has been found to be a significant predictor of academic performance. For example, Elias and Loomis (2002) found that ASE and Need for Cognition (NFC) were significant predictors of grade point average (GPA). The researchers noted that "students" beliefs about their efficacy mediated the relationship between NFC (need for cognition) and GPA" (p. 1696). A study by Supervía et al. (2022) revealed significant correlations between ASE, resilience, and academic performance with those scoring higher in ASE also scoring more academic resilience and better able to predict academic performance. Gülşen and Sahin (2022) reported that "academic self-efficacy may present a better understanding of how undergraduate students' perception of the academic process works on setting goals, searching career options, and making more effective career selections" (n.p.). We predicted that females would score lower on ASE than males in our study.

**Imposter syndrome/impostor phenomenon**. The term impostor syndrome, introduced by Clance and Imes (1978), describes a perceived emotional experience of performance inadequacy despite evidence that contradicts this feeling. Individuals who exhibit impostor feelings doubt their abilities, attribute their success to outside factors, and feel undeserving of their accolades (Clance & Imes, 1978, Langford & Clance, 1993). The impostor phenomenon is an attributional achievement-related phenomenon whereby a person does not believe that they truly deserve their achievements, attributing them instead to external factors. This tends to make them feel fraudulent, despite objective evidence of achievement. This not only makes it difficult for them to accept praise but also to internalize their achievements. Hence, individuals with IP tend to minimize their competence and overestimate others' competence (Clance & Imes, 1978). This leads them to fall into the "impostor cycle" whereby repeated successes fail to decrease impostorism tendencies and feelings of fraud (Clance & Imes, 1978).

The prevalence of IP can range between 9 % and 82 % depending on the population and culture being studied (Bravata et al., 2020). Bravata et al. stated that the "phenomenon is not exclusively experienced by high-achieving individuals, but rather transcends occupation and level of achievement" (Bravata et al., 2020, p. 1252). These findings suggest that imposter syndrome could be an important psychological factor in university students across all levels of academic performance.

**Conscientiousness.** The Five-Factor Model (FFM) is a hierarchical taxonomy of personality traits. At the superordinate level are five factors labeled: extraversion, agreeableness, conscientiousness, Emotional Stability (vs Neuroticism), and Intellect (or Openness). We chose the personality trait of conscientiousness as it predicts health-promoting and risk-avoiding behavior within the context of a pandemic (Roberts et al., 2005, p. 697). Early in the pandemic, authorities appealed to people's responsibility (e.g., wash your hands), compassion and cooperation (e.g., protect others, even if your risk is low), and fear (e.g., by emphasising COVID-19's lethality). Furthermore, conscientiousness may predict adaptive behavior in a pandemic synergistically, as conscientious people may interact with academic and job performance (1). Witt et al. (2002) summarized conscientiousness as measuring "organization, persistence, motivation in goal-directed behavior, amount of personal control, and ability to delay gratification of needs. An individual scoring high on this factor may have hard-working, fastidious, motivated qualities" (p. 164). The extended parallel process model (EPPM) of persuasion in Public Health Messages (PHMs) suggests a synergy between threat sensitivity (entailed in neuroticism) and self-efficacy (linked to conscientiousness) in predicting people's fear-appeal susceptibility (Witte, 1992). Conscientious "people tend to avoid risky health behaviors, engage in activities that promote good health, and invest in work, family, and community in ways that are known to contribute to longevity" (Roberts, 2005, p. 168).

Relating these studies to the COVID-19 pandemic, students who score higher in conscientiousness may be more likely to adhere to PHMs, for example, getting recommended vaccinations and wearing masks. Thus, we were interested in how university students would score on a measure of conscientiousness and whether it might differ in relation to FGS, gender, and minority status.

**Resilience**

The Defense Research and Development in Canada (DRDC) defined resilience as "the ability to maintain or regain mental health, despite experiencing adversity" (Wald et al., 2006, p. 6). Labrague and De los Santos (2020) studied the measurement of resilience in relation to nurses who were on the front lines at the beginning of the COVID-19 pandemic. One important finding from their study was that higher levels of social support, organisational support, and resilience were associated with lower levels of COVID-19 anxiety.

Other studies reported that personal resilience contributed to reduced anxiety, stress, and depression (Foster et al., 2020; Labrague & De los Santos, 2020) and Cooper et al. (2021) found that personal resilience predicted overall mental and psychological health. Duncan (2020) found that social support, personal resilience, and adequate coping skills have been identified as vital personal resources to effectively manage and bounce back from stressful situations such as disease outbreaks and disasters. Additionally, Labrague et al. (2016) observed that social support, personal resilience, and coping abilities were identified as protective factors against adversity and disaster. Other researchers have found that "The positive effects of hope on resilience have been revealed as one of the most significant predecessors of people's life satisfaction" (Rivera et al., 2021, p. 2). "Resilient students encounter stressful life events or traumatic events, but somehow find the strength to conquer the unpropitious impacts and consequences" (Bryan, 2005, p.146). Due to the recurrence of resilience as a potential protective factor in previous research, we included a measure of resilience in the present study.

**Lockdown/pandemic fatigue.** As the pandemic continued to spread both nationally and internationally, the exhaustion people were experiencing associated with mandatory lockdowns and/or home confinement to reduce the spread of the coronavirus was prevalent worldwide. Everyone was affected in some way by the pandemic, and students at all levels suffered significantly (Akyıldız, 2020, p. 322.) First and second-year students who are currently in university were in high school during a period in which they likely took many core classes to prepare them for university. The impact of the pandemic on undergraduate students could have created great exhaustion due to a feeling of lack of preparedness, and for FGS and minoritized students, a lack of mentoring could have exacerbated these issues.

In addition, students suffered from social isolation from their school friends, family members not living in the same household, grandparents perhaps living alone, in nursing homes, or possibly in a hospital due to the pandemic. Being socially isolated is often used as the harshest punishment for prisoners (Arrigo & Bullock, 2008). Haney (2006) found that prisoners in long-term solitary confinement were at a greater risk for developing mental health symptoms. There is emerging literature on mental and physical exhaustion due to COVID-19. Scholars coined various terms such as "quarantine fatigue" (Marcus, 2020), "behavioural fatigue" (Harvey, 2020), "emergency/public/adherence fatigue" (Michie, et al., 2020), "pandemic burnout" (Queen & Harding, 2020), and "pandemic fatigue" (Michie, et al., 2020; WHO, 2020). Due to the number of studies focusing on pandemic fatigue, we included a measure of pandemic fatigue in the present study. We predicted females would score higher on the Pandemic Fatigue Scale due to the multiple roles most females typically considered to be responsible for, such as caring for older family members, children in the household, and the majority of housework.

**Hope.** Snyder's cognitive model defines hope as "a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy), and (b) pathways (planning to meet goals)" (Snyder et al., 1991, p. 287). Both Elmer et al. (2020) and Son et al. (2020) reported that the COVID-19 pandemic contributed to students' feelings of depression, anxiety, stress, loneliness, confusion about the future, loss of hope, and even suicidal thoughts. Bernardo and colleagues (2020) found that hope-related thoughts can engage students and individuals in goal-related processes to maintain their personal and social well-being in their pursuit of life satisfaction. The researchers stressed that it is important to understand the antecedents and effects of the coping mechanisms of hope, and how they can influence hospitality students' challenges and concerns during the COVID-19 pandemic.

It appears that undergraduates who lack hope in their lives may choose to discontinue their academic journey or delay their education until the pandemic subsides. An undergraduate's level of hope may facilitate not only empathy but also assist the student in overcoming their obstacles (Duncan, 2020).

In relation to FGS and minoritised students, who are also often low-income students, the pandemic crisis may have dampened students' hope to earn a university degree. Some students may have had to consider dropping out of university to take care of their family's economic situation due to businesses closing and high unemployment. This additional stressor to the student's life could be a life-changing event.

**Empathy.** MacDonald and Price (2019) defined empathy as "... the ability to adopt another person's perspective and experience the thoughts and emotions of that individual. Existing literature has demonstrated that high levels of affective empathy may represent a risk factor for the development of internalizing symptoms in university students" (p. 43). Recent research suggests that empathy is a multi-faceted construct involving two major domains: cognitive empathy and affective empathy. Cognitive empathy involves an individual's ability to imagine another person's perspective and requires an accurate understanding of what that person is thinking or feeling (Birnie et al., 2010). In contrast, affective empathy is conceptualized as an individual's ability to connect with another person's emotional state (Birnie et al., 2010). In affective empathy, the empathizing individual may take on the other person's emotions and experience those emotions him or herself (Davis, et al., 1994). Thus, whereas cognitive empathy is characterised by accurately adopting another person's perspective, the capacity to effectively empathize is defined by one's emotional response, triggered by another individual's emotional experience.

Chen et al. (2020) addressed university students' mental health status and living rhythms in China, noting that "Although university students quarantined at home have no personal experience of infection and treatment, they show empathy through visceral experience when browsing the information about the death of patients and health care workers. Excessive empathy can also cause psychological pain and trauma" (p. 6).

Buckner et al. (2021) found students who scored high in affective empathy may empathize with his/her friend to the point of experiencing visceral his/her friends' emotional experiences, and as a result reported higher levels of alcohol consumption during the COVID-19 pandemic. An undergraduate university student scoring high in affective empathy could be distracted from their university coursework, not to mention develop psychological symptoms such as anxiety and depression.

**Flow.** Flow is an absorbing mental state that arises spontaneously when one is engrossed within optimally challenging activity. "Flow is a harmonious and intrinsically rewarding state characterized by concentrating on the task at hand and absorption in a specific activity, to the exclusion of irrelevant thoughts and emotions, and a sense of everything coming together or clicking into place, even in challenging situations" (Swann et al., 2017, p. 48). Alazzam et al (2021) stated that psychological flow is achieved when "students dissolve in the tasks with a state of euphoria and forget themselves while engaging in mental processes" (n.p.). Flow affects ASE and beliefs about competence in academic performance situations. Alazzam et al (2021) found no differences due to gender or academic level; however, they did find a gender difference psychological flow and ASE with males scoring higher on both variables. The researchers recommended that faculty educate students about the importance of psychological flow and ASE. The researchers believe this can be achieved by creating certain conditions that can help students have a stable state of psychological flow to help them study, learn, and prepare for exams more effectively. Alazzam et al's (2021) study offers hope that with high-quality online courses where students' self-efficacy is high due to familiarity with online learning and skilled instructors, psychological flow and ASE are possible. We thought flow would be an interesting psychological mental state to test in our study during a time when students may interfere with achieving psychological flow. Additionally, little research has reported psychological flow in relation to FGS and minoritized students.

### Hypotheses

We hypothesised that minoritised students (those indicating a race/ethnicity identification other than White) would score lower than non-minoritised (White) students on measures of academic self-efficacy, imposter syndrome, hope, and flow but higher than non-Minority students on measures of pandemic fatigue and resilience.

We also hypothesized that first-generation students would score lower than non-first-generation students on measures of hope, and resilience, but higher on imposter syndrome, pandemic fatigue, and academic self-efficacy.

We predicted females would score lower on ASE because of stress from the pandemic and score higher on the Pandemic Fatigue Scale.

## METHODS

### Participants

We recruited undergraduate university students from General Psychology courses using SONA, an online research participation platform. A total of 145 individuals opened the link to begin the study. We discarded data from 21 individuals who responded to less than 90% of the items, resulting in a sample size of 124. The sample included 99 (80.5%) participants who identified as female, 23 (18.7%) who identified as male, and 1 (0.8%) who identified as transgender, with 1 participant not responding. Ethnicity of participants included 104 (84.6%) identifying as White, 11 (8.9%) as Black, 3 (2.4%) as Hispanic or Latino, 2 (1.6%) as Asian, and 1 (0.8%) each as American Indian or Alaska Native, Native Hawaiian or Pacific Islander, and Other, with 1 participant not responding. Mean age of participants was 22.42 years (*SD* = 7.07).

### Materials

We used eight psychological measures, demographic questions, and survey questions about students experience during the COVID-19 pandemic. Psychological measures included the following:

Using the Academic Self-Efficacy Scale (Gafoor & Ashraf, 2012), participants respond to each of the statements by choosing any one the five alternatives, “exactly true”, “nearly true”, “neutral”, “nearly false” and “exactly false”. Test-retest reliability was found to be .85 with split half reliability of .90 (Safali & Akpunar, 2020).). Content validity was assured through the expert judgments of the face validity and inclusion of representative items from all dimensions of the construct (Akram & Ghazanfar, 2014). Concurrent validity against the General Self-efficacy Scale was found to be .68 (Matthias & Ralf Schwarzer; 1979; in Gafoor & Ashraf, 2012).

Participants also responded to the Basic Empathy Scale for Adults (BES-A). The scale consists of 20 items using a 5-point Likert-style scale ranging from very inaccurate to very accurate. Reliability using the Cronbach alpha coefficient was reported by Jolliffe and Farrington (2006) as .87. Carré et al. (2013) reported that scores on the BES-A were related to other measures of emotional functioning, supporting the scale’s validity.

We used the Clance Imposter Phenomenon Scale (CIPS) to measure feelings of imposter syndrome. The CIPS is a 20-item survey in which respondents rate their answers on a Likert scale from 1 to 5 for not at all true, rarely true, sometimes true, often true, or very true, respectively. The CIPS has high internal reliability with Cronbach’s $\alpha = 0.92$ (Chrisman et al., 1995), 0.96 (Holmes et al., 1993) and 0.87–0.89 (Brauer & Wolf, 2016). Scores were found to be related to, but discriminable from, measures of self-esteem, depression, social anxiety, and self-monitoring, and scale scores were strongly correlated with scores on the Perceived Fraudulence Scale Kolligian and Sternberg (1991), ($r = 0.79$; Chrisman et al., 1995). The CIPS also exhibited superior sensitivity and reliability compared with the Harvey IP Scale (Holmes, et al., 1993).

The Brief Resilience Scale (BRS) (Smith et al., 2008) is a 6-item measure of resilience, focusing on the ability to recover from stress and adversity. Responses are rated on a 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5). The higher the mean BRS score the more resilient the respondent is. BRS is a single factor scale. Half of the items are reversed scored to avoid social desirability response bias (Cronbach, 1950). Smith et al. (2008) reported Cronbach's alpha from .80 - .91 over four samples. The BRS was given twice in two samples with a test-retest reliability (ICC) of .69 for one month in 48 participants from Sample 2 and .62 for three months in 61 participants from Sample 3. The scale has been found to have good criterion validity, with well-established measures of well-being, optimism, self-esteem, self-efficacy, and mental health, as suggested in the resilience literature (Fung, 2020).

The Pandemic Fatigue Scale (PFS) was used to evaluate signs of exhaustion associated with the lockdown or home confinement measures to slow the spread of coronavirus. The PFS was designed based on an extensive review of the literature and structured interviews of 15 individuals who were affected by the mandatory lockdown during the pandemic. Sample items are "I have been experiencing headaches and body pains" and "I frequently felt weak or tired as a result of the pandemic." The 10-item scale was answered by the participants on a five-point Likert-type scale that ranged from 1 (never) to 5 (always). The scale has been found to have excellent concurrent validity, as evidenced by its positive association with the Fatigue Assessment Scale, and acceptable criterion validity, demonstrated by its positive correlation with turnover intention (Labrague & Ballad, 2021). The internal consistency value of the scale in the original study was 0.80, while in the present study, Cronbach's alpha was 0.86. The test-retest reliability value of the scale was 0.87. (Cuadrado et al., 2021).

The Adult Hope Scale (AHS) (Snyder et al., 1991) is a 12-item measure of trait hope. Four items measure agency (e.g., "I energetically pursue my goals"); four items measure pathways (e.g., "I can think of many ways to get out of a jam"); and four distractor items are not scored. The scale uses an 8-point Likert-type scale ranging from 1 (definitely false) to 8 (definitely true) to rate their agreement with each item. Total AHS scores range from 8 to 64, with higher scores indicating greater levels of hope. Research in undergraduate populations has shown the AHS to have good internal consistency (Cronbach's alpha = 0.74–0.84; Snyder et al., 1991) and temporal reliability (10- week test-retest reliability r = 0.76–0.82, Snyder et al., 1991**).**

We used the conscientiousness scale from the International Personality Item Pool (IPIP; Goldberg et al., 2006). Participants rated 20 items on a 0 to 100 very inaccurate to very accurate. Scores for positively and negatively worded items were each averaged, then the overall conscientiousness score was calculated as the difference between the positive and negative scores. Cronbach's alpha for this scale ranged from .79 to .87 (Goldberg et al., 2006).

To measure flow, we used the Flow Short Scale (FSS), which is a 13-item measure where items were rated on a 7-point Likert scale ranging from 1 ("not at all") to 7 ("very much") (Tan et al., 2022). The FSS was validated by Rheinberg et al. (2008) and by Engeser and Rheinberg (2008). The internal consistency reliability was reported to be $\alpha = .92$ (Engeser & Rheinberg, 2008).

We also included questions asking estimated GPA for fall and spring, 2020 as well as fall and spring 2021 and three questions on the impact of COVID-19 pandemic had on their lives, educational experience, and whether they had been affected by the death of someone they knew during the pandemic. The demographic section followed with questions on the participants' race/ethnicity; gender, being a first-generation university student; academic level in university; whether they were a current or former member of the U.S. Armed Forces, Reserves or National Guard.

**Procedure**

Participants were allowed to begin the online study at their convenience. Once accessing the research study on the Qualtrics online research platform, they first read the consent form, and if they agreed to

participate in the study after reading the consent form, they were asked to click the next button. If participants decided not to participate in the study, they exited the program. Immediately following the consent form the participants read the following statement: "Below you will now be asked to fill out eight questionnaires as honestly as possible. Your name is not associated with the results of your questionnaires." The participants proceeded at their own pace and took the following questionnaires: Academic Self-Efficacy Scale, Chance Imposter Scale, IPIP Conscientiousness, Brief Resilience Scale, Pandemic Fatigue Scale, Adult Hope Scale, Basic Empathy Scale, and Flow Short Scale. The order was the same for every participant.

Following the eight scales, participants responded to questions about GPA, effects of the pandemic, and demographic questions. The participants then read the debriefing of the study and were dismissed from the study.

## RESULTS

Table 1 shows a summary of participant responses to the three questions about how COVID impacted them. A majority of participants agreed or strongly agreed that their lives had been impacted by COVID (66.4%) and that COVID had impacted their educational experiences (61%), while about a quarter (24.4%) agreed or strongly agreed that their education had been impacted by someone they knew dying of COVID.

We compared non-minority (i.e., White) participants to Minority participants on their scores on the Academic Self-Efficacy Scale, Clance Imposter Scale, IPIP Conscientiousness, Brief Resilience Scale, Pandemic Fatigue Scale, Adult Hope Scale, Basic Empathy Scale, and Flow Short Scale (see Table 2). For scales with multiple scores (Adult Hope Scale, Basic Empathy Scale, Flow Short Scale), we tested for significant differences between the groups using a One-Way Between Subjects MANOVA. For scales that had only one score, we compared the two groups using independent-samples *t*-tests. This amounted to a total of eight tests of significance comparing the groups. We used a Bonferroni-corrected alpha level of .006 to evaluate significance. The mean score on the Brief Resilience Scale was significantly higher for Minority students than for Non-Minority students, $t(121) = 3.52$, $p < .001$, $d = .79$. Scores on the Clance Imposter Scale were marginally higher for non-Minority students than for Minority students, but this difference did not reach significance using the Bonferroni-corrected alpha level. No other differences approached significance.

We used the same procedures to compare First Generation vs. Non-First-Generation students on the eight measures (see Table 3). None of the differences were significant, although the MANOVA on Adult Hope Scale scores would have been significant without the Bonferroni correction, $F(2,120) = 3.22$, $p = .044$, $\lambda = .95$. First-Generation students scored marginally (but not significantly) lower on the Adult Hope Scale, particularly on the Agency subscore, as compared to Non-First-Generation students.

Table 4 shows a comparison of students identifying as female or male on the eight measures. The two participants who identified as transgender or did not respond on gender were omitted from these comparisons. Females scored significantly higher than males on the Pandemic Fatigue scale, $t(120) = 3.19$, $p = .002$, $d = .74$. The MANOVA on BES scores was significant, $F(3,118) = 4.79$, $p = .003$, $\lambda = .89$, with females scoring significantly higher than males on emotional contagion, $F(1,120) = 12.51$, $p < .001$, $h_p^2 = .09$.

Table 1
Responses to Covid impact questions (%)

| Statements | SD | D | N | A | SA |
|---|---|---|---|---|---|
| "Impacted my life" | 9.7 | 8.9 | 14.6 | 39.0 | 27.4 |
| "Impacted my educational experience" | 8.1 | 11.4 | 19.5 | 29.3 | 31.7 |
| "Impacted someone dying" | 39.8 | 19.5 | 16.3 | 13.8 | 10.6 |

SD: Strongly disagree; D: Disagree; N: Neither agree nor disagree; A: Agree; SA: Strongly agree

Table 2
Comparison of non-minority (*N* = 104) and minority (*N* = 19) participants

| | Non-Minority | | Minority | | |
|---|---|---|---|---|---|
| Measure | *M* | *SD* | *M* | *SD* | *p* |
| Academic Self-Efficacy | 147.10 | 21.50 | 145.05 | 22.71 | .706 |
| Clance Imposter Scale | 66.03 | 15.11 | 57.47 | 17.18 | .028 |
| IPIP Conscientiousness | 64.62 | 9.18 | 63.84 | 10.80 | .743 |
| Brief Resilience Scale | 3.05 | 0.81 | 3.75 | 0.65 | < .001 |
| Pandemic Fatigue Scale | 31.15 | 9.35 | 29.21 | 11.23 | .421 |
| Adult Hope Scale | | | | | .553 |
| Agency | 24.12 | 4.73 | 25.37 | 5.47 | N/A |
| Pathways | 23.80 | 3.96 | 24.74 | 4.53 | N/A |
| Basic Empathy Scale | | | | | .663 |
| Contagion | 16.81 | 4.22 | 15.90 | 4.42 | N/A |
| Cognitive | 32.19 | 5.06 | 30.79 | 5.09 | N/A |
| Disconnection | 12.93 | 4.68 | 14.21 | 5.15 | N/A |
| Flow Short Scale | | | | | .397 |
| Fluency | 16.99 | 4.22 | 17.95 | 3.64 | N/A |
| Absorption | 12.58 | 1.95 | 12.16 | 1.77 | N/A |

NB: For scales with multiple scores (Adult Hope Scale, Basic Empathy Scale, Flow Short Scale), *p* values are based on Wilk's Lambda for MANOVA omnibus test and, when the omnibus test was significant, univariate F-tests. For the remaining scales, *p*-values are based on independent samples t-tests.

A Bonferroni-corrected alpha level of .006 was used as criterion for significance.

Table 3
Comparison of first generation (*N* = 76) and non-first generation (*N* = 47) participants

| | Non-First Generation | | First Generation | | |
|---|---|---|---|---|---|
| Measure | *M* | *SD* | *M* | *SD* | *p* |
| Academic Self-Efficacy | 146.63 | 22.46 | 147.02 | 20.38 | .923 |
| Clance Imposter Scale | 63.36 | 15.02 | 66.89 | 16.62 | .225 |
| IPIP Conscientiousness | 64.41 | 8.79 | 64.64 | 10.41 | .896 |
| Brief Resilience Scale | 3.20 | 0.81 | 3.09 | 0.86 | .441 |
| Pandemic Fatigue Scale | 9.47 | 9.47 | 32.70 | 9.73 | .100 |
| Adult Hope Scale | | | | | .044 |
| Agency | 25.18 | 4.30 | 22.96 | 5.38 | .013 |
| Pathways | 24.42 | 4.04 | 23.17 | 3.97 | .096 |
| Basic Empathy Scale | | | | | .973 |
| Contagion | 16.53 | 4.07 | 16.87 | 4.55 | N/A |
| Cognitive | 31.99 | 5.16 | 31.96 | 4.96 | N/A |
| Disconnection | 13.14 | 4.50 | 13.11 | 5.19 | N/A |
| Flow Short Scale | | | | | .576 |
| Fluency | 17.45 | 4.07 | 16.64 | 4.24 | N/A |
| Absorption | 12.54 | 2.01 | 12.47 | 1.79 | N/A |

NB: For scales with multiple scores (Adult Hope Scale, Basic Empathy Scale, Flow Short Scale), *p* values are based on Wilk's Lambda for MANOVA omnibus test and, when the omnibus test was significant, univariate F-tests. For the remaining scales, *p*-values are based on independent samples t-tests.

A Bonferroni-corrected alpha level of .006 was used as criterion for significance.

Table 4
Comparison of female (*N* = 99) and male (*N* = 23) participants

| | Female | | Male | | |
|---|---|---|---|---|---|
| Measure | *M* | *SD* | *M* | *SD* | *p* |
| Academic Self-Efficacy | 145.79 | 22.26 | 151.04 | 18.94 | .298 |
| Clance Imposter Scale | 66.36 | 15.67 | 56.96 | 13.62 | .009 |
| IPIP Conscientiousness | 64.55 | 9.52 | 64.35 | 9.28 | .928 |
| Brief Resilience Scale | 3.12 | 0.84 | 3.36 | 0.78 | .220 |
| Pandemic Fatigue Scale | 32.15 | 9.65 | 25.26 | 7.78 | .002 |
| Adult Hope Scale | | | | | .421 |
| Agency | 24.42 | 4.85 | 24.00 | 5.02 | N/A |
| Pathways | 23.81 | 3.96 | 24.57 | 4.51 | N/A |
| Basic Empathy Scale | | | | | .003 |
| Contagion | 17.29 | 4.17 | 13.96 | 3.61 | < .001 |
| Cognitive | 31.96 | 5.25 | 32.04 | 4.42 | .944 |
| Disconnection | 12.83 | 4.75 | 14.61 | 4.64 | .106 |
| Flow Short Scale | | | | | .043 |
| Fluency | 16.81 | 4.22 | 18.70 | 3.48 | .049 |
| Absorption | 12.61 | 1.97 | 12.04 | 1.69 | .208 |

NB: For scales with multiple scores (Adult Hope Scale, Basic Empathy Scale, Flow Short Scale), *p* values are based on Wilk's Lambda for MANOVA omnibus test and, when the omnibus test was significant, univariate F-tests. For the remaining scales, *p*-values are based on independent samples t-tests.

A Bonferroni-corrected alpha level of .006 was used as criterion for significance.

## DISCUSSION

Although we did not have specific hypotheses about how students would respond to the questions about the impact of the pandemic, the results were striking. It was perhaps not surprising that a majority of students in our sample agreed or strongly agreed that both their lives and their educational experiences had been impacted by COVID. In Son et al's (2020) study, for example, found the second highest worry university students reported was being able to concentrate on their academic work negatively impacting their education.

From a medical standpoint, recent studies have suggested that university students are negatively affected by the pandemic and reported in higher levels of anxiety, fear, and worry (e.g., Charles et al., 2021; Son et al, 2020; Wang & Zhao, 2020). Our results were supported by a study conducted by Son et al (2020) where their study found the prominent worry among university students was worries about their personal health, as well as the health of loved ones.

However, we were surprised that nearly a quarter of the sample agreed or strongly agreed that their education had been impacted by someone they knew dying of COVID. This finding has implications both for the severity of impact on students' lives (e.g., the pandemic not only created changes in student living situations and habits, but also often had direct personal impact) and on the need for support for students who suffer catastrophic events in their lives, whether those events are related to a pandemic.

We hypothesised that Minority students would score lower than non-Minority (White) students on measures of academic self-efficacy, imposter syndrome, hope, and flow but higher than non-Minority students on measures of pandemic fatigue and resilience. The results provided support only for the prediction that Minority students would score higher than non-Minority students on a measure of resilience. One possibility for explaining this finding is that minoritized students may have developed more resilience as a result of having to confront a variety of stressors in their lives. Although research has shown non-Minority students reported lower levels of resilience during the pandemic than did Minority (African American) students, Charles et al. (2021, n.p.) suggested that minority students may report "fewer psychological symptoms due to having more overall resilience to new stressors as compared to White students (Assari & Lankarani, 2016) which could build resilience to new stressors associated with the COVID-19 outbreak."

In terms of first-generation status, we hypothesised that FGS would score lower than non-FGS on measures of academic self-efficacy, hope, and resilience, but higher on imposter syndrome, and pandemic fatigue. The results did not support differences on these measures, although there was a non-significant trend toward FGS scoring lower on the Adult Hope Scale compared to non-FGS. It is possible that the findings were a result of the online administration of the instruments; some students may not have taken the time to think carefully and honestly about their responses due to the length of the study.

When comparing gender differences, we found females scored significantly higher on the Pandemic Fatigue Scale. Research has highlighted how the reality of working at home has disproportionally impacted women with children. Quite simply, there is more childcare to do, occupied houses require more cleaning and meal preparation that cannot be completed by anyone else. Females also scored significantly higher than males on emotional contagion. Emotional contagion has been described is a person's ability to copy the behaviours of others; Baumeister et al (2001) observed that negative emotions are more contagious than positive ones. As a result, it is not surprising females, more often than males, increased psychological help during the pandemic.

Resilience was only significant for non-White males with White males and females scoring lower on the BRS. We predicted there would be a gender difference, but we did not find one in the present study. Our studies differed from a global survey conducted online involving 26 countries by The Association of Pacific Rim Universities (APRU) (Wong et al, 2023) compared the Americas/Europe and

Asian Pacific on the Brief Resilience Scale (BRS) during the COVID-19 pandemic. In the global study those who were young age, female gender, poorer financial satiation, and presence of medical conditions" (Wong et al, 2023, n.p.). Perhaps no gender differences in our study were due to both genders scoring overall lower on the scale except for non-White males. We infer these results could be resilience among non-White males were higher than White males, and females due to historically more societal pressures resulting in higher resilience during the worldwide pandemic.

A limitation of the current study is that the sample was recruited from General Psychology classes at one university in the Southeastern United States institution, so we should be cautious in generalizing across types of higher education institutions. However, General Psychology classes consist of all majors (as it is a general education requirement), and the students can take the course at any level (other than those who are psychology majors).

Because we conducted the study while COVID-19 infection rates were still high, we decided for the safety of our students and researchers to conduct the study totally online. Students responding online may differ in some ways from students who did not participate. Further, it could have been challenging for some students to participate in the study if they were struggling with the pandemic issues at the time. A substantial portion of students (14%) failed to complete the study after accessing the link, and it is unclear whether these students might have been more or less affected by the pandemic or varied on the psychological measures compared to those who completed the study.

The current study has several important implications. First, our study showed that most students reported being impacted by the pandemic in their personal lives as well as on their educational experiences. These results are supported by prior studies on the effect of the COVID-19 pandemic. For example, Lederer et al (2021) noted that university students who were faced "with housing and food insecurities, financial hardships, a lack of social connectedness and sense of belonging, uncertainty about the future, and access issues that impede academic performance and well-being" (Lederer et al., 2021, p. 14) suffered more negative effects of the pandemic. Other studies have shown general difficulties associated with distance learning and social isolation that contributed to increases in both depression and anxiety symptoms (Fruehwirth et al., 2021). Additionally, undergraduates being required to learn remotely influenced students beyond academics. Students, according to Gonzalez-Ramirez et al. (2021) reported the pandemic also had a negative effect on "social connections, motivation, and healthy behaviors" (p. 29).

Based on this finding of higher resilience in minority students, perhaps other ways of measuring resilience using open-ended questions may help us understand the differences in resilience scores between Minority and non-Minority students. However, it should also be noted that this finding could be due to Minority students' reluctance to share sensitive information with researchers (Assari & Lankarani, 2016) and greater stigmatisation of mental illness among minorities (Anglin et al., 2006). It is therefore possible that the data presented here underestimate the psychological impact of the COVID-19 pandemic on Minority students.

Future studies may include psychological measures that may be appropriate for different levels of academia, such as including graduate students. Additionally, further analysis of FGS is needed. Although the current study did not find any significant differences based on FGS status, it may be informative to measure psychological well-being in FGS who are in academic programs (e.g., McNair Scholars Program, Honor's University, STEM programmes) that may have contributed their ability to navigate successfully through the pandemic.

We suggest that institutions of higher education specifically consider the needs and strengths of FGS, women, and minority students. Resources that may be relevant include support from their instructors, mentors such as a library, research, and departmental mentors. Furthermore, creating more accessible support programs may be beneficial. Programs for FGS populations funded by the U.S. Department of Education accept limited numbers of students to serve (e.g., McNair Scholars Programs accept around 28 students a year regardless of the size of the institution). We also suggest future studies to implement and identify effective interventional programs for vulnerable

participants with different characteristics, and the survey should be regularly repeated to capture trends of resilience levels over time.

Lastly, more research studies should address ways in which administrators, faculty members, and mental health workers can collaborate on preventive mental healthcare in case of another pandemic. For universities to be prepared for future pandemics, internal grants for research on student's mental well-being should be assessed on a regular basis. Research by Mohamed et al (2023) has suggested blogging as a means of building resilience in adolescents and young adults (traditional university-aged students). The researchers stated that "expressive writing may be a promising therapeutic option to reduce stress and improve well-being among moderately stressed university students" (n.p.). Perhaps an introductory, one-hour class on blogging could be beneficial for at-risk students on university campuses.

Perhaps offering free classes to learn how to successfully build one's resilience by writing a daily blog could reduce future negative symptomologies seen during the Covid pandemic. Researchers such as currently exploring blogging for adolescents to increase their mental well-being, and as a possible preventive course of action to reduce suicidal ideation (Relojo-Howell, 2021)

We hope that the present study will help to stimulate further research on the psychological well-being of university students. Collaborations across institutions may be useful, such as conferences for undergraduate research, or research symposiums where guest speakers will volunteer to give talks on how they survived their academic experience. Faculty who were themselves FGS may serve as role models for undergraduates. Efforts such as these could help to create equal opportunity for all university undergraduates.

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