College, Interrupted: Profiles in First-Year College Students Responses to the COVID-19 Pandemic Across One Year

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Abstract
First-year college students in the 2019-2020 academic year are at risk of having their mental health, identity work, and college careers derailed as a result of the COVID-19 pandemic. To assess emerging and evolving impacts of the pandemic on mental health/well-being, identity development, and academic resilience, we collected data from a racially, ethnically, geographically, and economically diverse group of 629 students at four universities across the US within weeks of lockdown, and then followed up on these students’ self-reported mental health, identity, and academic resilience three times over the following year. Our findings suggest that: 1) students’ mental health, identity development, and academic resilience were largely negatively impacted compared to pre-pandemic samples; 2) these alterations persisted and, in some cases, worsened as the pandemic wore on; and 3) patterns of change were often worse for students indicating more baseline COVID-related stressors.

Keywords
identity, mental health, well-being, academic success, college students, COVID

Introduction
The COVID-19 virus emerged in late 2019 and has resulted in over five million global deaths and drastic financial instability in the first 2 years of its impact (AP News, 2021). By 2020, community spread of the virus was evident in the United States, alongside increasing concern about its potential impact. Thus, early in the pandemic’s impact, by March of 2020, institutions of higher education across the United States were making rapid decisions to move to remote and online instruction, as well as to close residence halls and send students home. These decisions were motivated by the goal of minimizing the spread of the virus through reducing in-person, indoor contacts. The resulting upheaval in the lives of students had immediate and ongoing implications for students’ mental health and well-being (Charles et al., 2021; Howard et al., 2021; Li et al., 2021).

Because the COVID-19 pandemic was and continues to be unprecedented in the scope of the resulting societal upheaval, it is critically important to provide a broader understanding of the multiple ways in which lives have been and continue to be disrupted. For college students who were in their first year at the time of lockdown, the pandemic has fundamentally shifted every aspect of their lives. Whereas ongoing studies are examining specific causal and mechanistic models to explain specific outcomes, especially around mental health, we took a broader developmental approach to describing how multiple factors are simultaneously and longitudinally affecting college student’s personal and academic developmental trajectories in order to better understand the rippling disruptions of the ongoing pandemic. We focused our investigation on a multi-measure assessment of identity development and academic functioning as well as mental health and well-being. Our emphasis on identity development and academic functioning was motivated by the importance these hold for lifespan developmental outcomes, as well as the strong likelihood that the pandemic affected these processes.

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Our study extends the existing research in four ways. First, as noted, we argue that the pandemic likely disrupted multiple developmental processes across the college years, including identity development and educational attainment. The pandemic short-circuited typical developmental processes of exploration and commitment that shape identity development among college students, and likewise undermined the sense of belonging and academic self-efficacy that undergird academic achievement. Second, we focused on college students theoretically assumed to be most vulnerable: both developmentally vulnerable, in that we examined students in their first year of college when the lock-down occurred, and structurally vulnerable, in that we oversampled for financial vulnerability and first-generation status. We further assessed vulnerability in the context of the specific COVID-19 stressors that each student faced.

Third, we studied patterns over time, from when the pandemic began and initial shut-downs took place, through to the spring of 2021, with anticipation of a return to more usual activities. Thus we were able to examine how processes of vulnerability and resilience might unfold developmentally and contextually. Finally, we studied students across a variety of institutions of higher learning across the US, allowing us to examine what was generally true of students in ways that transcended particular institutional and regional dynamics.

Identity Development

A central developmental task for older adolescents transitioning to adulthood involves exploring potential identities and making provisional identity commitments (Erikson, 1968; Schwartz et al., 2013; Waters & Fivush, 2015). More mature identity development involves a combination of high levels of exploration and commitment (Carlsson et al., 2015; Eriksson et al., 2020; Luyckx, Klimstra, Duriez, et al., 2012; Marcia, 1966). Ideally, emerging adults build their identities by exploring careers, ideologies, relationships, spiritual traditions and more, and by making commitments that both guide and impact their future (Mitchell et al., 2021; Syed & McLean, 2016). Exploration involves both opening oneself up to new experiences as well as creating meaning from those experiences through narrative evaluation (e.g., Habermas & Bluck, 2000; Habermas & Reese, 2015; Luyckx et al., 2008; McLean & Pasupathi, 2012; Waters & Fivush, 2015). Those experiences and narrative evaluation processes occur within emerging adults’ relationships, forming a catalyst for both identity and intimacy-building (e.g., Habermas et al., 2010; Jennings & McLean, 2013; McLean & Pasupathi, 2011; Pasupathi & Hoyt, 2009; Waters & Fivush, 2015). Notably, exploration can involve breadth, depth, and also the possibility of ruminative or dysfunctional processes (Luyckx et al., 2008; Mannerström et al., 2017).

Mental Health

Existing findings examining the impact of COVID-19 on students emphasize mental health and well-being, and show increased anxiety and depression in the spring of 2020 (Howard et al., 2021; Hoyt et al., 2021; Kujawa et al., 2020; Li et al., 2021; Son et al., 2020). Unsurprisingly, students who reported more pandemic stressors reported more concurrent depression and anxiety (Howard et al., 2021; Kujawa et al., 2020), consistent with a host of earlier work showing that the extent of exposure to natural disasters and sociopolitical violence (assessed via proximity or number of stressors) is associated with the extent of disruption from the experience for students (Blanchard et al., 2005; Gil et al., 2005; Liverant et al., 2004; MacGeorge et al., 2004; Matt & Vázquez, 2008; Nagoshi et al., 2007). Thus, we included general mental health indices and a specific assessment of pandemic-related stressors in our design, allowing us to assess how mental health was adversely affected by the pandemic, and to capture variation between students in their experiences of specific pandemic-related stressors. Moreover, we included measures of positive well-being, providing an expanded view of the pandemic’s impacts on both adjustment and adversity.

We anticipated that our sample of first-year students, like many other groups studied, would be adversely impacted by the pandemic, and that these impacts would be more evident for students who reported more pandemic-specific stressors. Our assessments of mental health and well-being serve to provide a broad assessment of these concepts over time, and allowed us to establish that our sample was similar to other studied samples. However, our central questions were focused on the potential for the pandemic to impact developmental processes—particularly around identity and academic functioning, areas that have been less examined in extant work.
likely compromising initial identity commitments and altering the opportunities for exploration. However, the uncertainty that the pandemic engendered could also spark greater exploration, including more ruminative and dysfunctional exploration (e.g., Luyckx et al., 2008). For this reason, we did not make directional predictions about the impact of the pandemic on identity exploration.

To our knowledge, this study is the first in the literature to examine the impact of the pandemic on processes of identity exploration and commitment.

**Academic Functioning.** Identity exploration and commitment entails multiple, often intersecting, aspects of identity (Syed & McLean, 2016). For college students, a central aspect of the content of identity development that also impacts mental health revolves around academic functioning — ranging from adapting to the college context to exploring potential programs of study and committing to a degree program. Because our participants were at the beginning of their college careers, we chose to examine two indicators of academic flourishing in college - self-efficacy (Honicke & Broadbent, 2016), and a sense of belonging to the institution (Booker, Hernandez, et al., 2021; Hurtado & Carter, 1997). Both self-efficacy and belonging predict student success, including retention and graduation (Honicke & Broadbent, 2016; O’Keeffe, 2013; Tinto, 1999), and self-efficacy and belonging may be especially important for historically marginalized groups of students (e.g., Ellis et al., 2019; Garriott, 2020).

Existing findings suggest the pandemic initially disrupted both academic efficacy and sense of belonging (Alemany-Arrebola et al., 2020; Brown & Kafka, 2020; Camfield et al., 2021, but see Talsma et al., 2021), but, as yet, relatively little is known about longer-term impacts on academic functioning, or whether such impacts were disproportionately hard for students who could be characterized as structurally vulnerable, or those who were most affected by COVID-19 related stressors. Thus this study is also the first in the literature to examine indicators of academic functioning over time in students navigating college during the COVID-19 pandemic, and to address differences in student vulnerability.

**Structurally Vulnerable Students**

As suggested earlier, we reasoned that students in their first year of college during lockdowns would be particularly vulnerable to pandemic impacts on identity processes, and consequently we focused on that cohort. Further, we assessed individual differences in pandemic-specific stress exposure given findings showing that students with more pandemic-related stress exposure reported a greater impact of the pandemic on their functioning (Howard et al., 2021; Kujawa et al., 2020).

We further expected that the impact of the pandemic would fall disproportionately on students with fewer assets or more burdens for functioning at college. For example, other work has shown that pandemic effects on stress, well-being, and mental health were disproportionately more severe among female students and racial and sexual minority students (Hoyt et al., 2021; Kujawa et al., 2020). This disproportionate impact could be driven by accumulated, long-standing and concurrent structural inequities in resources and risk factors as well as systemic racism (e.g., Ellis et al., 2019; Greyerbiehl & Mitchell, 2014; Llamas & Consoli, 2012), some attributable to economic considerations and social power. However, Howard and colleagues (2021) showed no disproportionate initial impact of COVID-19 related shutdowns on vulnerable students, and speculated that efforts by Universities to support students may have been effective at preventing such differential impacts. Given these findings, we examined possible differential effects of the pandemic on students with financial vulnerabilities and students who were first-generation to college.

**How Does the Pandemic Affect Students Over Time?**

Beyond initial impacts, we followed our sample for 12 months to assess if and how these patterns might evolve over time. The pandemic was, and continues to be, a unique type of ongoing stressor in individual lives in that it is both a culturally shared experience, and one that is experienced uniquely by each individual through the 12 months of our study. Further, the actual duration and impact of the pandemic is a changing landscape, with moments where restrictions are lifted and life seems to be returning to whatever the new normal will be, and other moments where health and safety concerns spike, and restrictions are re-instituted. Thus the ongoing uncertainty is itself a stressor.

Many institutions, including those that were part of our project, remained mostly online and hybrid throughout the 2020-2021 academic year, although, presumably, professors and students gained experience in navigating new educational platforms; in-person courses were also affected by social distancing and masking in ways that altered connections between students and instructors. How might this shifting and uncertain timeframe, as well as developing capacities to navigate the “new normal” within education, influence students’ identity and mental health? Existing findings, focused largely on mental health, have yielded conflicting results. Kujawa and colleagues (2020) showed that symptoms of depression and anxiety declined from May of 2020 to June of 2020. Hoyt and colleagues (2021) also report general declines in anxiety or stress from April of 2020 to July of 2020. However, Hoyt and colleagues showed that anxiety increased for Black and mixed race/ethnicity students over that same time frame, perhaps due to the differential impact of the pandemic on those groups, and/or other co-occurring events and stressors such as the murder of George Floyd. As of yet, we have no reported data on longitudinal patterns of identity and academic functioning. Thus, this study provides critical
Our study represents an effort to document the initial and ongoing impacts of the pandemic on full-time, first-year students’ overall development, by assessing their identity development, academic functioning, and well-being across 1 year. We build on and extend existing work, to 1) examine the developmental tasks of identity development, especially around academic functioning, as well as to broaden our picture of well-being impacts; 2) follow participants from within weeks of lockdown, but also across a full year into the pandemic; 3) examine a broad group of students from four distinct institutions; and 4) understand whether the impacts of the pandemic varied for students with more vulnerability to pandemic-related historic risks for college success (i.e., financial need, first-generation status). It is important to underscore that our primary goals were descriptive rather than mechanistic in nature – to document patterns of impact of the pandemic over time. With a clearly documented phenomenon, researchers can begin to ask questions about underlying mechanisms and processes as well as about interventions, but such questions are premature in the absence of documentation of the phenomenon to be understood.

We conducted a four-wave longitudinal study of students recruited from four institutions across the United States. The initial wave of data collection took place in April/May of 2020, with additional waves in July 2020, October 2020, and April/May 2021. Our participants attended large flagship, research-intensive public universities, a mid-size public university; or a small, research-intensive private university, representing distinctive geographical locations, experiences, and student populations. To enable us to examine the impact of the pandemic, we identified baseline comparison data from pre-pandemic samples of college students, described more fully elsewhere.

Analyses and hypotheses were preregistered at https://osf.io/twg3e/?view_only=98e5b03e2e82493b9537ad04a02c8e3d. We asked two questions. First, did student reports of identity development, academic functioning, and mental health and well-being differ from comparable pre-COVID college samples? We hypothesized that the initial impact of the pandemic would result in reduced identity commitments, academic functioning, and mental health and well-being, relative to pre-pandemic peers (H1). Second, how did students’ identity development (including academic functioning), and mental health/well-being change over time? We hypothesized that identity development and academic functioning, and mental health/well-being would increase — from spring 2020 to spring 2021 (H2). We anticipated that the changes might be non-linear, given that wave two took place during the summer break and wave four occurred as vaccines became widely available and colleges announced intentions to re-open. We further hypothesized that (H2a) students with more exposure to COVID-19-related stressors, and (H2b) students endorsing more structural risks might show less recovery over time than their counterparts.1

Method

Participants

First-year college students (n = 633) were recruited during April 2020 from four institutions: a northwestern university (n = 105), a southeastern university (n = 85) and two midwestern universities (n = 200, n = 243). Each institution provided email contacts for students. Though we did not conduct a priori power analyses, we aimed to recruit 200 students from each site (800 total). Approximately 3100 contacts were randomly selected and emailed from these lists and 633 complete responses were provided by respondents at Time 1. When data were available (three of four sites), we attempted to oversample for Pell eligibility.

Most participants (99.4%) were ages 18 to 23 (M age = 18.75, range = 18–42). Most (n = 449, 71.3%) identified as cisgender women, with 170 (27%) cisgender males, and 11 (2%) genderqueer/non-binary participants (3 did not report). Most participants identified as Caucasian/White (65.9%, n = 409). The remaining participants identified as East/Southeast Asian (7.4%, n = 46), Black or African American (7.4%, n = 46), Latina or Latino (5.5%, n = 34), Multiracial (10.5%, n = 66), South Asian (2.3%, n = 14), Middle Eastern (.6%, n = 4), or Native American/Alaska Native (.3%, n = 2) Almost one third of participants (32.6%, n = 206) were eligible for a Pell Grant in 2019–2020, with 26.3% (n = 166) Pell Grant eligible in 2020–2021 academic year. A subset (21.4%, n = 135) identified as first-generation college students. We followed participants across August 2020 (n = 365), October 2020 (n = 385) and April/May 2021 (n = 335). Thirty-eight percent of participants (n = 243) participated in all four timepoints.

Procedures

Procedures were identical across institutions and met IRB approval at each institution. Email invitations to an internet-based survey were distributed during April/May 2020, and initial participants were invited to subsequent surveys via email during August 2020, October 2020, and April/May 2021. In each survey, participants first answered multiple narrative prompts about their experiences during the pandemic (not included in this study), and then completed an array of established self-report measures assessing mental health and well-being, identity, academic resilience, and recent stressors associated with COVID-19. Participants were given as much time as needed to complete the survey, and were offered a $10-15 Amazon gift card as compensation.
Measures

Comparison Data from Earlier College Samples. To address Research Question 1, we compared this sample’s self-reports to those of earlier comparable samples of college adults. Table 1 provides a brief description of each comparison sample. Where multiple comparison samples were available in the published literature, we prioritized sample comparability (first-year students, representation of structurally vulnerable groups; samples from similar institutions) and recency of data collection.

Recent COVID-19 Stressors. The COVID-19 Related Event Checklist (Kelton & Follmer Greenhoot, 2020), an adaptation of the Life Events Checklist developed by Johnson and McCutcheon (1980), captured COVID-19 related stressors through adding up the occurrence of 33 events (sample item = “As a result of COVID-19, I have not been able to see my family.”)

Identity. We used two scales to capture distinctive aspects of the identity development process. The Dimensions of Identity Development Scale (DIDS; Luyckx et al., 2008) captures the identity development process. We used two scales to capture distinctive aspects of family. Each subscale is captured by a composite score. We compared data from Baier, Markman, and Pernice-Duca’s (2016) examination of intentions to persist in college freshmen.

Mental Health and Well-Being. The 34-item Counseling Center Assessment of Psychological Symptoms (CCAPS) (Center for Collegiate Mental Health, 2018) captured mental health; subscales assess depression (6 items); generalized anxiety (6 items); social anxiety (5 items); academic distress (4 items); eating concerns (3 items); hostility (6 items); alcohol use (4 items) using a 5-point scale (0 = Not at all like me; 4 = Extremely like me). Pre-pandemic comparison data were derived from a validation study for this measure (Locke et al., 2012 Study 3).

Students completed a short form of the Ryff Well-Being Scale, with items completed on a six-point Likert scale (1 = Strongly disagree; 6 = Strongly agree). While this scale includes six subscales, shortened versions of this measure tend to have lower interitem reliability for the subscales compared to longer versions (i.e., 42-items, 54-items; Seifert, 2017). As a result, the composite score was used. Comparison data were drawn from a sample of 221 undergraduate students from Institution #1, a southeastern University (Booker, Brakke et al., 2021).

Students completed the Psychological Needs Scale (Ryan & Deci, 2000), which tested psychological adjustment in three areas: autonomy (7 items); competence (6 items); and relatedness (8 items). Items were completed on a 7-point scale (1 = Not at all true; 7 = Very true). Comparison data were drawn from data collected at Institution #4 (a Northwestern university; Lilgendahl et al., 2018; Study 2).

Analytical Plan

In preparing data, we formed a binary variable representing endorsed structural risk/vulnerability from students. Students were labeled as facing structural risks if they reported receiving need-based assistance (i.e., Pell grant) and/or being first generation for college. Nearly 40% of the sample (39.8%) met this criteria.

Table 2 presents the descriptive statistics and internal consistencies for each measure and each time point. For preliminary analyses, we first tested assumptions of data missing at random. We then tested whether participant demographics or T1 self-reports were associated with study attrition, using correlations and ANOVAs. We then examined correlations among variables.

To address our first research question, we conducted independent samples t-tests comparing our sample with data from previous college samples. Comparison samples are detailed in Table 1. To address our second research question, we employed hierarchical linear modeling to test for between- and within-person differences in student reports over time.
Results

Preliminary Analyses

Study Attrition and Missing Data Assumptions. A plurality of participants had complete responses across all four time waves (39.2%), with 18.1% of participants missing one follow-up response, 16.9% of participants missing two follow-up responses, and 25.8% of participants missing all three follow-up responses (mean missing follow-up responses = 1.29, SD = 1.23). Participants who missed one follow-up survey often returned to complete others, which further motivated our use of hierarchical linear modeling for hypothesis tests. The largest number of missing responses were at Time 4 (spring 2020; 47.7%). We used the R program (R Core Team, 2001) and MissMech package (Jamshidian et al., 2014) to test assumptions of data missing at random. Hawkins test was significant ($p < .001$), suggesting that the assumptions of normality and homoscedasticity were violated. Cisgender men had a higher number of missed follow-up surveys than cisgender women ($r = .10, p = .012$). Other demographics (i.e., age, racial background, first-generation status, need-based assistance, recruitment site) were not significantly associated the total number of missed surveys. Participants with higher T1 reports of depressive symptoms ($r = .12, p = .002$) and substance use ($r = .12, p = .003$) had higher total numbers of missed follow-up responses.

Data Preparation. Given the limited representation of non-traditional-age college students, four (4) participants ranging from 29-to-42-years-of-age were removed from the current sample.

While HLM approaches are robust to concerns of missing data and use all available observations within groups or within individuals over time (e.g., Gibson & Olejnik, 2003), we used data imputation to provide a fuller view of responses across time points. Data imputations were conducted for missing self-reports. One hundred data imputes were calculated using maximum likelihood estimation and reports were informed by existing self-report data and demographic data of age and gender. These imputations were aggregated to a final dataset for use. Descriptive statistics for the imputed data are presented in Supplemental Table 5. Imputed data were used for final hierarchical linear models, though identical models were also conducted with raw data and are presented in the Supplemental Materials.

Correlations among Outcome Measures. Correlations for all measures were conducted across time points, using pairwise deletion and capturing all available responses. Scale auto-correlations ranged from .34 to .73. Table 3 presents the partial correlations of all self-reports collapsed across time points, controlling for the influence of time. Correlations for raw observations are presented below the diagonal, whereas those for imputed observations are presented above the diagonal.

Hypothesis Tests

Were Student Self-Reports across Measures Different from Pre-COVID College Samples? Using independent $t$-tests, we compared participants’ raw Time 1 responses ($n = 629$) with comparison samples on measures of identity development on the DIDS (Turner et al., in preparation, Study 2) and EPSI (McLean, unpublished; Morrison-Cohen, 2012; study 1), and college self-efficacy (Baier et al., 2016), and mental health and well-being (Booker, Brakke et al., 2021; Lilgendahl et al., 2018; Study 2; Locke et al., 2012; Study 3). Table 4 presents these $t$-tests.

In terms of identity development, participants reported increased identity exploration with breadth, depth, and ruminative qualities, and lower levels of identity maturity relative to comparable pre-pandemic samples. Participants reported lower college-self-efficacy relative to comparable samples. Finally, in terms of mental health and well-being, just after the pandemic shutdown, participants reported more depression, GAD, social anxiety, eating concerns, and hostility relative to comparable pre-pandemic samples. They also reported lower levels of autonomy fulfillment relative to comparable pre-pandemic samples.

Did Students Report Changes in Identity Developtment, Academic Functioning, and Mental Health/Well-Being Over Time? We used hierarchical linear models (HLM) to address our second research question (whether students’ reports of adjustment change over time). Models were conducted using raw observations and imputed observations. We focus on results from the imputed observations, though the findings involving raw data are comparable and are presented in the Supplemental Materials. Time was treated as months from baseline (based on the dates survey periods closed). Both linear (0, 3, 5.5, 11.5) and curvilinear (0, 9, 30.25, 132.25) within-person effects were tested simultaneously. Participants’ case numbers were the random group variable. We used preliminary means-as-outcomes tests to determine initial intraclass correlations (supporting evidence of whether multilevel modeling is appropriate) and whether random effects of time should be included in models. Before considering other covariates, intraclass correlations were good-to-excellent for each outcome (ICCs = .51–.80). For most outcomes, random effects of time were near zero ($<.05$; see Supplemental Table 6), and random effects of time were not included in final models. We tested a set of unconditional growth models (models including the effects of time, but no other model covariates), and present the full table of those fixed effects in Supplemental Table 9. We focus on a final series of conditional growth models below. Model effects included continuous reports of baseline COVID stressor counts and a binomial indicator of structural risk (i.e., first-generation status, reported financial need), considered simultaneously on the overall intercept (between-person), linear effect of time (within-person), and curvilinear effect of time (within-person). Equations for these models are
Table 1. Descriptives of Peer College Adult Samples Compared in Research Question 1.

| Measure(s) Compared with the Current Sample | CCAPS-34 | Ryff Well-Being | Psychological Needs | College Self-Efficacy | DIDS Identity Development | EPSI Identity Development |
|--------------------------------------------|---------|-----------------|---------------------|------------------------|---------------------------|--------------------------|
| Institution                                | Large mid-Atlantic university from Locke et al., (2012), study 3 | Institution #1 from college, interrupted project; Southeastern university | Institution #4 from college, interrupted project; Northwestern university | Midwestern public university from Baier et al. (2016) | Institution #4 from college, interrupted project; Northwestern university | Institution #4 from college, interrupted project; Northwestern university |
| Sample size                                | N = 133 | N = 221         | N = 136             | N = 170                | N = 136                   | N = 260                   |
| Gender                                     | 74.7% women, 25.3% men | 55% women, 45% men | 67% women, 32% men | 65.8% women, 34.2% men | 67% women, 32% men | 71.8% women, 28.2% men |
| Race/Ethnicity                             | 82.6% White; 17.4% Not presented by Authors | 44% White; 9.05% Black; 27.1% Southeast Asian; 6.3% Latina/o; 5.4% Indigenous Asian; 2.3% Middle Eastern; 5.4% Multiracial | 74% White; 6% Black; 18% Asian; 10% Latina/o; 2% Native American; 2% Multiracial; 2% Not captured | 42.6% White; 17.7% Black; 20.3% Asian; 2.5% Latina/o; 8.9% Middle Eastern; 1.7% American Indian/Alaska Native; 0.4% Pacific Islander; 5.9% Not captured | 74% White; 6% Black; 18% Asian; 10% Latina/o; 2% Native American; 2% Multiracial; 2% Not captured | 75.3% White; 1.2% Black; 8.6% Asian; 2.3% Latina/o; 8.3% Multiracial; 1.5% Not captured |
| Age (in years)                             | M = 18.68 | M = 19.13 | M = 18.01 | 91.6% ages 17–18, 8.1% ages 19–20 | M = 18.01 | M = 19.28 |
| Academic year                              | 80% first years | N/A | 100% first years | 100% first years | 100% first years | 55% first years |

Note. For the Locke et al., (2012; Study 3) use of the CCAPS-34, participants completed the survey at two time points. The first measure of the scale was used for comparison.
provided in Supplemental Materials. The fixed effects for this final series of models are presented in Table 5. Figure 1 presents estimates for a set of identity development, academic adjustment, and mental health/well-being growth trends. Additional Figures are presented in the Supplemental Materials.

**COVID Stressor Count.** COVID stressors declined over time. This decline was larger for students who endorsed more stressors at baseline.

**Identity Development.** Between-person, but not within-person changes, were supported for global identity development. Students endorsing more COVID stressors at baseline reported poorer overall identity development on average. Students reported average declines in ruminative exploration. This change was not conditional on baseline COVID stressors or structural risk. Students also reported declines in identity commitment-making, exploration-in-breadth, and exploration-in-depth that were conditional on COVID stressors. These declines were larger for students reporting more baseline stressors. Lastly, students initially reported higher identification with identity commitment when they indicated structural risk at baseline; however, these students also reported larger declines in commitment over time. Figure 1 presents estimates for exploration-in-breadth (left column, top row) and identification with commitment (left column, bottom row).

**Academic Functioning.** For college self-efficacy, students higher in baseline stressors started lower in self-efficacy, reported larger initial increases in self-efficacy (though not meeting peers endorsing fewer stressors), followed by later declines into spring 2021. For college belonging, students reported declines on average over time. These declines were more pronounced for students endorsing more initial COVID-related stressors. Figure 1 presents estimates for college self-efficacy (center column, top row) and college belonging (center column, bottom row).

**Mental Health/Well-being.** There were between-person, but not within-person, effects supported for reports of depression, generalized anxiety, social anxiety, alcohol use, competence need fulfillment, and psychological well-being. Students endorsing more baseline stressors reported poorer outcomes on average (i.e., higher average depressive symptoms, lower average well-being). There was an average decline in reports of relatedness need fulfillment over time. This change was not

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**Table 2. Descriptive Statistics and Internal Consistencies of Raw Data Measures across Time Points.**

| Variable                          | T1, Late spring 2020, n = 629 | T2, Late summer 2020, n = 363 | T3, Late fall 2020, n = 383 | T4, Late spring 2021, n = 334 |
|-----------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| COVID stressors count             | 17.44 ± 4.57 ± .76           | 16.04 ± 4.77 ± .76           | 16.39 ± 4.97 ± .76           | 15.93 ± 5.51 ± .80           |
| Identity Development              |                               |                               |                               |                               |
| Commitment-making                 | 3.74 ± .90 ± .89             | 3.77 ± .90 ± .89             | 3.66 ± .93 ± .91             | 3.70 ± .89 ± .89             |
| Exploration-in-Breadth            | 3.99 ± .71 ± .82             | 3.94 ± .69 ± .80             | 3.87 ± .77 ± .84             | 3.87 ± .74 ± .85             |
| Ruminative exploration            | 3.60 ± .85 ± .78             | 3.49 ± .69 ± .80             | 3.49 ± .87 ± .81             | 3.47 ± .88 ± .80             |
| Identification w/Commitment       | 3.63 ± .82 ± .86             | 3.65 ± .81 ± .86             | 3.58 ± .87 ± .89             | 3.59 ± .85 ± .61             |
| Exploration-in-Depth              | 3.93 ± .59 ± .51             | 3.87 ± .60 ± .50             | 3.87 ± .60 ± .54             | 3.82 ± .60 ± .88             |
| Global identity development       | 3.56 ± .76 ± .85             | 3.52 ± .75 ± .79             | 3.44 ± .77 ± .85             | 3.42 ± .78 ± .86             |
| Academic Functioning              |                               |                               |                               |                               |
| College self-efficacy             | 6.11 ± 1.66 ± .92            | 6.34 ± 1.55 ± .91            | 6.00 ± 1.62 ± .91            | 5.99 ± 1.56 ± .90            |
| College Belongingness             | 6.99 ± 3.10 ± .95            | 6.43 ± 3.18 ± .96            | 5.85 ± 3.11 ± .96            | 5.39 ± 3.28 ± .97            |
| Mental Health/Well-being          |                               |                               |                               |                               |
| Depression                        | 1.26 ± .92 ± .75             | 1.13 ± .89 ± .80             | 1.22 ± .99 ± .85             | 1.16 ± .90 ± .83             |
| GAD                               | 1.37 ± .79 ± .72             | 1.26 ± .82 ± .76             | 1.34 ± .84 ± .71             | 1.36 ± .82 ± .68             |
| Social anxiety                    | 1.83 ± .93 ± .66             | 1.89 ± .91 ± .67             | 1.89 ± .93 ± .69             | 1.95 ± .92 ± .66             |
| Academic distress                 | 1.92 ± 1.02 ± .66            | 1.39 ± .97 ± .62             | 1.89 ± 1.01 ± .71            | 1.93 ± 1.02 ± .67            |
| Eating concerns                   | 1.35 ± 1.12 ± .77            | 1.20 ± 1.09 ± .78            | 1.20 ± 1.12 ± .81            | 1.17 ± 1.10 ± .78            |
| Hostility                         | .91 ± .74 ± .79              | .83 ± .71 ± .78              | .83 ± .74 ± .79              | .82 ± .66 ± .76              |
| Alcohol use                       | .85 ± .77 ± .50              | .73 ± .50 ± .47              | .81 ± .82 ± .56              | .77 ± .76 ± .48              |
| Competence                        | 4.73 ± 1.16 ± .73            | 4.84 ± 1.15 ± .73            | 4.64 ± 1.16 ± .73            | 4.65 ± 1.19 ± .76            |
| Autonomy                          | 4.75 ± 1.10 ± .76            | 4.82 ± 1.04 ± .74            | 4.85 ± 1.05 ± .73            | 4.86 ± 1.07 ± .75            |
| Relatedness                       | 5.55 ± .96 ± .80             | 5.46 ± .99 ± .81             | 5.43 ± .96 ± .77             | 5.38 ± 1.04 ± .83            |
| Well-being                        | 4.16 ± .68 ± .70             | 4.19 ± .71 ± .74             | 4.09 ± .72 ± .73             | 4.05 ± .71 ± .69             |

Note. Skewness was ∼1.00 for some follow-up measures of Alcohol Use and Hostility but were <1.00 for all other measures.
| Variable                        | 1         | 2         | 3         | 4         | 5         | 6         | 7         | 8         | 9         | 10        | 11        | 12        | 13        | 14        | 15        | 16        | 17        | 18        | 19        | 20        |
|--------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Count of COVID stressors       | −.03      | 0.10      | 0.19      | 0.19      | −.21      | −.26      | −.11      | 0.39      | 0.41      | 0.21      | 0.47      | 0.35      | 0.35      | 0.32      | −.23      | −.26      | −.08      | −.21      |           |
| Identity Development           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Commitment-making              | −.05      | −.17      | −.51      | 0.81      | 0.13      | 0.46      | 0.24      | 0.16      | −.15      | −.10      | −.12      | −.22      | −.11      | −.13      | −.12      | 0.30      | 0.16      | 0.14      | 0.35      |
| Exploration-in-Breadth         | 0.10      | 0.17      | 0.53      | −.13      | 0.45      | −.07      | 0.09      | 0.07      | 0.02      | 0.06      | 0.01      | 0.07      | 0.02      | 0.06      | 0.02      | 0.06      | 0.02      | 0.03      | 0.13      |
| Ruminative exploration         | 0.20      | −.50      | 0.51      | −.54      | 0.37      | −.54      | −.27      | −.15      | 0.31      | 0.28      | 0.28      | 0.34      | 0.27      | 0.24      | 0.21      | −.38      | −.27      | −.18      | −.39      |
| Identification w/Commitment    | −.11      | 0.80      | −0.13     | −.53      | 0.09      | 0.56      | 0.32      | 0.24      | −0.24     | −0.14     | −0.24     | −0.30     | −0.18     | −0.17     | −0.15     | 0.43      | 0.31      | 0.23      | 0.45      |
| Exploration-in-Depth           | 0.16      | 0.12      | 0.43      | 0.36      | 0.08      | −0.04     | 0.01      | 0.04      | 0.09      | 0.15      | 0.11      | 0.15      | 0.13      | 0.04      | 0.09      | 0.00      | −0.01     | 0.14      | 0.03      |
| Global identity development    | −.23      | 0.46      | −0.07     | −.54      | 0.55      | −0.04     | 0.52      | 0.39      | −0.61     | −0.46     | −0.56     | −0.51     | −0.47     | −0.45     | −0.37     | 0.70      | 0.57      | 0.50      | 0.74      |
| Mental Health/Well-being       |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |           |
| Depression                     | 0.39      | −0.17     | 0.03      | 0.33      | 0.26      | 0.09      | −0.62     | −0.39     | −0.29     | 0.67      | 0.56      | 0.56      | 0.79      | 0.64      | 0.64      | 0.58      | 0.53      | −0.49     | −0.60     |
| GAD                            | 0.40      | 0.12      | 0.06      | 0.29      | 0.17      | 0.13      | 0.47      | 0.31      | −0.18     | 0.67      | 0.42      | 0.52      | 0.58      | 0.59      | 0.70      | 0.39      | 0.34      | −0.23     | 0.40      |
| Social anxiety                 | 0.23      | 0.12      | 0.01      | 0.28      | 0.24      | 0.10      | −0.56     | −0.32     | −0.31     | 0.57      | 0.45      | 0.39      | 0.46      | 0.39      | 0.31      | −0.49     | −0.46     | −0.45     | −0.53     |
| Academic distress              | 0.46      | −0.23     | 0.07      | 0.35      | 0.32      | 0.14      | −0.51     | −0.48     | −0.22     | 0.56      | 0.51      | 0.39      | 0.48      | 0.50      | 0.42      | −0.56     | −0.39     | −0.22     | −0.46     |
| Eating concerns                | 0.36      | 0.13      | 0.03      | 0.29      | 0.19      | 0.13      | −0.48     | −0.32     | −0.19     | 0.79      | 0.58      | 0.47      | 0.48      | 0.54      | 0.68      | −0.47     | −0.41     | −0.34     | −0.46     |
| Hostility                      | 0.35      | 0.13      | 0.04      | 0.24      | 0.17      | 0.05      | −0.45     | −0.29     | −0.18     | 0.65      | 0.59      | 0.41      | 0.50      | 0.54      | 0.56      | −0.43     | −0.45     | −0.41     | −0.50     |
| Alcohol use                    | 0.31      | 0.12      | 0.07      | 0.23      | 0.16      | 0.09      | −0.39     | −0.25     | −0.12     | 0.64      | 0.69      | 0.34      | 0.42      | 0.67      | 0.57      | −0.34     | −0.29     | −0.20     | −0.37     |
| Competence                     | −0.23     | 0.30      | 0.01      | −0.38     | 0.43      | 0.00      | 0.68      | 0.50      | 0.36      | −0.57     | −0.39     | −0.48     | −0.55     | −0.46     | −0.42     | −0.34     | −0.65     | 0.53      | 0.69      |
| Autonomy                       | −0.26     | 0.18      | 0.03      | −0.27     | 0.32      | 0.00      | 0.56      | 0.42      | 0.34      | −0.52     | −0.34     | −0.46     | −0.39     | −0.43     | −0.43     | −0.29     | 0.63      | 0.59      | 0.63      |
| Relatedness                    | −0.11     | 0.15      | 0.11      | −0.20     | 0.24      | 0.10      | 0.50      | 0.42      | 0.43      | −0.49     | −0.26     | −0.46     | −0.23     | −0.35     | −0.39     | −0.22     | 0.53      | 0.58      | 0.65      |
| Well-being                     | −0.23     | 0.33      | 0.03      | −0.38     | 0.44      | 0.01      | 0.73      | 0.44      | 0.35      | −0.61     | −0.41     | −0.54     | −0.47     | −0.48     | −0.50     | −0.38     | 0.67      | 0.61      | 0.63      |

Note. Correlations are collapsed across time points and control for the effect of time. Correlations below the diagonal are for all available observations using raw data (observations = 1'705). Correlations *r* ≥ .07 were significant at the *α* = .01 level. Correlations above the diagonal are only for imputed observations (observations = 2'524). Correlations *r* ≥ .06 were significant at the *α* = .01 level.3
conditional on baseline stressors or structural risk. Mental health challenges of academic distress, eating concerns, and hostility showed within-person differences conditional on baseline COVID stressors. Students endorsing more stressors reported more baseline concerns, larger initial declines in these concerns, followed by a later worsening of challenges into 1-year follow-up. Figure 1 presents this with estimates of academic distress (right column, top row). One report of well-being in autonomy need fulfillment showed a comparable trend, with students endorsing more distress reporting lower initial autonomy, followed by a larger increase in early autonomy, followed by a larger decline at 1-year follow-up (see Figure 1, right column, bottom row).

Follow-up Model Tests. Follow-up tests of bias sensitivity in model effects at the $\alpha = .05$ level suggested most effects of COVID stressor count and structural risk on outcomes were at low risk for bias, or that a small change in observations could change our interpretation of the effect for rejecting the null hypothesis. However, in select instances (i.e., linear time effect for hostility, curvilinear effect of COVID stressor count on college belonging), effects would be interpreted differently if fewer than 10% of observations were replaced with null values, indicating greater sensitivity. These effects were limited and are indicated in Table 5. The inclusion of baseline COVID-related stressors and structural risk indicators significantly improved the model fit and variance explained given the increase in model complexity ($\Delta df = 6$) for most outcomes. Supplemental Table 10 present the full model deviance tests for imputed data. The effect sizes for significant fixed effects are presented in Supplemental Table 11.

Discussion

In a large multi-university sample we followed full-time first-year students beginning just after the COVID-19 shutdown for 1 year, assessing their identity development, academic functioning, and mental health and well-being. Our goal was to assess the impact of COVID-19 on this generation of students across a breadth of indicators of developmental processes, and our findings showcase the broad and abiding effects of COVID-19, as well as revealing a surprising homogeneity in those impacts.

Previous research on the effects of COVID-19 on college students focused on mental health and well-being, and our results confirm and extend these findings. Our findings revealed that the pandemic was associated with increased depression, general anxiety, social anxiety, eating concerns, academic distress, and hostility, as well as decrements in students’ reports of meeting basic psychological needs for autonomy, relative to pre-pandemic samples. Although our pre-pandemic data were drawn from a comparison sample, our analyses revealed pandemic impacts comparable to those observed by Howard and colleagues for mental health, who

### Table 4. T-tests between Current and Previous Student Reports of Mental Health, Identity Development, and Academic Functioning.

| Measure                                | Current Sample | Comparison Sample | t     | M Diff | SE Diff | d    | p     |
|----------------------------------------|----------------|-------------------|-------|--------|---------|------|-------|
| **Identity Development**               |                |                   |       |        |         |      |       |
| Commitment-making                      | 3.74 .90 629   | 3.65 1.08 136     | 1.02  | .09    | .09     | .15  | .309  |
| Exploration-in-Breadth                 | 3.99 .71 629   | 3.75 .78 136      | 3.51  | .24    | .07     | .33  | .001  |
| Ruminative exploration                 | 3.60 .85 629   | 3.07 1.09 136     | 6.25  | .53    | .08     | .59  | .000  |
| Identification w/Commitment            | 3.63 .82 629   | 3.65 .90 136      | −.25  | −.02   | .08     | −.02 | .800  |
| Exploration-in-Depth                   | 3.93 .39 629   | 3.67 .66 136      | 4.56  | .26    | .06     | .43  | .000  |
| Global identity development            | 3.56 .76 629   | 3.98 .68 260      | −7.72 | −.42   | .05     | −.57 | .000  |
| **Academic Functioning**               |                |                   |       |        |         |      |       |
| College self-efficacy                  | 6.11 1.66 629  | 7.45 1.24 170      | −9.81 | −1.34  | .137    | .85  | .000  |
| **Mental Health/Well-being**           |                |                   |       |        |         |      |       |
| Depression                             | 1.26 .92 629   | .70 .78 133        | 6.54  | .56    | .09     | .62  | .000  |
| GAD                                    | 1.37 .79 629   | .86 .86 133        | 4.05  | .31    | .08     | .39  | .000  |
| Social anxiety                         | 1.85 .93 629   | .87 .97 133        | 3.53  | .31    | .09     | .34  | .000  |
| Academic distress                      | 1.92 1.02 629  | .84 .93 133        | 8.35  | .79    | .09     | .80  | .000  |
| Eating concerns                        | 1.35 1.12 629  | 1.25 1.08 133      | 9.94  | .10    | .11     | .09  | .347  |
| Hostility                              | .91 .74 629    | .59 .62 133        | 4.65  | .32    | .07     | .44  | .000  |
| Alcohol use                            | .85 .77 629    | .96 .86 133        | 3.65  | −.26   | .07     | −.14 | .000  |
| Competence                             | 4.73 1.16 629  | .94 1.36           | −.19  | −.02   | .11     | −.02 | .851  |
| Autonomy                               | 4.75 1.10 629  | .83 1.36           | −2.50 | −.25   | .10     | −.24 | .013  |
| Relatedness                            | 5.55 .96 629   | 5.45 1.09 136      | 1.07  | .10    | .09     | .10  | .283  |
| Well-being                             | 4.16 1.68 629  | 4.20 .64 221       | −.79  | −.04   | .05     | −.06 | .432  |

Note. Tests assumed equal variances. For the current sample, raw observation from Time 1 (spring 2020) were used.
did have pre-pandemic assessments of their sample. Our longitudinal analyses demonstrated that these decrements either remained stable over time (depression, social anxiety, substance use, sense of autonomy), or worsened (general anxiety, academic distress) over the course of the study. In the case of overall well-being, students actually showed emerging negative impacts across the study. Thus, the pandemic created an ongoing, and in some cases worsening, impact on student mental health and well-being, consistent with findings from other scholars (Howard et al., 2021; Hoyt et al., 2021; Kujawa et al., 2020; Li et al., 2021; Son et al., 2020).

Our findings are important in placing the enduring and increased distress among college students in a larger developmental context of identity development and educational trajectories. For identity development, our analyses indicated that the pandemic was initially associated with increased identity exploration in breadth, depth, and ruminative ways; and it was associated with lower overall identity achievement. As we continued to follow the sample, we observed further declines in overall identity maturity. In conjunction with the initially elevated levels of exploration, this pattern suggests a stalling of identity development with unclear implications. As noted above, college in general, and especially the first year of college provides students opportunities to “try on” different possible identities, discovering new pathways and new challenges (Côté, 2006). The pandemic seems to have curtailed overall identity achievement (Rosenthal et al., 1981), but in complex ways. While identity commitments and identity achievement were negatively impacted by the pandemic, identity exploration presents a more complex picture. Participants initially reported increases in identity exploration in breadth, depth, and ruminative ways relative to pre-pandemic comparison groups. However, these forms of identity exploration declined across the year, raising questions of whether participants returned to a developmentally more typical level of identity exploration. T-test comparisons for Time four reports of identity exploration with the comparison samples presented in Table 1 showed that participants remained elevated, relative to comparable pre-pandemic groups, in identity exploration in depth and in ruminative identity exploration even at Time 4. Thus, students continued to be engaged in higher than average levels of identity exploration compared to pre-pandemic samples, and at least some of this exploration was maladaptive. The pandemic altered...
opportunities for experience-based exploration and may have also called into question students’ emerging visions for their future, leading to increased levels of both healthy and unhealthy forms of identity exploration. As those constraints persisted, some aspects of exploration (broad) returned to more typical levels, but other elements of exploration—including the unhealthy, ruminative exploration—persisted, consistent with declines in overall identity development.

While it is too early to determine whether or how such impacts will affect our participants over the long term, existing findings suggest that elevated ruminative exploration is associated with risk for depression and other psychopathology (e.g., Becht et al., 2019; Claes et al., 2018). Even as students enter post-vaccine life, maintaining elevated levels of ruminative identity exploration could undermine their capacity to engage in positive identity exploration and commitment. Moreover, identity work early in college likely provides an important basis for future identity work, and thus the pandemic might have an enduring negative impact on identity development, as well as for other developmental tasks for which identity work is foundational (Mitchell et al., 2021). Alternatively, given the lifelong, idiographic nature of identity development, participants may meet these challenges with resilience or even increased growth (Mitchell et al., 2021; see also Elder, 1998). The consequences of the pandemic on identity development remain a pressing issue for study.

Importantly, identity processes are a critical aspect of students’ academic functioning, as they navigate who they are and who they want to be professionally and personally. An academic distress measure drawn from our mental health/well-being assessments showed curvilinear, worsening change across the extent of our study. In line with that, our assessment of college self-efficacy showed initial deficits as the pandemic began, followed by worsening at the later points in our project. The latter finding is notable because it was evident in spite of signs of returning to in-person instruction on many campuses. Note that academic efficacy is a key factor for the successful navigation of a college career (e.g., Tinto, 1999), and our findings do not bode well for the educational outcomes of students affected by the pandemic. As a whole, our findings are also critical for thinking about the academic success of our students, given that students dealing with difficult mental health issues and a prolonged and in some cases problematic level of identity exploration may experience difficulties in committing to majors and career trajectories, and difficulty in doing the hard work to succeed academically.

The continuing and largely negative impact of the pandemic on our sample’s identity development, educational progress, and mental health is a real concern, and it is consistent with the general developmentally vulnerable status of our participants. Our investigations of individual differences in the experience of the pandemic focused on variations in
individual pandemic-associated stressors at the outset of the pandemic, and on membership in groups with structural vulnerability to pandemic effects. These findings suggested, perhaps unsurprisingly, that those who endorsed higher levels of pandemic stressors initially also reported greater overall impacts of the pandemic on mental health and well-being, and on identity. Higher initial pandemic stress was also associated with slightly different patterns of change over time in academic self-efficacy, and the mental health indicator of academic distress, and as might be expected, these patterns involved an overall decline across the full year of the study. Finally, we found only a single difference based on structural vulnerability, and that was that students with structural vulnerabilities endorsed greater identification with their existing identity commitments at the beginning of the pandemic.

That the pandemic did not appear to impact students with structural vulnerabilities more severely than their more privileged counterparts is contrary to our hypotheses, but consistent with the findings of others (e.g., Howard et al., 2021) and there are several possibilities. One, it may be that students who are more vulnerable on college campuses actually have more support within their home environments (e.g., Garriott, 2020). Two, many college campuses invigorated their student support services during the pandemic and this may have resulted in better support for all students. Three, we note that all student groups in our study displayed higher levels of distress than pre-pandemic samples beginning at the first time point, and thus it may be that the pandemic led to such high levels of distress among all students that more commonly found group differences paled in comparison. Finally, it is possible the pandemic provides a context in which structural vulnerabilities are associated with resilience to the types of impacts of the pandemic, obscuring differences between structurally vulnerable students and their less vulnerable counterparts (e.g., Knight, Gatz, Heller, & Bengston, 2001).

Limitations and Strengths

Although we began with a large and diverse sample across four distinct institutions, we did have attrition. We do not know why students dropped, but it is perhaps remarkable that we had complete data across all four time points for 38% of the sample. Further, because we initially oversampled for vulnerable groups, we were able to maintain enough power to assess possible group differences. And, like everyone else, when we planned this study, we assumed that our 1-year assessment point would occur post-pandemic. That the pandemic endured both allowed us to ascertain the depth and the longevity of distress it engendered, but also did not allow us to examine post-pandemic recovery or resilience. Thus, continued follow-ups with this sample could provide important insights into a complex, multi-faceted disruption to development.

Further, we focused on self-report measures of functioning. Such measures are established in the literature, and provide a broad strokes picture of the impact of the pandemic, but they do not allow a more nuanced exploration of how students made sense of their changed and constrained circumstances. We also collected narrative data that will enable that exploration.

Most importantly, the pandemic has presented a very different type of stressor relative to previous research, which has focused mostly on singular events and their consequences (e.g. 9/11 – see Adler & Poulin, 2009; Bosco & Harvey, 2003; Bosco & Harvey, 2008; Silver & Silver, 2003); the pandemic is a shorthand description for multiple ongoing, interlocking, and fluctuating personal, family, health, financial, societal, and educational stressors that are persisting to date (spring 2022). It is simply a different beast compared to other topics of study.

Beyond the pandemic itself, other momentous social and political events – the murder of George Floyd, the 2020 presidential election, the Capitol insurrection, ongoing threats to democracy, rising threats of misinformation, and intense, unusual, weather events related to climate change also coincided with the pandemic – making this a particularly complex and stressful period. While the present paper does not address these additional complexities, we did ask participants to report on the impact of other, non-pandemic events, and those data will also help illuminate some of the complex disruptions documented here.

Implications and Conclusions

Overall, our findings suggest that recovery from pandemic-related developmental disruptions is likely to be long-term process with implications for students that cut across domains of functioning. The increasing depression and anxiety among this population may continue to be a problem even as adjustment to post-pandemic life begins. The identity development impacts have unknown implications for these students, and their academic confidence and sense of belonging on campus is shaky. One applied implication is that, as these students return to campus, faculty and administrators could act to provide structured opportunities for getting back on track in terms of positive personal and academic identity exploration (e.g., see Camfield et al., 2021). During the pandemic, these students ended up living in a transitional state between dependence on parental structure and lack of autonomy alongside the need to maintain their own academic and social schedule without the institutional structures that on-campus life provides. These students were also simultaneously watching even larger social, political, and physical systems and structures falter. How this will impact these students’ academic, personal and professional trajectories is an open question.

It may also impact the rest of us. For years, transitional markers that signify the achievement of independent adulthood have been moving later (e.g., Arnett, 2000; Arnett, 2014; Côté & Bynner, 2008). While the cause of those shifts is debated, the pandemic and its labor and economic fallout – as well as other events that co-occurred with the pandemic – underscore that this generation’s rocky entry to the college years
occurs in the context of growing uncertainty about the attainability and even nature of traditional conceptions of adulthood. The kids were interrupted, and they aren’t yet alright.

**Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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**Open Practices**

Raw data and relevant syntax for this manuscript is openly available for download at https://osf.io/twg3e/?view_only=98e5b03e2e82493b9537ad04a02e83d. There were no qualitative materials related to this manuscript. There was a preregistration for this manuscript, which is available at https://10.17605/OSF.IO/SYG9N. We did not deviate from the major research questions of this pre-registration.

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**Supplemental Material**

Supplemental material for this article is available online.

**Notes**

1. We originally proposed a third question concerning person-level patterns of change over time. We did not find that additional person-level patterns provided novel information from variable-centered analyses and kept focus on these first two questions for the sake of space. The person-level analyses are reported briefly in supplemental materials.
2. We do not know if the reason for study attrition was that students completely left their universities. We note that at the Time 1, 99.5% of students reported still being enrolled and planning to continue their studies.
3. **Supplemental Tables** 1 through 4 provide correlations within time points for the raw data.

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