

**Life Stressors as Predictors of Community College Students' Course Outcomes:****The COVID-19 Pandemic as a Focusing Event****Abstract**

- a. **Background or Context:** The COVID-19 Pandemic may be considered a focusing event which has drawn greater attention to the physical and mental health of community college students.
- b. **Purpose, Objective, Research Question, or Focus of Study:** This study examined community college students' self-reported life stressors pre- and post-pandemic onset to identify any reported difference, both in occurrence and impact on course completion.
- c. **Research Design:** Surveys were collected after the COVID-19 pandemic onset at the City University of New York's largest community college. 529 students enrolled in STEM subjects were asked about potentially stressful life events experienced during Spring 2020 and how strongly these impacted the time or energy they had for their studies (response rate 88.2%).
- d. **Conclusions or Recommendations:** Students' reporting of the presence of life stressors, as well as their rating of the impact on their studies were significantly predictive of subsequent course outcomes. However, stressors reported as beginning *prior* to the pandemic had a larger and more significant relationship with course outcomes than those reported as beginning after pandemic onset. Further, stressors were already highly prevalent pre-pandemic, with over three-quarters of students reporting them. While the pandemic may have drawn attention to the existence and impact of stressors, it may simply be a focusing event that drew heightened attention to a pre-existing issue. Results from this study indicate that life stress may significantly impact the outcomes of community college students even outside of pandemic conditions, suggesting that this is a critical area for community colleges to address.

**Keywords:** Stress; COVID-19 Pandemic; Course Retention; Time Capital; Body Capital

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## **Introduction**

The extent to which community college students' life stressors may have intensified during the COVID-19 pandemic, or the extent to which stressors in general (either inside or outside pandemic conditions) may explain college outcomes, is empirically unknown. To address this gap, we examined the relationship between life stressors that community college students self-reported as occurring both before and after pandemic onset, the related impact (on the time or energy that students had for college), and subsequent college outcomes. Further, we consider the extent to which stressors observed during the pandemic may have been specific to pandemic conditions or may have been the result of pre-existing life stress facing community college students prior to pandemic onset.

## **Conceptual Framework**

### **Stressors**

In this study, life stressors are conceptualized as events (Guaracha, 2014; Schwarzer & Luszczynska, 2013), rather than feelings or emotions (Pascoe et al., 2020). A stressor may be a particularly traumatic life event (e.g., a divorce, eviction, or death), may be the result of chronic exposure to smaller-scale events (e.g., job stress, food insecurity), or may stem from competing demands (e.g., work and family commitments that conflict with school) (Häfner et al., 2015; Schwarzer & Luszczynska, 2013). Thus, insufficient amounts of various kinds of capital to meet life/academic needs (e.g., insufficient time, money, or energy for college studies or for other life needs) may lead to or exacerbate stress. Additionally, we posit that stressors themselves reduce the time and energy that students have to spend on college, and that this may produce a negative impact on academic outcomes.

We conceptualize the impacts of stress as cumulative, where the greater the number of stressors, the greater the potential impact on a student's studies. Thus, in this study, stress is measured by calculating the total number of stressors reported, as well as the total cumulative impact reported for all stressors by a student that term, as potential predictors of course outcomes. There is already some evidence that the effects of life stress on physical and mental health are both cumulative and substantial (Pascoe et al., 2020), and

we posit that the impacts of stressors on academic outcomes are also likely cumulative. Further, in medical literature, the physiological burden of chronic or cumulative stressors (*allostatic load*; McEwen & Stellar, 1993) has also been linked to decreases in executive function/cognition (D’Amico et al., 2020) and long-term academic outcomes (Harris, 2018).

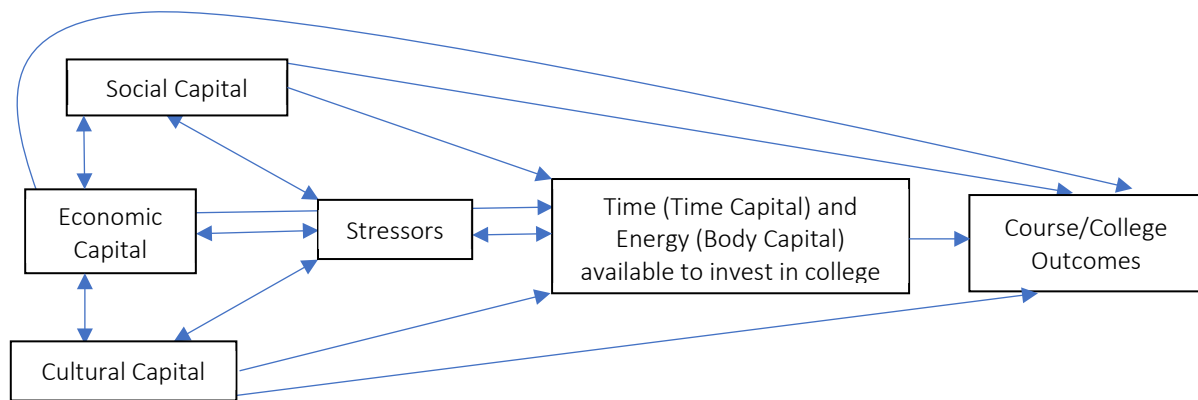
### **Time and Body Capital**

Here we conceptualize time as a finite resource that can be invested in college; this resource is called *time capital* (Conway et al., 2021; Wladis et al., 2018; 2022; 2024a; 2024b; 2024c). This is related to *time poverty*, or the condition of having too little time as a resource to be able to maintain academic wellbeing (Conway et al., 2021; Wladis et al., 2018; 2022; 2024a; 2024b). In prior work, we established a relationship between time capital and college outcomes: the amount of time available to spend on college was found to explain difference in college outcomes for student parents vs. non-parents, women vs. men, Black and Hispanic students vs. White and Asian/Pacific Islander students, and students who choose to enroll in at least one online course vs. those who do not (Conway et al., 2021; Wladis et al., 2018; 2022; 2024a; 2024b). We also conceptualize embodied physical/mental resources that can be invested in college (or other activities) as a form of capital known as *body capital* (Wladis et al., 2022; 2024c), which includes all the physical, mental, and psychological resources that “live in the body” (Hachey et al., 2022; Wladis et al., 2024c). In prior work, we have related some types of body capital to academic outcomes: community college students’ incidence of health events (either their own, or a family member) both prior to and after pandemic onset were shown to correlate with course outcomes (Hachey et al., 2022).

Thus, we theorize a model of how stressors may interact with various forms of capital to impact students’ college outcomes. Lower stocks of various forms of capital (social, cultural, financial, time, body) may both increase stress and directly impact academic outcomes (Wells, 2008). However, we contend that one way in which stressors themselves may lead to lower academic outcomes is that they reduce the time or energy that students have available (or the time/body capital) to invest in education (Figure 1).

**Figure 1**

*Model of How Stressors May Affect Academic Outcomes Through Depletion of Time and Body Capital that Could be Invested in College*



### Focusing Events

A focusing event is typically an external “crisis or disaster that comes along to call attention to [a pre-existing] problem” (Kingdon, 2003, p. 94). This term is used to describe how an unexpected event can suddenly call wide-spread attention to a pre-existing issue that has previously been overlooked. The COVID-19 pandemic may be considered a focusing event that, for example, has resulted in increased awareness in academic research on health/mental health issues both at the K-12 level (Naff et al., 2022) and in higher education (Hachey et al., 2022), and it has increased awareness for the need for nonacademic supports for students (Hoffman, et al., 2020; Naff et al., 2022). We conceive of the COVID-19 pandemic as a focusing event that has brought significant attention to the importance of stressors in the lives of (community) college students.

### Literature Review

Community college students in comparison to those at four-year institutions are more likely to have “non-traditional” characteristics and competing responsibilities that could induce life stress; for example,

they are more likely to have children and to work full-time, as well as to have disability/chronic illness and financial insecurity (e.g., Hachey et al., 2022; Institute for Women's Policy Research, 2019; McBride, 2019). Pre-pandemic, Edman et al., (2016) and McBride (2019) found that community college students reported experiencing multiple life stressors, both acute and long-term. Additionally, evidence shows that community college students reported high levels of traumatic life events (Anders et al., 2012), and trauma has been known to relate to lower academic performance (Edman et al., 2016). Research further suggests that academic-related stress and major stressors in postsecondary school may result in increased mental health issues and academic non-success (Pascoe et al., 2020). Yet, the incidence of stressors that students experience is not typically considered to be a factor in community college success research (e.g., Pascarella, 2010), so relatively little is known about the impact of stressors on outcomes for community college students.

Life stress appears to accumulate over time, leading to chronic strain that can negatively influence the academics, health/mental health, and the overall quality of life of college students (Lampert, et al., 2016; Pascoe et al., 2020; Ribeiro et al, 2018). Anders et al. (2012) found that total lifetime events reported by students (including traumatic and non-traumatic stressors) were correlated with self-reported measures of different outcomes, including: higher PTSD symptom severity, higher general feelings of distress, lower life satisfaction, poorer general health, and lower self-reported GPA.

The COVID-19 pandemic generated new sources of stress and amplified pre-existing ones. Many students had increased stress related to worries about their health or the health of friends or family (Hachey et al., 2022), or additional stressors related to job loss (Huber, 2020) and increased time demands when schools and childcare centers shut down (Heggeness & Fields, 2020). Further, the sudden onset of Emergency Remote Teaching (ERT), where almost all students were suddenly forced to take courses online under atypical and stressful conditions (Clabaugh et al, 2021), may have particularly impacted community college students (Bird et al., 2021; Wladis et al., 2023). Outside of ERT, choosing online courses may help students handle stressful life events, as fewer fixed time demands are usually placed on online learners (Shea & Biderano, 2014); online course flexibility is attractive when competing demands make it difficult

to participate in person (Daymont & Blau, 2011; Wladis et al., 2022). However, the atypical circumstances of COVID-19 led to challenges succeeding online even for students who gravitate toward the medium (Lin, et al., 2021), and prolonged stress from pandemic online learning has been shown to lead to burnout (Mheidly et al., 2020).

### Research Questions

Given that relatively little is known about the stressors experienced by community college students both pre- and post- pandemic, as well as the impact that stressors may have on course outcomes, research is needed to explore this relationship. This study explored the following research questions:

- 1) To what extent did community college students report life stressors that began *before* the onset of the COVID-19 pandemic in the spring 2020 term?
- 2) To what extent did community college students report life stressors that began *after* the onset of the pandemic in the spring 2020 term?
- 3) What was the relationship between students' self-reported incidence of life stressors and their successful course completion?
  - a. How did this vary based on whether stressors first occurred prior to or after the onset of the pandemic during the spring 2020 term?

### Method

#### Data Collection

A sample of 600 students enrolled in STEM courses at the City University of New York's (CUNY) largest community college were surveyed during the spring 2020 semester. Each course in the sample had online and face-to-face sections prior to the move to pandemic-induced ERT, where all courses moved fully online about one-third through the term. These courses were part of a larger study investigating student outcomes online vs. face-to-face. Participants were recruited via email, telephone, and text message and paid for their time. A response rate of 88.2% yielded 529 participants. While the full survey asked additional questions, here we focus on measures related to stressors.



Students were asked if they experienced any of 21 life events during spring 2020, including illness/injury/disability/mental health, job stress/change/unemployment, housing/food insecurity. Students were able to check whether they experienced each event before or after pandemic onset (or both), and to rate how strongly each event impacted the “time or energy that [they] had for [their] college studies,” by dragging a slider (recorded as a numeric score 1-100). Survey and institutional data (demographics and course outcomes) were then merged.

### **Analytic Method**

Means and confidence intervals were calculated for the proportion of students encountering each individual stressor, as well as the rated impact of each stressor reported. To explore the relationship between stressors and college outcomes, linear probability models were used. The dependent variable of interest was successful course completion, defined as whether the student completed the course with a C- or higher (the typical requirement for receiving transfer or major credit). For each period of interest (pre-pandemic onset; after pandemic onset) independent variables included 1) whether a student experienced any stressors; 2) total number of stressors experienced; 3) mean impact reported for all stressors (with only those stressors checked included in the mean); and 4) total cumulative impact reported for all stressors (calculated by summing the impact score for each stressor reported). Control variables included gender, ethnicity, age, GPA, first-semester freshman status, and median household income of zip code. Median household income was based on the U.S. Census Bureau’s pre-pandemic American Community Survey because this was not subject to issues with data quality that the Census Bureau cited with the 2020 pandemic data (e.g., Villa Ross et al., 2021).

Equations used for analysis had the form:

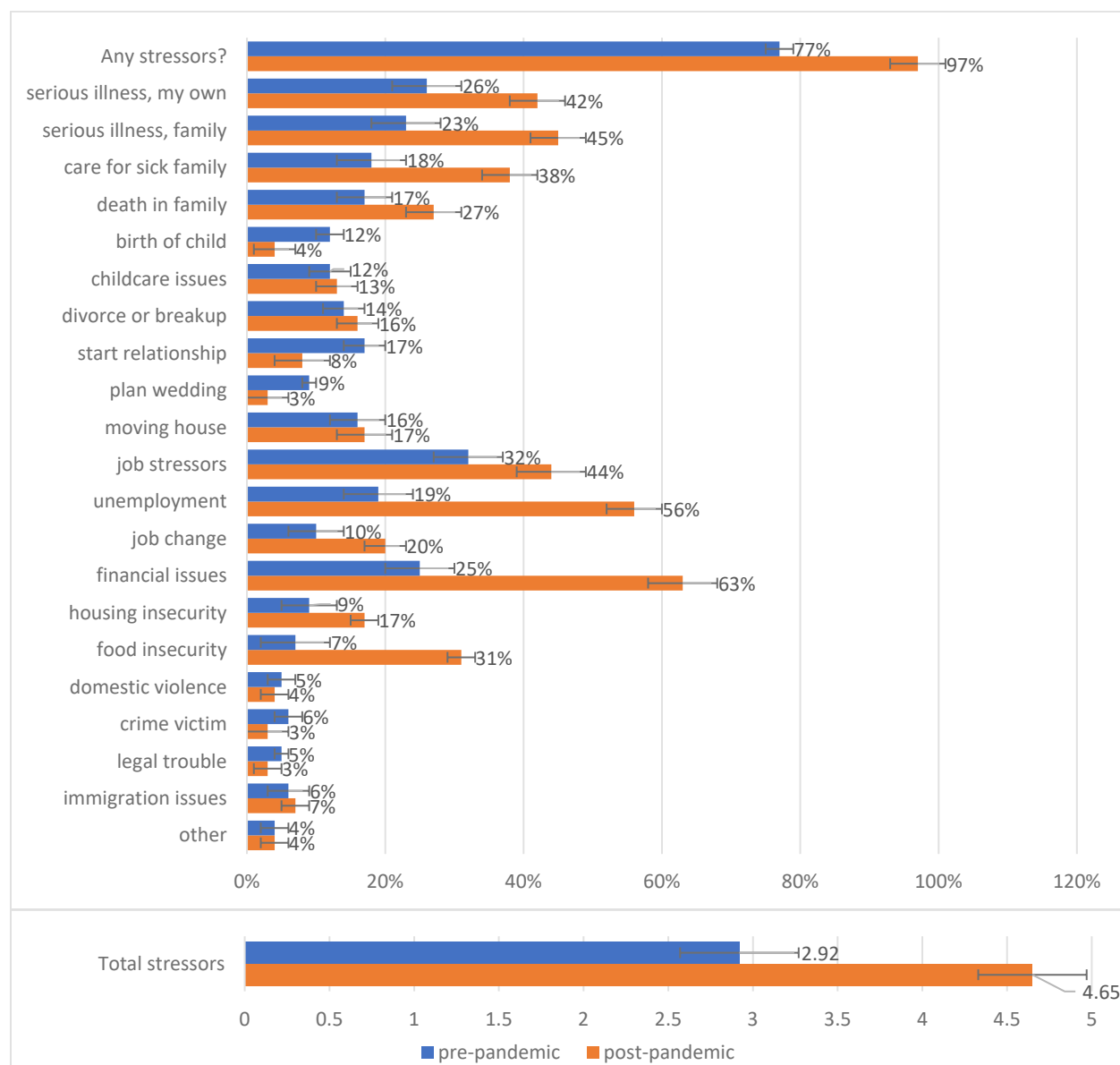
$$y = \beta_0 + \beta_1 x_1 + \dots + \beta_n x_n + \epsilon$$

Where  $x_1, \dots, x_n$  represent independent variables including controls (e.g., stressor incidence, race/ethnicity), and  $\epsilon$  represents the difference between actual versus predicted probability (of course completion) of the dependent variable for each student.

Multiple imputation by chained equations ( $m = 25$ ) imputed values for survey questions with missing responses (range 0-24% missing), including all independent variables used in subsequent analyses (Enders, 2010; Manly & Wells, 2015). In addition to analyzing means of stressor scales constructed from the survey event and impact item sets (alpha reliability range 0.77-0.85), we also analyzed the relationship of these scale measures to successful course completion using regression.

### **Results and Discussion**

Figure 2 shows whether a student reported experiencing any of the 21 stressors, as well as the total number of separate stressors reported by the student. 77% of students experienced one or more stressors prior to the pandemic, while 97% experienced one or more after pandemic onset. The most frequently reported pre-pandemic life stressors included the student's own illness/injury/disability including mental health (26%), job stressors (32%), and financial issues (25%). After pandemic onset, additional factors emerged, such as illness/injury/disability/mental health of family members (45%), caring for sick family members (38%), and unemployment (56%). One's own illness (42%), job stressors (44%), and financial issues (63%) also rose to higher levels. The total number of stressors reported by students increased by 62%, from 2.9 total pre-pandemic to 4.7 total after pandemic onset.

**Figure 2***Incidence of Reported Stressors*

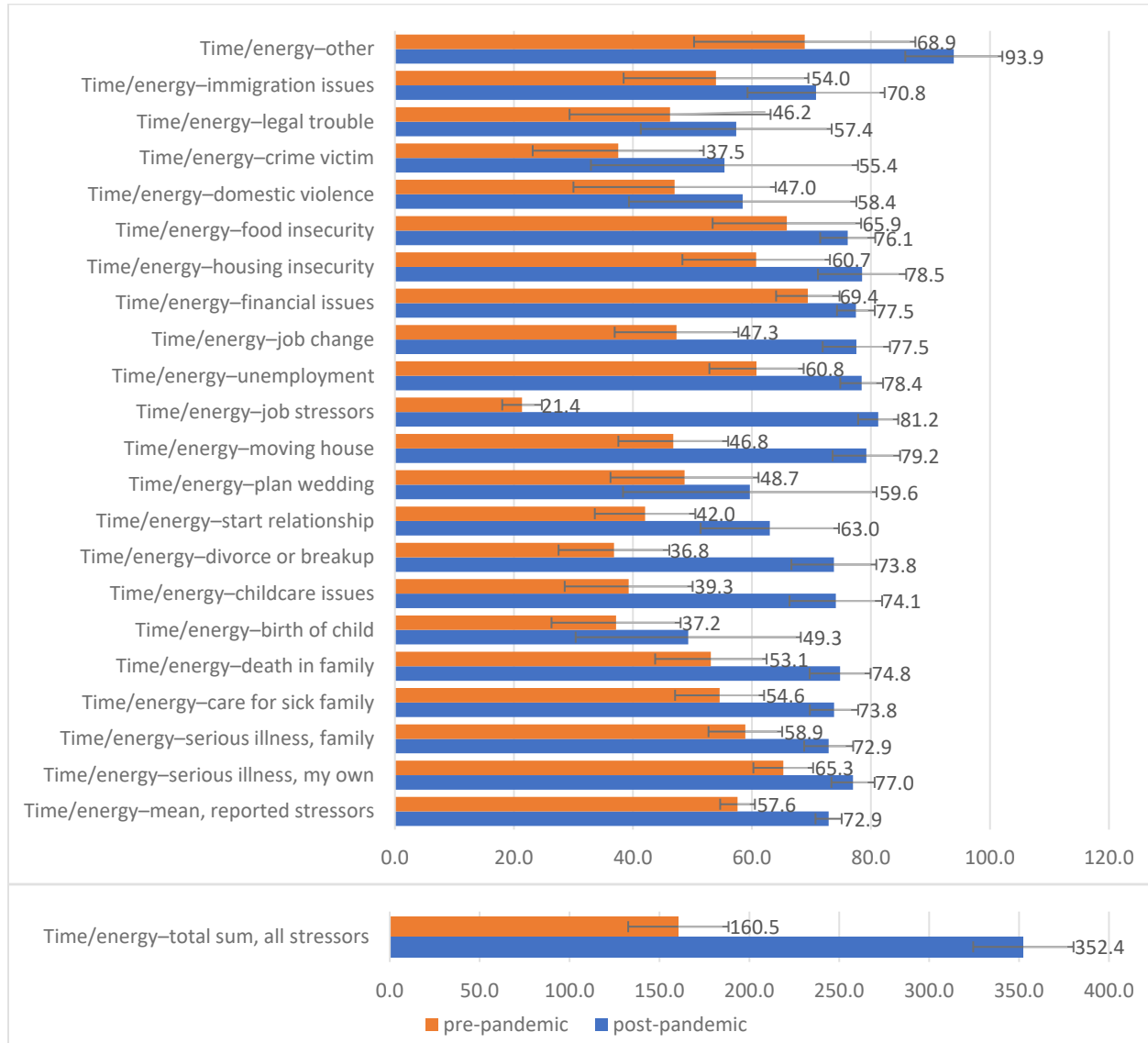
Notes: Stata's *regress* command was used to obtain 95% confidence intervals for individual variables.

Presence of life events reported as the proportion of respondents indicating "Yes."

Caution should be exercised in comparing pre-pandemic- vs. post-pandemic-onset measures (see

limitations).

The mean impact of stressors on “time or energy for studies” (or time/body capital) reported by students also rose, by 26.6% from 57.6 to 72.9 (out of 100) (Figure3). The total cumulative impact of all stressors reported increased even more, by 118%, from 161 pre-pandemic to 352 after pandemic onset. The stressors rated as having the biggest impact on time/body capital pre-pandemic were illness/injury/disability including mental health (65.3), unemployment (60.1), financial issues (69.4) and housing insecurity (65.9). After pandemic onset, these four stressors remained some of the most high-impact reported, with scores of 77.0, 78.4, 77.5, and 65.9, respectively. However, job stress (81.2), moving house (79.2) and food insecurity (76.1) also ranked as some of the highest-impact stressors post-pandemic onset.

**Figure 3***Reported Impact of Stressors*

Notes: Stata's *regress* command was used to obtain 95% confidence intervals for individual variables.

Rated impact on time/energy for studies (scale 1-100) was set to 0 for students who did not have the indicated stressors. Mean time/energy was the mean time/energy rating only across reported stressors.

Total sum was computed by summing total rated impact across stressors.

Caution should be exercised in comparing pre-pandemic- vs. post-pandemic-onset measures (see

limitations).

There was an increase in the reported occurrence, and impact on time/body capital, of stressors between responses about pre- and post-pandemic time periods. However, we note that direct comparisons between these two time periods may be misleading, since the time interval after pandemic onset during the spring 2020 term was twice as long as the interval before pandemic onset.

While increases in stressors after pandemic onset may be expected, what is noteworthy is the high reported incidence and rated impact of stressors *prior* to pandemic onset. Over three-quarters of students reported at least one stressor, with a mean rated impact on time/body capital of 58 (out of 100). Thus, the results seem to support conceptualizing the pandemic as a focusing event (Kingdon, 2003) that exacerbated and highlighted a pre-existing issue: the high incidence and impact of stressors experienced by community college students, a previously overlooked factor.

Table 1 shows the relationship between course outcomes and both stressor frequency and rated impact on time/body capital. Results indicate that stressors that were reported as occurring *prior* to pandemic onset had a larger and more significant relationship with course outcomes than those occurring post-pandemic-onset. There are two ways of measuring stressor incidence and rated impact on time/body capital in this study: first, we could consider whether the presence/absence of stressors was relevant to student outcomes, or second, we could consider whether cumulative stress has a relationship with outcomes. The former is measured by whether the student reported presence/absence of stressors (first row in Table 1) as well as the mean rated impact of stressors reported (third row). The latter is measured by the total incidence of stressors (second row) and the total summative rated impact of reported stressors (fourth row).

[TABLE 1 AROUND HERE]

Data from Table 1 reveal that stressors (and the rated impact of stressors on time/body capital) appear to have a cumulative relationship with course outcomes. Presence/absence of stressors was a significant predictor of course outcomes only for those reported as occurring pre-pandemic, and not after pandemic onset. Course outcomes for students who reported experiencing any life stressors pre-pandemic were about 10 percentage points lower than for those who reported no stressors. There was no significant

relationship between the mean rating of stressors with either pre- or post-pandemic-onset, in models with or without controls. Thus, measures of stressors that do not take into account the potential *cumulative* impact of stressors appear not to have a strong relationship with course outcomes, particularly when considering stressors that were reported as occurring after pandemic onset.

Because there was a high overall incidence of stressors, and because the number of stressors reported by students varied extensively (with some reporting 0 and some all 21 stressors), measures that better account for the cumulative nature of multiple stressors may be important to explore (Anders, et al., 2012). There is a significant relationship between the total number of stressors that students experienced and course outcomes for those stressors reported as occurring *prior to pandemic onset*, both in base and full models. Each additional reported pre-pandemic stressor decreased successful course completion by roughly 2 percentage points on average. However, there was no significant relationship between total number of stressors reported occurring *post-pandemic onset*, in either base or full models. Similarly, for every additional 100 points that a student reported pre-pandemic stressors as having an impact on their time/body capital (where each stressor was rated on a scale of 1 to 100, and the total for each stressor was summed), successful course completion was 3 percentage points lower. This relationship was significant for pre-pandemic factors in both base and full models, but only borderline significant for post-pandemic-onset factors in base models, and not significant for post-pandemic-onset factors in full models. Therefore, life stress that students reported as occurring prior to pandemic onset had a much larger and more significant relationship with course outcomes than those stressors reported as occurring post-pandemic onset.

Thus, results from Table 1 reveal two critical trends. First, the relationship between stressors and course outcomes appears to be cumulative, with course outcomes decreasing for each additional stressor reported. Outcomes also decrease in proportion to the cumulative impact that students reported stressors had on the time or energy that they had for their studies. Although prior research about the effects of significant life events on academic performance has been somewhat mixed, Anders et al. (2012) found that students who reported more life events reported poorer GPAs and therefore, concluded that negative effects are cumulative, which aligns with our findings (which expand on prior research by considering actual rather

than self-reported academic outcomes). This also reinforces our hypothesized model of how stressors may reduce students' time/body capital, and that this may explain some the relationship between stressors and academic outcomes (Figure 1). Both the cumulative incidence of stressors, and the rated impact of stressors on time/body capital had a strong and significant correlation with course outcomes for pre-pandemic stressors.

Second, the relationship between stressors reported to have occurred prior to pandemic onset had a larger and more significant relationship to course outcomes than those reported to have occurred post-pandemic-onset. It could be that stressors reported as occurring pre-pandemic-onset may have been more likely to be chronic, and some research has suggested that chronic stressors may have lasting long-term effects (Anders, et al., 2012; Lampert, et al., 2016; Mheidly, et al., 2020; Pascoe et al., 2020; Ribeiro, 2018). Another possible explanation could be that the increased flexibility offered by instructors and the online medium after the onset of the pandemic (Lederman, 2020) helped students experiencing stress to better keep up with their coursework (whereas this flexibility was not accessible to students facing stressors prior to the pandemic). It may be that both of these factors simultaneously play a role in explaining the differential relationship between stressors that were reported to have occurred pre- vs. post-pandemic-onset for community college students; this bears further investigation.

### **Limitations**

The CUNY community college where this study was conducted is more diverse than the average U.S. college (e.g., 90% non-white, 63% Pell recipients [a proxy for low-income]) and also located in downtown New York City. This makes it an excellent context in which to investigate stressors and college outcomes for marginalized groups; however, it does limit the groups to which results can be generalized.

This research is based on self-reported information collected after pandemic onset; thus, some students may not have reported stressors because of desirability bias (Dillman, et al., 2014) or recall bias (Althubaiti, 2016). However, given that responses were collected during the latter part/immediately after the spring 2020 term, memories were likely still relatively fresh and accurate. If anything, this study may



underreport the prevalence of stressors that students faced, particularly prior to the pandemic.

It is also important to note that the time periods prior to the pandemic and post-pandemic onset were not equivalent, warranting caution against making direct comparisons. Further, interpretive caution is warranted because this study is correlational, and therefore cannot be used to make causal inferences. However, the results of this study lay the groundwork for future causal research by revealing relationships between stressors and college outcomes that have not yet been well-documented.

### **Implications and Conclusion**

While stressors appeared to increase after pandemic onset (as expected), a noteworthy finding is that stressors that already existed pre-pandemic were better predictors of negative outcomes than stressors that first occurred post-pandemic. These results support existing pre-pandemic research indicating that community college students may experience high rates of stressful events (Anders et al., 2012; Edman et al., 2016; McBride, 2019). Our results link high incidence and self-ratings of stressor impact on time/body capital to negative course outcomes for community college students specifically, which extends previous higher education research (Pascoe et al., 2020; Ribeiro et al., 2018). Findings from this study also provide evidence consistent with our hypothesized model of how stressors may reduce time/body capital, which may in turn predict academic outcomes. This bolsters Hamza et al.'s (2021) assertion that institutions not only need to continue to support students with pre-existing stressors and mental health needs, but also to prioritize intervention programming, including reducing sources of stress (Fruehwirth et al., 2021). In line with DeBerard et al. (2004), our results point to the need for more research on the impact of personal and family health events (major stressors found even outside the pandemic context) on community college students' academic outcomes.

Our results revealed the importance of modeling stressors *cumulatively* rather than individually in future research. Studies that focus on individual stressors may reveal non-significant or weak relationships between stressors and outcomes, because they do not account for the potential cumulative impact of stressors. In this study, the size and significance of the relationship between stressors and outcomes varied

substantially based on whether stressors were operationalized as having a cumulative impact or not. The strongest relationship with college outcomes was revealed when considering the total number of stressors or total rated impact on time/body capital summed across all reported stressors. This extends prior research that suggested that the effect of stressors on health, wellbeing, and academic outcomes may be cumulative (Anders, 2012) by establishing a relationship between cumulative stressors and actual academic outcomes.

The focusing event of the pandemic revealed that ongoing life stressors may be quite salient for course completion more generally, even though they may often be hidden from view. The sudden onset of the COVID-19 pandemic brought attention to the potential negative impact of life stress on educational outcomes (Floyd, 2021). Future research should continue to investigate stressors even outside of the pandemic, extending this inquiry beyond community college students. Differential exposure to stressful experiences is a primary way that social inequalities in physical and mental health are produced (Thoits, 2010); we posit that this is also one way that inequalities in educational outcomes may be produced as well. Based on our findings, this may be a salient area of future research to address equity, since students who belong to marginalized groups are also more likely to be exposed to stressful or traumatic life events (Schulz et al., 2012).

The fact that stressors that occurred post-pandemic-onset were not significantly related to course outcomes may indicate that the increased flexibility of online learning and leniency of the pandemic conditions (Gelles, et al, 2020; Lederer et al., 2021) helped students cope better. Students increasingly expect faculty to provide such flexibility (Flaherty, 2023), and if this provides an increased sense of control over challenging situations, as has been found in earlier non-pandemic research on community college students (Guaracha, 2014), this could lead to improved outcomes. Normalizing the opportunity for increased flexibility so that it is accessible to students even after the pandemic is over might further support students experiencing stressors and improve outcomes. Such a change in practice has the potential to benefit students who are impacted by cumulative stressors over several semesters, which may be particularly important for STEM students, where prior content preparation has been shown to be critical (Hatfield et al., 2022). As this research shows, a high baseline incidence of stressors is present for community college

students even outside of pandemic conditions.

Overall, this study suggests that future research aiming to improve outcomes for community college students should investigate potential interventions to help students who face life stressors. Such interventions might include better access to mental healthcare on campus; a more robust referral system for mental health services; increased financial aid for those who need it; and more accessible and flexible policies for students to receive non-academic support and accommodations when life events interrupt their education. Accommodations such as alternative course requirements, self-paced courses, extensions, or other educational structures that provide increased flexibility for students experiencing stressful life events could improve the outcomes and wellbeing of many of the most vulnerable community college students.

### References

- Althubaiti A. (2016). Information bias in health research: Definition, pitfalls, and adjustment methods. *Journal of Multidisciplinary Healthcare*, 9, 211–217.  
<https://doi.org/10.2147/JMDH.S104807>
- Anders, S.L., Frazier, P.A., & Shallcross, S.L. (2012). Prevalence and effects of life event exposure among undergraduate and community college students. *Journal of Counseling Psychology*, 59(3). 449-457. <https://doi.org/10.1037/a0027753>
- Bird, K. A., Castleman, B. L., & Lohner, G. (2021). Negative impacts of the shift to online learning during the COVID-19 crisis: Evidence from a statewide community college system. (EdWorkingPaper: 20-299). <https://doi.org/10.26300/gx68-rq13>
- Clabaugh, A., Duque, J.F., & Fields, L.J. (2021). Academic stress and emotional well-being in United States college students following onset of the COVID-19 pandemic. *Frontiers in Psychology*, 12,1-8.  
<https://doi.org/10.3389/fpsyg.2021.628787>
- Conway, K.M., Wladis, C., & Hachey, A.C. (2021). Time poverty and parenthood: Who has time for college? *AERA Open*. <https://doi.org/10.1177/23328584211011608>

- D'Amico, D., Amestoy, M. E., & Fiocco, A. J. (2020). The association between allostatic load and cognitive function: A systematic and meta-analytic review. *Psychoneuroendocrinology*, 2020 Nov, 121, 104849. <https://doi.org/10.1016/j.psyneuen.2020.104849>
- Daymont, T., & Blau, G. (2011). Deciding between traditional and online formats: Exploring the role of learning advantages, flexibility and compensatory adaptation. *Journal of Behavioral and Applied Management*, 12(2), 156-175.
- DeBerard, M. S., Spielmans, G. I., & Julka, D. L. (2004). Predictors of academic achievement and retention among college freshmen: A longitudinal study. *College Student Journal*, 38(1), 66.
- Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). Internet, phone, mail, and mixed-mode surveys: The tailored design method (4<sup>th</sup> ed.). Wiley.
- Edman, J.L., Watson, S. B. & Patron, D.J. (2016). Trauma and psychological distress among ethnically diverse community college students, *Community College Journal of Research and Practice*, 40(4), 335-342. <https://doi.org/10.1080/10668926.2015.1065211>
- Enders, C. K. (2010). *Applied missing data analysis*. Guilford Press.
- Flaherty, C. (2023, June 2). Students expect professors to help ease their stress, mental health struggles. *Inside Higher Ed*. <https://www.insidehighered.com/news/student-success/health-wellness/2023/06/02/are-professors-responsible-easing-student-stress>
- Floyd, D. L. (2021). 2020, the year none of us predicted: COVID-19 and community colleges. *Community College Journal of Research and Practice*, 45(1), 1-7. <https://doi.org/10.1080/10668926.2020.1841649>
- Fruehwirth, J. C., Biswas, S., & Perreira, K. M. (2021). The Covid-19 pandemic and mental health of first-year college students: Examining the effect of Covid-19 stressors using longitudinal data. *PloS ONE*, 16(3), 1–15. <https://doi.org/10.1371/journal.pone.0247999>
- Gelles, L. A., Lord, S. M., Hoople, G. D., Chen, D. A., & Mejia, J. A. (2020). Compassionate flexibility and self-discipline: Student adaptation to emergency remote teaching in an integrated engineering energy course during COVID-19. *Education Sciences*, 10(11), 304.

<https://doi.org/10.3390/educsci10110304>

- Guaracha, A. (2014). Life stressors and non-cognitive outcomes in community colleges for Mexican/Mexican American men. *Journal of Progressive Policy and Practice*, 2(2), 187-194.  
<https://caarpweb.org/wp-content/uploads/2014/09/61.pdf>
- Hachey, A.C., Wladis, C. Manly, C.A. & Conway, K.M. (2022). Health challenges and community college student outcomes before and during the COVID-19 pandemic. *American Behavior Scientist*.  
<https://doi.org/10.1177/0002764222111829>
- Häfner, A., Stock, A., & Oberst, V. (2015). Decreasing students' stress through time management training: An intervention study. *European Journal of Psychology of Education*, 30(1), 81–94. <https://doi.org/10.1007/s10212-014-0229-2>
- Hamza, C., Ewing, L., Heath, N. L., & Goldstein, A.L. (2021). When social isolation is nothing new: A longitudinal study on psychological distress during COVID-19 among university students with and without preexisting mental health concerns. *Canadian Psychology*, 62(1), 20-30.  
<http://dx.doi.org/10.1037/cap0000255>
- Harris, N. B. (2018). *The deepest well: Healing the long-term effects of childhood trauma and adversity* (Reprint edition). Mariner Books.
- Hatfield, N., Brown, N. & Topaz, C. M. (2022). Do introductory courses disproportionately drive minoritized students out of STEM pathways? *PNAS Nexus*, 1(4), 1-10.  
<https://doi.org/10.1093/pnasnexus/pgac167>
- Heggeness, M. L., & Fields, J. M. (2020). *Working moms bear brunt of home schooling while working during COVID-19*. US Census Bureau. <https://www.census.gov/library/stories/2020/08/parents-juggle-work-and-child-care-during-pandemic.html>
- Hoffman, J.A., & Edward, A. Miller, E.A. (2020). Addressing the consequences of school closure due to COVID-19 on children's physical and mental well-being. *World Medical & Health Policy*, 12(3), 300-310. <https://doi.org/10.1002/wmh3.365>
- Huber, B. R. (2020). *COVID-19 shutdowns disproportionately affected low-income black*

households. Princeton University. <https://www.princeton.edu/news/2020/11/30/covid-19-shutdowns-disproportionately-affected-low-income-black-households>

Hung-Chu Lin , Paula L. Zeanah , Dianne F. Olivier , Megan A. Bergeron & Cindy

H. Liu (2022) Responding to the pressing yet unrecognized needs of student-parents amid the COVID-19 pandemic, *Journal of American College Health*, 70(8), 2276-2280, <https://doi.org/10.1080/07448481.2020.1870474>

Institute for Women's Policy Research. (2019). *Parents in college by the numbers: Today's student parent population*. <https://iwpr.org/iwpr-issues/student-parent-success-initiative/parents-in-college-by-the-numbers/>

Joo, S.-H., Durband, D.B., Grable, J. (2008). The academic impact of financial stress on college students. *Journal of College Student Retention*, 10(3), 287-305. <https://doi.org/10.2190/CS.10.3.c>

Kingdon, J.W. (2003). *Agendas, alternatives, and public policies*, 2<sup>nd</sup> ed. Longman.

Lampert, R., Tuit, K., Hong, K.I., Donovan, T., Lee, F. & Sinha, R. (2016). Cumulative stress and autonomic dysregulation in a community sample. *Stress*, 19(3), 269-79. <http://doi.org/10.1080/10253890.2016.1174847>

Lederer, A. M., Hoban, M. Lipson, S.K., Zhou. S. & Eisenberg, D. (2021). More than inconvenienced: The unique needs of U.S. students during the COVID-19 pandemic. *Health Education & Behavior*, 48(1), 14-19. <https://doi.org/10.1177/1090198120969372>

Lederman, D. (2020). How teaching changed in the (forced) shift to remote learning. *Inside Higher Ed*. <https://www.insidehighered.com/digital-learning/article/2020/04/22/how-professors-changed-their-teaching-springs-shift-remote>

Manly, C. A., & Wells, R. S. (2015). Reporting the use of multiple imputation for missing data in higher education research. *Research in Higher Education*, 56(4), 397–409. <https://doi.org/10.1007/s11162-014-9344-9>

Mathuews, K.B. (2018). *The working time-poor: Time poverty implication for working students' involvement*. [Doctoral dissertation, Ohio University]. OhioLINK Electronic Theses and

- Dissertations Center. [http://rave.ohiolink.edu/etdc/view?acc\\_num=ohiou1540829773983031](http://rave.ohiolink.edu/etdc/view?acc_num=ohiou1540829773983031)
- McEwen, B. S., & Stellar, E. (1993). Stress and the individual. Mechanisms leading to disease. *Archives of Internal Medicine*, 153(18), 2093–2101. [doi:10.1001/archinte.1993.00410180039004](https://doi.org/10.1001/archinte.1993.00410180039004)
- McBride, P. (2019). Addressing the lack of mental health services for at-risk students at a two-year community college: A contemporary review. *Community College Journal of Research and Practice*, 43(2), 146–148. <https://doi.org/10.1080/10668926.2017.1409670>
- McFadden, D. L. H. (2016). Health and academic success: A look at the challenges of first-generation community college students. *Journal of the American Association of Nurse Practitioners*, 28, 227-232. <https://onlinelibrary.wiley.com/doi/pdf/10.1002/2327-6924.12345>
- Mheidly, N., Fares, M. Y., & Fares, J. (2020). Coping with stress and burnout associated with telecommunication and online learning. *Frontiers in Public Health*, 8, 672. <https://doi.org/10.3389/fpubh.2020.574969>
- Naff, D., Williams, S., Furman-Darby, J. & Yeung, M. (2022). The mental health impacts of COVID-19 on PK-12 students: A systematic review of emerging literature. *AERA Open*, 8(1), 1-40. <https://doi.org/10.1177/233285842210847>
- Pascarella, E. T., Seifert, T. A., & Blaich, C. (2010). How effective are the NSSE benchmarks in predicting important educational outcomes? *Change: The Magazine of Higher Learning*, 42(1), 16-22. <https://doi.org/10.1080/00091380903449060>
- Pascoe, M. C., Hetrick, S. E., & Parker, A. G. (2020). The impact of stress on students in secondary school and higher education. *International Journal of Adolescence and Youth*, 25(1), 104-112. <https://doi.org/10.1080/02673843.2019.1596823>
- Peters, S. J., Langi, M., Kuhfeld, M., & Lewis, K. (2023). Unequal learning loss: How the COVID-19 pandemic influenced the academic growth of learners at the tails of the achievement distribution. (EdWorkingPaper: 23-787). <https://doi.org/10.26300/z2ek-4937>
- Ribeiro, Í. J. S., Pereira, R., Freire, I. V., de Oliveira, B. G., Casotti, C. A., & Boery, E. N. (2017). Stress and quality of life among university students: A systematic literature review. *Health Professions*

- Education*. Retrieved from <http://www.sciencedirect.com/science/article/pii/S2452301117300305>
- Schulz, A. J., Mentz, G., Lachance, L., Johnson, J., Gaines, C., & Israel, B. A. (2012). Associations between socioeconomic status and allostatic load: Effects of neighborhood poverty and tests of mediating pathways. *American Journal of Public Health, 102*(9), 1706–1714.  
<https://doi.org/10.2105/AJPH.2011.300412>
- Schwarzer, R., & Luszczynska, A. (2013). Stressful life events. In A. M. Nezu, C. M. Nezu, P. A. Geller, & I. B. Weiner (Eds.), *Handbook of psychology: Health psychology* (pp. 29–56). John Wiley & Sons, Inc.
- Shea, P., & Bidjerano, T. (2014). Does online learning impede degree completion? A national study of community college students. *Computers & Education, 75*, 103–111.
- Thoits, P.A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior, 51*(S), S41–S53. <https://journals.sagepub.com/doi/pdf/10.1177/0022146510383499>
- Villa Ross C. A., Shin H. B., Marlay M. C. (2021, October 27). *Pandemic impact on 2020 American Community Survey 1-year data*. United States Census Bureau. <https://www.census.gov/newsroom/blogs/random-samplings/2021/10/pandemic-impact-on-2020-ac-s-1-year-data.html>
- Wells, R. (2008). The effects of social and cultural capital on student persistence: Are community colleges more meritocratic? *Community College Review, 36*(1), 25.  
<https://doi.org/10.1177/0091552108319604>
- Winger, A. T. (2016). Information and communication technology use among college students as it relates to health and wellness: Phase I of a mixed methods study. *National Forum of Applied Educational Research Journal, 29*(3), 1–15.  
<http://www.nationalforum.com/Journals/NFAERJ/NFAERJ.htm>
- Wladis, C., Fay, M. P. & Hachey, A.C. (2024c). The holistic capital model: Time and body capital sources of inequity. *AERA Open, 10*. <https://doi.org/10.1177/23328584241255626>



- Wladis, C., Hachey, A. C., & Conway, K. (2018). No time for college? An investigation of time poverty and parenthood. *The Journal of Higher Education*, 89(6), 807-831.  
<https://doi.org/10.1080/00221546.2018.1442983>
- Wladis, C., Hachey, A.C., Conway, K.M. (2022). Time poverty: A hidden factor connecting online enrollment and college outcomes? *Journal of Higher Education*, 94(5).  
<https://doi.org/10.1080/00221546.2022.2138385>
- Wladis, C.W, Hachey, A.C. & Conway, K.M. (2023). Did emergency remote teaching and the COVID-19 pandemic exacerbate inequities? Considering institution type, gender and race/ethnicity. *The Journal of Higher Education*. <https://doi.org/10.1080/00221546.2023.2250696>
- Wladis, C., Hachey, A.C. & Conway, K. (2024a) It's about time: The inequitable distribution of time as a resource for college, by gender and race/ethnicity. *Research in Higher Education*.  
<https://doi.org/10.1007/s11162-024-09796-5>
- Wladis, C., Hachey, A. C., & Conway, K. M. (2024b). It's about time, part II: Does time poverty contribute to inequitable college outcomes by gender and race/ethnicity? *AERA Open*, 10.  
<https://doi.org/10.1177/23328584241237971>

## Tables

Table 1

*Student Ratings of Life Stressors as Predictors of Successful Course Completion During Spring 2020 Pandemic Term*

|                                            | Pre-Pandemic<br>Base Models |       |       |      | Post-Pandemic<br>Base Models |       |       |      | Pre-Pandemic<br>Full Models |       |       |      | Post-Pandemic<br>Full Models |       |       |      |
|--------------------------------------------|-----------------------------|-------|-------|------|------------------------------|-------|-------|------|-----------------------------|-------|-------|------|------------------------------|-------|-------|------|
|                                            | Coef.                       | SE    | p     | Sig. | Coef.                        | SE    | p     | Sig. | Coef.                       | SE    | p     | Sig. | Coef.                        | SE    | p     | Sig. |
| Any stressors?                             | -0.102                      | 0.051 | 0.046 | *    | 0.066                        | 0.121 | 0.586 |      | -0.082                      | 0.050 | 0.106 |      | 0.011                        | 0.122 | 0.928 |      |
| Total stressors                            | -0.015                      | 0.006 | 0.011 | *    | -0.011                       | 0.006 | 0.092 | ·    | -0.013                      | 0.006 | 0.034 | *    | -0.007                       | 0.007 | 0.287 |      |
| Mean time/energy for<br>reported stressors | -0.000                      | 0.001 | 0.794 |      | -0.002                       | 0.001 | 0.108 |      | -0.000                      | 0.001 | 0.809 |      | -0.001                       | 0.001 | 0.200 |      |
| Total time/energy per 100                  | -0.028                      | 0.010 | 0.006 | **   | -0.015                       | 0.008 | 0.049 | *    | -0.022                      | 0.010 | 0.025 | *    | -0.011                       | 0.008 | 0.147 |      |
| Observations                               | 402                         |       |       |      | 402                          |       |       |      | 402                         |       |       |      | 402                          |       |       |      |

*Note:* Stata's *regress* command was used to run all models. Data were multiply imputed ( $m = 25$ ).

Presence of life events (LE) reported as the proportion of respondents indicating "Yes."

Rated impact on time/energy for studies (scale 1-100) was set to 0 for students who did not have the indicated stressors.

Mean time/energy was the mean time/energy rating only across those stressors that were reported.

Total time/energy per 100 variable was computed by summing the total rated impact for each individual stressor and then dividing the total by 100 (scaling to allow for interpretability of model coefficients).

Full regression model covariates included gender, race/ethnicity, GPA, median income of home zip code, and age.

·  $p < 0.10$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$