A Model of Students’ COVID-19 Stress and Burnout at a Minority Serving College
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ABSTRACT. The coronavirus pandemic altered lives worldwide. COVID-19 negatively impacted mental health for college students (Zimmermann et al., 2021), with students experiencing increased feelings of anxiety, depression, and emotional distress, even after schools resumed in-person classes (Zheng et al., 2021). Previous research has investigated negative outcomes of COVID-19 (e.g., higher depression and anxiety, lower GPA), but few studies have investigated potential intermediate factors that might precede those negative outcomes. To examine potential intermediate factors between perceptions of COVID-19 and these well-documented negative outcomes, we used Koeske and Koeske’s (1991) Demand→Stress→Burnout→Outcome model. Between September 2021 and February 2022, a total of 116 participants from a small minority-serving undergraduate liberal arts college participated in this study through the use of an online survey. Participants were asked to report their fear of and perceptions about the seriousness of COVID-19; these items served as the “demand” in our model. We next asked participants to report their Stress, Personal Burnout, and Work/School Burnout, and we conducted a path analysis to test the model. The resulting model was a good fit to the data, $\chi^2(5) = 8.10, p = .15$, CFI = 0.99, TLI = 0.98, RMSEA = .07, SRMR = .05. Our findings suggest that helping students cope with the stress and burnout associated with COVID-19 may be a useful point of intervention for reducing anxiety and depression.

Keywords: COVID-19, college students, women, stress, burnout
felt increased symptoms of anxiety from news about COVID-19, with misinformation and rumors exacerbating those symptoms (Salari et al., 2020). The pandemic also left many individuals without jobs, increasing the prevalence of socioeconomic stressors like food insecurity or housing (Thorn dike et al., 2022). Strict lock-down/stay-at-home policies, social-distancing, and mask-wearing mandates, enforced in the United States and many other countries to curb the rapid spread of COVID-19 (Morel ad et al., 2020) forced schools and businesses to transition to remote learning and work. Sadly, these stay-at-home measures also correlated with a significant increase in reports of domestic violence (Piquero et al., 2021; Usher et al., 2020), leading to even greater anxiety and depression as individuals were forced to spend more time with their abusers due to the lockdowns (Brown et al., 2020). Moreover, these stay-at-home/lockdown policies caused significant disruptions to the accessibility of mental health and other social services (Brunier & Drysdale, 2020). Consequently, many individuals went without any form of mental health care during extremely difficult circumstances created by the coronavirus pandemics.

Populations Most Affected

Of those who experienced negative outcomes due to the COVID-19 pandemic, ethnic minorities were disproportionally hard hit (Abuelgasim et al., 2020; Tai et al., 2021). For example, although People of Color (POC) made up 41.2% of front-line workers (Rho et al., 2020) leading to a greater COVID-19 exposure risk than White people (Abuelgasim et al., 2020; Tai et al., 2021), they had lower access to COVID-19 testing and/or health care than Whites people did (Abuelgasim et al., 2020; Tai et al., 2021). These factors contributed to the higher mortality rates seen within ethnic minority groups (Tai et al., 2021).

Women were also more negatively impacted by COVID-19, particularly in comparison to men (Aleksanyan & Weinman, 2022; see Connor et al., 2020, for a review; Russel et al., 2020; Zimmermann et al., 2021). This is because women in general—not just mothers—take on a greater share of caregiving roles, and this was especially true during the COVID-19 pandemic (Aleksanyan & Weinman, 2022; Connor et al., 2020; Russell et al., 2020). Women also comprise 64.4% of all workers in frontline industries, even prior to the COVID-19 pandemic, making them a staple in public-associated industries (Rho et al., 2020). In turn, women were more likely to be infected with the COVID-19 virus due to their caregiving roles and positions as frontline workers (Aleksanyan & Weinman, 2022). Additionally, because women make up 80% of all those diagnosed with autoimmune disorders, they were at greater risk for severe illness as a result of contracting COVID-19 (Angum et al., 2020). It is not surprising then, that due to their caregiving roles and the greater awareness of the severity of COVID-19 due to their caregiving activities (Salari et al., 2020; Zheng et al., 2021; Zimmermann et al., 2021), women experienced higher levels of anxiety and depression as compared to men during the COVID-19 pandemic (Zimmermann et al., 2021).

Unique Challenges for College Students

Although college students did not experience the same threat to their physical health as POC, women, and older adults did, the COVID-19 pandemic still created many unique challenges for young adults (Gruber et al., 2020) and college students attempting to continue their education (von Keyserlingk et al., 2022; Zimmermann, 2021; see Wang et al., 2023, for a review). For example, college students who had to return to their parents’ home as a result of the transition to remote learning might have felt a stalling or regression in developmental areas such as autonomy, sexual intimacy, and sexual and gender identity (Gruber et al., 2020). They might have felt role confusion if forced back into an unwelcome adolescent role living under their parents’ roof again, or conversely, forced to prematurely assume adult roles, such as homeschooling younger siblings, caregiving for family members, shopping for the family to reduce COVID exposure to parents and grandparents, or having to live on their own and become economically self-sufficient.

Longitudinal research has found significant increases in college students’ study-related stress (Keyserlingk et al., 2022) and depression and anxiety (Zimmermann et al., 2021) in the first few months after the lockdowns relative to the months immediately preceding the onset of COVID-19. Even after schools resumed in-person classes, students’ mental health continued to suffer (Zheng et al., 2021), further impacting their academic performance as they reported feeling less motivated in their academic environments (Meeter et al., 2020; Sukhawathanakul et al., 2022). Consequently, many students decided to take time off from college or reduce the number of credits they took during the academic year (Aucejo et al., 2020). However, those who decided to take time off were less likely to return to their college or university. For those who decided to continue with their education online, many students were consumed with technology (Wright et al., 2020; Wright et al., 2023; Zimmermann et al., 2021). As social media usage and screen time increased as a result of the COVID-19 pandemic, students’ mental and physical health suffered, potentially adding another layer of difficulty for students (Wright et al., 2020; Wright et al., 2023).
The Present Study: 
Modeling COVID-19 Stress and Burnout

In addition to the research examining the physical, psychological, emotional, and academic outcomes of the COVID-19 pandemic, some research has also examined the construct of Burnout as a response to prolonged Stress and as a precursor to COVID-19’s negative outcomes (e.g., Çağış & Yıldırım, 2022; Gundogan, 2022; Yıldırım & Solmaz, 2020). This research has focused primarily on healthcare workers at the front line of the COVID-19 pandemic (Yıldırım & Solmaz, 2020). According to Kristensen et al. (2005), “personal burnout is the degree of physical and psychological fatigue and exhaustion experienced by the person” (p. 197). Additionally, individuals’ attribution of physical and psychological exhaustion to a specific domain of life (e.g., personal life, work, school, parenting) results from long-term exposure to emotionally demanding situations (i.e., stress). Thus, this definition suggests that chronic stress leads to burnout, and burnout is what leads to negative outcomes such as depression, anxiety, and poor academic performance. Consistent with this conceptualization, one study examining Turkish graduate and postgraduate university students’ stress and burnout during the COVID-19 pandemic found that school burnout mediated the relationship between COVID-19 stress and students’ depression and subjective well-being (Gundogan, 2022).

In the present study, we examined the relationship between perceptions of COVID-19, Stress and Burnout in an ethnically diverse sample of young adult undergraduate students. We chose this age-group based on the previously discussed unique challenges faced by this population and research demonstrating the negative effect of the COVID-19 pandemic on college students’ mental health (e.g., Gundogan, 2022; Zimmermann et al., 2021) despite their lower risk for serious illness or death due to the COVID-19 virus. Moreover, this research has also identified elevated levels of distress among women and Latinx college students immediately following the onset of the COVID-19 lock-downs (Zimmermann et al., 2021), but it did not include a measure of burnout as a potential mediator of these negative outcomes.

We further applied Koeske and Koeske’s (1991) Demand→Stress→Burnout→Outcome model as a theoretical framework based on their argument that “[d]emands and/or stress produced negative health or behavioral outcomes indirectly through their impact on a state of exhaustion” (i.e., burnout), which they further argued was distinguishable from outcomes such as depression (Koeske & Koeske, 1991, p. 417). Although much of the research examining stress and burnout during the pandemic has not included any theoretical model (but see Gundogan, 2022, and Yıldırım & Solmaz, 2020, for their discussions of Lazarus’s Transactional Model of Stress), we felt Koeske and Koeske’s model was appropriate based on its simplicity and its obvious consistency with definitions of burnout in the literature and current research on the relationship between stress, burnout, and various outcomes.

For our study, we conceptualized the COVID-19 pandemic as the demand in Koeske and Koeske’s model, and examined participants’ self-reports of Stress and Burnout as they related to the participants’ perception of the severity of the COVID-19 pandemic and Fear of COVID-19. Although Stress and Burnout may seem similar, they are very different concepts. Stress refers to “perceived tension between demands and resources” (Koeske & Koeske, 1991, p. 416). That is, as perceptions of a demand increase (i.e., participants who report perceptions of greater Seriousness of COVID-19 and a greater Fear of COVID-19), the individual’s resources become more and more depleted, leading to greater stress. In contrast, as noted above, burnout is a feeling of physical and psychological exhaustion that arises in response to chronic stressors (Kristensen et al., 2005). According to this distinction and Koeske and Koeske’s model, stress precedes burnout, and as stress increases, so does burnout (Campos et al., 2011; Maroco & Campos, 2012).

Based on Koeske and Koeske’s (1991) model and previous research on the populations that experienced more negative outcomes due to COVID-19, we predicted the following:

1. **Hypothesis 1:** College students of color would report greater Fear of COVID-19 and greater perceptions of the Seriousness of COVID-19, higher levels of Stress, Personal Burnout, and Work/School Burnout than would White college students. We further predicted there would be a positive relationship between their fear and perceptions of COVID-19, Stress, Personal Burnout, and Work/School Burnout.

2. **Hypothesis 2:** Women college students would report greater Fear of COVID-19 and greater perceptions of the Seriousness of COVID-19, higher levels of Stress, Personal Burnout, and Work/School Burnout than would men college students. We further predicted there would be a positive relationship between their perceptions of COVID-19, Stress, Personal Burnout, and Work/School Burnout.

3. **Hypothesis 3:** We predicted that greater Fear of COVID-19 and greater perceptions of the Seriousness of COVID-19 for the college sample...
overall would be positively associated with greater Stress, which would be positively associated with greater Personal Burnout and Work/School Burnout.

It is important to note that we did not include outcome measures of depression, anxiety, or other negative effects of COVID-19 in our survey for several reasons: (a) a desire to reduce the length of the survey based on students’ expressed complaints about already having to respond to too many surveys; (b) a desire to reduce the likelihood of including upsetting or triggering survey questions; and (c) the fact that these outcomes have already been extremely well-documented in the literature. Moreover, Koeske and Koeske stated that “one advantage of the full model is its ability to integrate a set of studies, each of which uses different measures or elaborates different portions of the model” (p. 417). In the present study, we focused only on the Demand→Stress→Burnout portion of the model.

Method

Participants

A total of 116 participants from a small (approximately 1100 students) minority-serving undergraduate liberal arts college participated in this study, with 50.4% of participants self-identifying as commuter students. Participants ranged in age from 18 to 31 (\(M = 19.8, \ SD = 1.8\)), 72 participants (62%) self-identified as women with the remainder self-identifying as men except for one participant who self-identified as nonbinary. Sixty-nine percent of participants self-identified as POC: Hispanic/Latinx (\(n = 46\)), White/European (\(n = 36\)), Biracial (\(n = 20\)), Black/African American (\(n = 7\)), East/Southeast Asian (\(n = 7\)), and Middle Eastern/North African (\(n = 1\)). See Table 1 for a full description of participant demographics. During the data collection period, the college offered in-person, hybrid, and remote course options, while also mandating masks and COVID-19 vaccinations. Participants received extra credit for their participation in the study.

Measures

Fear of COVID-19

Participants’ Fear of COVID-19 was measured using an individual question, “How afraid of COVID-19 are you?” with scale points ranging from 1 (not afraid at all) to 5 (extremely afraid, keeps me up at night). Participants were instructed that they could click up to two scale points in response to the question, in order to identify whether participants might be experiencing simultaneous ambivalence about the virus (Camparo & Camparo, 2021). For example, some participants might have been simultaneously extremely afraid of the impact of the virus on their diabetic grandmother’s health, but not at

**TABLE 1**

<table>
<thead>
<tr>
<th>Participant Demographics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
</tr>
<tr>
<td><strong>Age</strong></td>
</tr>
<tr>
<td>18</td>
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<tr>
<td>19</td>
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<tr>
<td>20</td>
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<td>21</td>
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<td>23</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td><strong>Year in school</strong></td>
</tr>
<tr>
<td>Freshman/1st year</td>
</tr>
<tr>
<td>Sophomore/2nd year</td>
</tr>
<tr>
<td>Junior/3rd year</td>
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<tr>
<td>Senior/4th year</td>
</tr>
<tr>
<td><strong>Extracurricular Participation</strong></td>
</tr>
<tr>
<td>Yes</td>
</tr>
<tr>
<td>No</td>
</tr>
<tr>
<td><strong>Living on or off campus</strong></td>
</tr>
<tr>
<td>On campus</td>
</tr>
<tr>
<td>Off campus</td>
</tr>
<tr>
<td><strong>Off Campus - who do you live with?</strong></td>
</tr>
<tr>
<td>Parents/siblings</td>
</tr>
<tr>
<td>Friends/roommates</td>
</tr>
<tr>
<td>Extended family</td>
</tr>
<tr>
<td>Significant other</td>
</tr>
<tr>
<td>Alone</td>
</tr>
<tr>
<td>Other</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
</tr>
<tr>
<td>Employed, full time</td>
</tr>
<tr>
<td>Employed, part time</td>
</tr>
<tr>
<td>Work study on campus</td>
</tr>
<tr>
<td>Work study on campus &amp; off campus job</td>
</tr>
<tr>
<td>Not employed, looking for work</td>
</tr>
<tr>
<td>Not employed, not looking for work</td>
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<tr>
<td><strong>Gender</strong></td>
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<tr>
<td>Female</td>
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<tr>
<td>Male</td>
</tr>
<tr>
<td>Nonbinary</td>
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<tr>
<td><strong>Race/Ethnicity</strong></td>
</tr>
<tr>
<td>Black/African American</td>
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<tr>
<td>White/European</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
</tr>
<tr>
<td>East/Southeast Asian</td>
</tr>
<tr>
<td>Biracial</td>
</tr>
<tr>
<td>Middle Eastern/North African</td>
</tr>
<tr>
<td>Missing/N.A.</td>
</tr>
<tr>
<td><strong>Relationship Status</strong></td>
</tr>
<tr>
<td>Married</td>
</tr>
<tr>
<td>In a relationship with a significant other</td>
</tr>
<tr>
<td>Single, never married</td>
</tr>
<tr>
<td><strong>Vaccination Status</strong></td>
</tr>
<tr>
<td>Fully Vaccinated (post two weeks of final dose)</td>
</tr>
<tr>
<td>Partially vaccinated (one dose of a two dose vaccine or not past two weeks)</td>
</tr>
<tr>
<td>Not vaccinated and do not plan to be</td>
</tr>
</tbody>
</table>
all afraid of the impact of the virus on their own health. This would constitute simultaneously fearing and not fearing COVID-19, an emotional state we believed some participants might experience, and could be important when interpreting findings. If two scale points were chosen, participants were asked to provide a qualitative response to explain their choices.

**Seriousness of COVID-19**

Participants’ perceptions of the Seriousness of the COVID-19 virus relative to the flu virus was measured using an individual question, “How much do you feel COVID-19 compares to the flu?” with scale points ranging from 1 (not serious/dangerous at all) to 5 (extremely serious/dangerous). Participants were again instructed that they could pick up to two scale points when answering the question, in order to identify whether participants were experiencing any simultaneous ambivalence in relation to this question (Camparo & Camparo, 2021). If two scale points were chosen, participants were asked to provide a qualitative response to explain their choices.

**Stress**

Participants’ stress was measured using the Perceived Stress Scale (Cohen et al., 1983). Using a 5-point scale ranging from 1 (never) to 5 (very often), participants responded to 10 questions related to how “unpredictable, uncontrollable, and overloaded” the participants felt their lives to be (Cohen et al., 1998). Four items (items 4, 5, 7, and 8) were reverse coded. Higher scores indicate higher perceived Stress with scores ranging from 10 to 50. In the current study, Cronbach’s alpha was .88.

**Personal Burnout**

Participants’ Personal Burnout was measured using the Copenhagen Burnout Inventory (Kristensen et al., 2005). Personal Burnout was defined as a “state of prolonged physical and psychological exhaustion” (Kristensen et al., 2005). Using a 5-point scale ranging from 1 (always) to 5 (never/almost never), participants were instructed to choose one option in response to six questions asking about their levels of exhaustion. Example items included: “How often do you feel tired?” and “How often do you feel worn out?” Total scores were averaged across the six items, with scores ranging from 0 to 100. Higher scores indicate higher levels of personal burnout. In the current study, Cronbach’s alpha was .90.

**Work/School Burnout**

Participants’ Work/School Burnout, or a state of “prolonged state of physical or psychological exhaustion” in relation to an individual’s work or school, was also measured using the Copenhagen Burnout Inventory (Kristensen et al., 2005). However, the phrasing of some questions was changed to include school-related burnout as well as work-related burnout. For example, one question was originally phrased as, “Do you feel burnt out because of your work,” and this question was changed to, “Do you feel burnt out because of your work/school?” Using a 5-point scale ranging from 1 (never/almost never) to 5 (always), participants were instructed to choose one option in response to seven questions which related to their feelings of being burnt out from their work or school. Example items included: “Is your work/school emotionally exhausting?” and “Do you feel that every working/school hour is tiring for you?” The last four questions were reverse coded. Higher scores indicate higher levels of Work/School Burnout. In the current study, Cronbach’s alpha was .91.

**Other Measures**

In addition to the previous measures discussed, participants were asked questions about their relationship status, parental status (Berry & Jones, 1995), and their relationships with their children, as well as opinions about masks and COVID-19 vaccinations; these items were not included in the present study.

**Procedure**

The study was determined to be exempt from a full review by the college’s Institutional Review Board due to the low-risk nature of the study. However, participants were provided with contact information for the undergraduate campus’s counseling center if they felt any discomfort or negative effects from the survey. Participants were recruited through different psychology courses and sports teams on the undergraduate campus, due to the limited availability of recruitment methods in place at the time on campus and also to help limit the chances of participants responding to the survey more than once. Data were collected anonymously through an online survey on the platform SoGoSurvey (recently rebranded to the name Sogolytics) between September 2021 and February 2022. Before participants were able to complete the survey, they digitally signed an informed consent form by selecting, “I agree,” if they wanted to continue onto the survey, or “I do not agree,” which would immediately exit the survey. The survey began with a demographic questionnaire that allowed participants to write in their responses to most questions (e.g., age, gender identity, racial/ethnic identity). After completing the demographic portion of the questionnaire, if participants indicated that they had children, they were taken to a portion of the questionnaire regarding their relationship with their children. Once participants finished this portion of the questionnaire or if they indicated that they did
not have children, participants then answered questions regarding COVID-19, COVID-19 vaccines, and use of masks to mitigate exposure to COVID-19. In this section, participants were instructed that they could click on one or two scale points, the latter of which would provide a measure of their simultaneous ambivalence on the topic, if applicable (Campaoro & Camparo, 2021). If they chose two scale points (i.e., an expression of simultaneous ambivalence), they were then asked to provide a qualitative response to explain their choices. Following the COVID-19 related questions, participants then answered questions assessing their Personal Burnout, Work/School Burnout, and Stress levels. For these measures, participants were instructed that they could choose only one response. Once participants completed the survey, they were taken to a Thank You page with no identifying information and were then able to exit the survey platform. Participants were instructed to take a screenshot of the Thank You page and submit it to their instructor for extra credit. The survey lasted approximately 15 minutes.

Results
Preliminary Analysis
We provided the opportunity for participants to demonstrate simultaneous ambivalence on questions regarding COVID-19 (Campaoro & Camparo, 2021); however, only 2% of participants showed simultaneous ambivalence. Due to the extremely small number of participants demonstrating simultaneous ambivalence on this topic, it was not analyzed in this study.

Results for Hypothesis 1: Ethnic Differences
To examine ethnic differences in participants' perceptions of COVID-19, participants' self-reports of their ethnic identity were recoded as "white/non-Hispanic" (N = 36) and "POC" (People of Color; N = 80). We used one-tailed independent-samples t tests to examine differences in the two groups' Fear of COVID-19, perceptions of the Seriousness of COVID-19, Stress, Personal Burnout, and Work/School Burnout (see Table 2). Although we hypothesized that college students of color would report perceptions of greater Seriousness of COVID-19 and greater Work/School Burnout, college students of color and Whites' reports on these factors did not differ (for all associations, p > .08).

Results for Hypothesis 2: Gender Differences
As stated above, all but one participant self-identified as either female (N = 72) or male (N = 44). Due to the small sample size for nonbinary, data from this participant were not included in the analyses related to gender differences. Again, we used one-tailed independent-samples t tests to examine gender differences in Fear of COVID-19, perceptions of the Seriousness of COVID-19, Stress, Personal Burnout, and Work/School Burnout (see Table 3). To test models for gender differences in the Demand→Stress→Burnout model as well as the full model, we used R version 4.2.2 (R Core Team, 2022), RStudio version RStudio 2022.12.0+353 (Posit team, 2022), and the lavaan package (Rosseel, 2012). Our preliminary analyses supported the idea that women were more negatively impacted by COVID-19 through greater feelings of Stress and Burnout. However, when

### Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>Women M</th>
<th>Women SD</th>
<th>Men M</th>
<th>Men SD</th>
<th>t(112)</th>
<th>p</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seriousness of COVID-19</td>
<td>4.03</td>
<td>0.80</td>
<td>3.30</td>
<td>1.23</td>
<td>3.51</td>
<td>&lt;.001</td>
<td>0.74</td>
</tr>
<tr>
<td>Fear of COVID-19</td>
<td>3.05</td>
<td>0.95</td>
<td>2.36</td>
<td>1.14</td>
<td>3.33</td>
<td>.001</td>
<td>0.67</td>
</tr>
<tr>
<td>Personal Burnout</td>
<td>63.87</td>
<td>20.46</td>
<td>47.92</td>
<td>22.17</td>
<td>3.92</td>
<td>&lt;.001</td>
<td>0.76</td>
</tr>
<tr>
<td>Work/School Burnout</td>
<td>63.38</td>
<td>22.24</td>
<td>52.03</td>
<td>24.93</td>
<td>2.53</td>
<td>.013</td>
<td>0.49</td>
</tr>
<tr>
<td>Stress</td>
<td>3.31</td>
<td>0.68</td>
<td>2.93</td>
<td>0.85</td>
<td>2.62</td>
<td>.010</td>
<td>0.51</td>
</tr>
</tbody>
</table>
gender was entered, the model (see Figure 1) was not a good fit for the data, $\chi^2 = 19.55$, $p = .02$, CFI = 0.96, TLI = 0.94, RMSEA = .10, SRMR = .10.

**Results for Hypothesis 3: Relationship Between Fear of COVID-19/Seriousness of COVID-19 and, Stress, Personal Burnout, and Work/School Burnout**

To examine the relationship between the two demand factors (Fear of COVID-19 and Perceptions of the Seriousness of COVID-19) and Stress, Personal Burnout, and Work/School Burnout, we calculated one-tailed Pearson Product-Moment Correlations (see Table 4). The associations between the perceptions of the Seriousness of COVID-19 and Fear of COVID-19 and Burnout and Work-School Burnout, mediated by Stress, were analyzed using structural equation modeling. COVID-19 concern and COVID-19 fear were positively associated, $r(114) = .61$, $p < .001$. When Seriousness of COVID-19 and Fear of COVID-19 were regressed on Stress, the associations were not significant. When Stress was regressed on Personal Burnout and Work/School Burnout together, the associations were significant

### TABLE 4

<table>
<thead>
<tr>
<th>Intercorrelations of Seriousness and Fear of COVID-19, Personal Burnout, Work/School Burnout, and Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Seriousness of COVID-19</td>
</tr>
<tr>
<td>Fear of COVID-19</td>
</tr>
<tr>
<td>Personal Burnout</td>
</tr>
<tr>
<td>Work/School Burnout</td>
</tr>
<tr>
<td>Stress</td>
</tr>
</tbody>
</table>

Note: $^* p < .05$; $^* * p < .01$; $^* * * p < .001$.

### FIGURE 2

**Path Analysis Model of Associations Between COVID and Burnout Constructs**

Seriousness of COVID-19 $ightarrow$ Stress (0.18***), $\chi^2 = 8.01$, $df = 5$, $p = .15$, CFI = .99, TLI = .98, SRMR = .05, RMSEA = .07, 90% CI (.00, .16)

Fear of COVID-19 $ightarrow$ Stress (0.13), $z = 2.38$, $p < .01$

Stress $ightarrow$ Personal Burnout (0.68***)

Stress $ightarrow$ Work/School Burnout (0.69***)

Note: $N = 114$. Values reflect standardized regression coefficients. Dashed lines in gray represent nonsignificant relations.

$^* p < .05$, $^* * p < .01$, $^* * * p < .001$.

and positive. The association for Stress on Personal Burnout was $\beta = .66$, $SE = 1.87$, $z = 10.60$, $p < .001$, and the association for Stress on Work/School Burnout was, $\beta = .66$, $SE = 1.87$, $z = 10.86$, $p < .001$. The indirect effect of Seriousness of COVID-19 and Fear of COVID-19 on Personal Burnout and Work/School Burnout, through Stress was significant, $\beta = .17$, $SE = 1.48$, $z = 2.38$, $p = .02$. The resulting model (see Figure 2) was a good fit to the data, $\chi^2(5) = 8.10$, $p = .15$, CFI = 0.99, TLI = 0.98, RMSEA = .07, SRMR = .05.

**Discussion**

There is no doubt that COVID-19 created significant demands on many important facets of life. Although COVID-19’s impact was felt around the globe by individuals of all ages and demographic groups, it posed unique challenges for college students and was particularly harmful to POC and women. This study is one of the first to examine the relationship between fear of COVID-19, concern about the seriousness of COVID-19, and stress and burnout in a sample of undergraduate students from a minority-serving institution. Most research examining stress and burnout due to COVID-19 has focused on front-line health-care workers, the general public, or older graduate-level university students (Çağış & Yıldırım, 2022; Gundogan, 2022; Yıldırım & Solmaz, 2020). Despite college students’ lower risk for severe physical effects from the COVID-19 virus, the pandemic posed serious challenges for their development in several key domains (Gruber et al., 2020), necessitating a greater understanding of COVID-19 stress and burnout in this age group.

Based on previous research, we hypothesized that POC in a college sample would report greater Fear of COVID-19 and greater perceptions of the Seriousness of COVID-19; higher levels of Stress, Personal Burnout, and Work/School Burnout; and a positive relationship between their perceptions of COVID-19, Stress, Personal Burnout, and Work/School Burnout. Our hypotheses for gender differences were fully supported. Findings regarding gender differences were consistent with previous findings that women experienced significantly higher levels of distress, anxiety and depression (i.e., negative outcomes based on Koeske and Koeske’s model, 1991) as compared to men during the COVID-19 pandemic (Alekseyan & Weinman, 2022; Russell et al., 2020; Zimmermann et al., 2021). As previously stated, adult women are overrepresented in both frontline industries and caregiving roles, and are more likely to have an autoimmune disorder (Alekseyan & Weinman, 2022; Angum et al., 2020; Connor et al., 2020; Rho et al., 2020; Russell et al., 2020). Consequently, adult women may have a heightened awareness of the short- and

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long-term health consequences of COVID-19 and a deeper understanding of the severity and seriousness of COVID-19 (Salari et al., 2020; Zheng et al., 2021; Zimmermann et al., 2021). Our results suggest that these gender differences for adult women may be applicable to women of college age as well. Heightened perceptions of the seriousness of COVID-19 could lead to greater stress, as these individuals could feel as though they have little control over certain aspects of their lives due to COVID-19, or due to the pandemic rearranging living situations. These stressors could then develop into chronic stress, due to the unpredictability of different variants arising during the pandemic and length of the pandemic, and the increased responsibilities for their homes and loved ones. Increased time spent caring for others on top of academic demands could also lead to the physical and emotional exhaustion characteristic of both Personal Burnout and Work/School Burnout.

In contrast, for the effects of ethnicity, our hypotheses were not fully supported. College students of color reported higher levels of Stress than did Whites; however, they did not report significantly greater Fear of COVID, perceptions of the Seriousness of COVID, Personal Burnout, or Work/School Burnout. This lack of significant ethnic differences was surprising given that workers in frontline industries are disproportionately POC (POC accounting for 41.2%; Rho et al., 2020) and the abundance of research finding higher incidence of negative outcomes, including mortality, for POC due to COVID (Abuelgasim et al., 2020; Tai et al., 2021). One possible explanation for our lack of ethnic differences could be the sample size for our White participants (N = 36). Analyses for Fear of COVID and Personal Burnout approached significance (i.e., p for Fear of COVID = .07, Cohen's $d = 0.30$; p for Personal Burnout = .06, Cohen's $d = 0.32$), but might not have reached significance due to the small White sample. Also, in our college sample, 72.5% of participants had some form of employment or were looking for work. Consequently, college students of color and White participants may have had similar perceptions of COVID-19's impact on their employment status or income, leading to possible similarities in perceptions of COVID-19 and burnout. Another possible explanation for the lack of significant ethnic differences in Fear of COVID, perceptions of the Seriousness of COVID, Personal Burnout and Work/School Burnout, could be college students of colors' experience with a large number of demands in their daily lives due to generally lower SES, discrimination, and prejudice in American society. Consequently, college students of color may be more successful at managing fear of COVID-19 and burnout from the COVID-19 pandemic than White people are, or they may be more likely to minimize reports of Fear of COVID and burnout. Future research should include larger samples of White and POC participants as well as a measure of resilience to explore these explanations.

To provide a theoretical framework for our examination of the relationship between greater Fear of COVID-19 and greater perceptions of the Seriousness of COVID-19, Stress, and Personal Burnout and Work/School Burnout, we drew on Koeske and Koeske's (1991) Demand→Stress→Burnout→Outcome model. We predicted a positive relationship between each of these factors, and our predictions were supported. There was an indirect association between our two demand factors (Fear of COVID-19 and Seriousness of COVID-19) and our two Burnout factors (Personal Burnout and Work/School Burnout) through Stress. This finding suggests that interventions to reduce Stress might serve to also reduce Burnout. Nevertheless, given that data were collected at only one time point, and we did not include outcome variables, no causal inferences can be drawn and no mediation effects of stress on COVID-19 outcomes could be analyzed.

Limitations, Strengths, and Future Directions

Several limitations and strengths of this study should be noted. One of the most prominent limitations of this study was the small sample size, which consisted of a majority of women POC participants, potentially reducing the generalizability of some findings and limiting power for other analyses to reach significance. Although the sample size of this study was small, the participants self-reported a wide range of ethnicities making for a diverse and more representative sample. Additionally, although the study took place within a fairly brief three-month time frame beginning during the fall 2021 academic semester, due to extreme fluctuations in infection, hospitalization, and death rates, emergence of new variants with different degrees of contagion and seriousness, and the relatively recent access to COVID-19 vaccinations and boosters during the course of this study, the COVID-19 pandemic was a very dynamic demand. Because participants were still actively experiencing the effects of the COVID-19 pandemic, some participants might have resorted to reflecting on how things were during the lockdown portion of the pandemic (during spring 2020) or even reflecting upon their more recent experiences with COVID-19 (some taking place shortly before the start of this study (during summer 2021)). Students also might have felt increased levels of stress and burnout not only from COVID-19, but also other large-scale events happening at the time including war, political unrest, and financial burden from inflation (Leach et al., 2021; Weierstall-Pust et al., 2022).
Another factor that could have impacted the outcome of this study was that the undergraduate campus where this study took place required all students to be fully vaccinated against the COVID-19 virus and to wear masks in all shared spaces. These requirements could have led participants to have a greater understanding of the COVID-19 pandemic—or perhaps greater Personal Burnout or Work/School Burnout—leading to higher perceptions of Seriousness and/or Fear of COVID-19 than a different college sample could have.

The rate at which COVID-19 changed and evolved might also have served as a strength for the study. Due to the rapid changes, participants were still actively experiencing COVID-19 through some classes being taught remotely and mask requirements for in-person classes. Also, the Omicron variant had just begun to surge, spiking cases and leading to classes on many college campuses to return to completely remote learning for a short period of time (CDC, 2023b; Elamroussi, 2021; Rashad et al., 2022). This allowed participants to not only reflect on their early experiences with COVID-19, but also their current lived experiences.

As there has been a vast amount of research investigating the physical, psychological, and academic outcomes of the COVID-19 pandemic, future studies should examine the mediating or moderating factors that may lead to these negative outcomes. With future research gaining a better understanding of the path from experiencing COVID-19 to stress and burnout, methods to potentially mitigate these outcomes can be developed. To have the most successful and generalizable results, future studies should use larger sample sizes with a more even distribution of male and female participants and POC and White participants. Future studies should also include younger participants in order to investigate at what age female-identifying participants begin feeling greater levels of stress and burnout than male-identifying participants. It will also be imperative that future research account for the changes in the COVID-19 pandemic as infection, hospitalization, and mortality rates continue to fluctuate and the virus itself continues to change.

**Conclusion**

This study was designed to investigate how COVID-19, as a specific demand, impacted individuals’ Stress and Burnout. Response from female participants showed their significantly heightened levels of Stress and Burnout, revealing the need for an increase in support and intervention to reduce Stress and Burnout for this specific population. By understanding the intermediate steps (Stress and Burnout) that lead to the well-documented negative outcomes, interventions could be implemented to mitigate the severity of the outcomes.

**References**


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