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Impacts of the COVID-19 Transition to Remote Instruction for University Students

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Abstract

In March 2020, 234 students (77.50% female; 63.09% second-year, 28.33% third-year) enrolled in a psychological statistics course at a public university described their experiences during the first week of the COVID-19-related transition to remote instruction. Qualitative responses indicated 13 common concerns including financial, housing, and food insecurity; social life concerns; distress; sleep difficulties; and academic problems. Students with lower socioeconomic status were more likely to experience financial instability, food insecurity, and difficulty focusing academically.

Keywords

socioeconomic status; maternal education; emotion; college students; transitions

Decades of research regarding the experiences, concerns, and needs of vulnerable students have identified educational transitions as a critical period for students (e.g., Bennett & Okinaka, 1990; Evans et al., 2018; Pittman & Richmond, 2008). Educational transitions, such as the transition from high school to college or from community college to a four-year university, can be stressful and acutely impact students' academics as well as social well-being and living circumstances (e.g., Gall et al., 2000). Within recent years, the global outbreak of COVID-19 has forced students to endure an unparalleled transition to remote instruction. Compared to other well-documented transitions, the transition to remote instruction due to COVID-19 was abrupt, unprecedented, and occurred partway through the academic year. According to Schlossberg's transitional model (Schlossberg, 2011), unanticipated transitions and concurrent stress including academic stress can cause transitions to be particularly challenging (Barclay, 2017). The stark pivot to remote learning that occurred in 2020 constitutes a novel transition in our education's history, and one that for many students was unanticipated and coincided with intense stress.

Although the transition to remote instruction was stressful for students of all ages (Copeland et al., 2021; de Miranda et al., 2020), this transition imposed unique challenges for

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university students. For instance, unlike K-12 students, many university students were living independently and away from their families. The shutdown of on-campus instruction meant deciding between either staying isolated in place, or finding a way to safely move home to their families. University students may have also had employment and other obligations (e.g., research assistantships, residential advisor positions, student-government responsibilities) on or around campus that were heavily impacted by campus closures. Upon returning home, many had additional responsibilities such as taking care of family or contributing financially because of the pandemic. On top of these concerns, university students were also completing rigorous coursework, and the campus closures coincided with midterms and finals at many colleges (Petillion & McNeil, 2020). With the stress of the pandemic, living situations, and academic coursework, COVID-19 and the transition to remote instruction likely have had a strong impact on the well-being of university students (Lederer et al., 2020).

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Furthermore, student-level factors such as socioeconomic status have been posited to influence students' capacity for coping with transitions (Schlossberg, 2011), which may be particularly salient given financial implications of the COVID-19 pandemic for students' livelihood (i.e., moving costs, electronic equipment, student and parent employment). Reports on the effects of COVID often suggested that the virus "does not discriminate" but this view has been decried as dangerous for failing to recognize how the COVID-19 pandemic may have disproportionately impacted people with lower socioeconomic status (Patel, et al., 2020, p.110). In line with the Reserve Capacity Model, people of lower socioeconomic status experience more stressful life circumstances and tend to have fewer resources to cope with stressors (Gallo & Matthews, 2003). These differences in life circumstances contribute to poorer health among people of lower socioeconomic status, the consequences of which are evident as early as young adulthood (e.g., Cohen et al., 2010; Jackson et al., 2004).

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Unsurprisingly, existing disparities in health have been exacerbated by the pandemic. People of lower socioeconomic status were at higher risk for exposure, as they had jobs that were less accommodating, involved higher person-to-person contact, and were more likely to rely on public transit (Lamb et al., 2020; Rollston & Galea, 2020). Additionally, they were more likely to live in communities with fewer resources for testing, treating, and reducing the spread of COVID-19 early in the pandemic. For instance, counties with higher socioeconomic status in the U.S. have experienced less spread, fewer positive cases, and fewer deaths relative to counties with lower socioeconomic status, especially when information and resources have become available (e.g., Clouston et al., 2020; Wadhwa et al., 2020).

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Periods of crisis not only disproportionately impact marginalized groups including those of lower socioeconomic status who may lack the financial means to cope (Bolin & Stanford, 1991), but they can also highlight and exaggerate existing inequities. People of low socioeconomic status backgrounds likely face disproportional vulnerability to not just COVID-19, but also its related aftermath (i.e., safer-at-home orders, remote instruction). People of lower socioeconomic status are often disproportionately affected by financial hardships associated with the pandemic, as well as housing and food insecurity (Rollston

& Galea, 2020). It has also been posited that school closures are particularly influential for students of lower socioeconomic status. Despite continued virtual teaching, differences in internet and electronic access and spaces for homework and studying may further exacerbate existing disparities in education (Van Lancker & Parolin, 2020). It is also possible that these students may be more negatively impacted with respect to emotional well-being, as they can experience greater emotional responses to the ambiguity of the transition to remote instruction as well as stressors such as financial instability. As the transition to remote instruction represents one of the most dramatic and critical transitions faced by students in the history of education, understanding how this impactful event differentially affected underrepresented students is of considerable value to understanding the full effects of COVID-19 on the educational landscape. To effectively document the challenges and concerns of university students during COVID-19-related campus shutdowns, we must carefully consider students of lower socioeconomic status.

Due to the abruptness of the transition to remote learning, students' experiences in the midst of this historic event were not well documented. The COVID-19 pandemic imposed stress and uncertainty for many, particularly among young adults (Huang & Zhao, 2020), and college students reported high rates of stress, anxiety, and depression during the pandemic (Charles et al., 2021; Wang et al., 2020). Prior research has suggested that undergraduate students reported concerns regarding not only sickness and uncertainty, but also mental health, academic, and social concerns (Hawley et al., 2021). Students' experiences also changed over the span of the COVID-19 pandemic (e.g., Goncalves et al., 2021). A longitudinal study found that students also reported higher levels of academic stress between the academic terms before and after onset of the initial COVID-19 transition to remote instruction (von Keyserlingk et al., 2021). However, given the abruptness of this transition, limited research has been able to capture students' immediate responses to the transition to remote instruction. Further exploration of student experiences, especially those that occurred during the transition itself, would inform how school systems can better support undergraduate students, especially marginalized students.

The present study provided an opportunity to both document students' experiences during this unique time and identify existing inequalities in students' concerns by socioeconomic status that school systems should address. Marginalized students such as those from low socioeconomic status backgrounds have likely experienced additional hardships which may have been exacerbated by the initial transition to remote instruction. In the present study, we leveraged qualitative data collected during the week students transitioned to remote instruction due to the COVID-19 pandemic to identify common themes in students' experiences. A secondary aim of the study was to identify how experiences and concerns of university students differed by students' socioeconomic status, as indicated by maternal education.

Method

Participants and Procedures

Responses were collected from 234 students enrolled in an introductory statistics course at a large, public university in the U.S. Students provided their demographic data at the

beginning of the ten-week course, and volunteered to complete a survey regarding their emotions, sleep, and academics during finals week, on March 16th, 2020, five days after the university initiated the move to remote instruction (March 11th, 2020). This institution followed the quarter system, such that the transition to remote instruction occurred during the 10th week of the quarter, just before finals week. Most participants were in either their second (63.09%) or third (28.33%) year, identified as female (77.50%), and identified as either Latino (18.47%), White (25.70%), or Asian (43.78%). Students also rated the highest level of education achieved by their mothers [1=elementary or middle school, 2=some high school, 3=high school graduate, 4=post high school vocational training, 5=some college, 6=associate's degree, 7=bachelor's degree, 8=post graduate degree (master's, doctorate, etc.)]. Participants were socioeconomically diverse, with many participants reporting their mothers' highest level of educational attainment as a high school diploma or less (22.42%), a bachelor's degree (30.17%), or a graduate degree or higher (22.84%).

Students were enrolled in a course that was part of a project in which student data were collected and analyzed to continuously improve an online textbook (Stigler et al., 2020). This project was declared exempt by the local Institutional Review Board due to its focus on normal educational processes. All students had the option to have their data excluded from analyses, and were always able to skip any question they did not wish to answer. The study's exemption status specifically allowed for minor changes including addition of non-sensitive items without formal review (i.e., review was only needed for major changes including change of data collection procedure, change of subject population). Students completed these additional questions for extra credit.

Measures

Students completed three items in which they were asked to rate and explain the degree to which their emotions, sleep, and academic performance were each affected by COVID-19 and recent containment measures (e.g., social distancing, transition to remote instruction). Participants rated each item on a Likert scale from 1 (*Not at all*) to 5 (*Very much*) and were then asked to explain their responses through an open-ended question. After each of the three ratings, participants could answer the following open-ended prompts: 'Please explain how your (mood/sleep/test performance) has changed, if at all.' After these questions, they could then answer the following prompt: 'Is there anything else you'd like to share about how recent events have influenced your experience/performance in the course this quarter? (Note, your responses will remain anonymous to the instructor of record).' To reduce bias, participants were assured that all questions were optional, that the course professor would not review survey results, and that all data would be de-identified so that responses could not be linked back to students. Although the Likert ratings are descriptive, the open-ended responses were of primary interest for the present study.

These responses were coded for common themes using thematic content analysis (Braun & Clarke, 2006; Smith et al., 1992) without *a priori* themes. Two researchers first read through all responses and identified common themes. It is important to note that in analyses of qualitative data, the identities of the authors may influence the themes that researchers identify, and the research team discussed how their social identities, educational

experiences, and research backgrounds may have influenced their data interpretation. The first listed author is an Arab American, male doctoral student from a lower socioeconomic background. He received financial aid in college and has studied social status during the college transition. The second listed author is a White, female professor who has been trained in qualitative data analysis and has used thematic analysis to understand college student experiences, especially those of transfer students.

Next, the researchers developed a codebook for trained research assistants to independently code each major category including major themes of sleep, emotions, and need-based concerns (see <https://osf.io/4dyqt>). Any discrepancies were resolved by a third coder. Although separate open-ended questions focused on students' emotions, sleep, and academic performance, we coded whether each participant had written about each theme in any of their open-ended responses (0=no, 1=yes) because it is likely these three factors are related and may be affected by the pandemic in overlapping ways. Each theme was coded independently such that a participant could have written about all possible themes, some themes, or none of the common themes.

As a final step, the researchers identified notable responses from students that were deemed to be of significant importance and interest to the field, but were too infrequent to code as a major theme. Our selection of these diverse perspectives follows a model of the *diverse case method* in case study research (Seawright & Gerring, 2008). Specifically, this method is used to highlight experiences of diverse participants which, although not necessarily generalizable to all participants, are still representative of a meaningful and potentially underrepresented minority of students. Excerpts and interpretations are provided in the Results section.

Results

Themes of Open-Ended Responses

We coded students' open-ended responses for common themes. Students generally described how the recent transition impacted their emotional states (e.g., sadness, depression), sleep (e.g., duration), academic resources (e.g., WiFi) and ability (e.g., ability to focus), social life (i.e., missing friends), and access to basic needs (e.g., money, housing). In Table 1, we present 13 common themes with descriptions, representative student responses, frequencies, and interrater reliabilities.

Students referenced emotional distress in various ways; over half of students reported feeling concerned or worried, and roughly one-third of students reported feeling stressed and either sad or upset. Slightly over 10% of participants reported problems with sleep, generally in the form of longer sleep duration. Regarding academic concerns, over one-third of students reported having difficulty concentrating on their academic work, and smaller percentages of students also reported difficulties with workspace resources, dividing their time between academics and family responsibilities, and concerns regarding social life. Finally, a minority of students reported concerns with basic needs. Housing and moving concerns were experienced by over one-third of participants, and financial stability and food security were less common concerns, with each reported by under 10% of participants.

Differences in Frequency of Themes by Maternal Education

Next, logistic regressions were used to examine whether students' likelihood of reporting each concern varied by maternal education. Students with lower maternal education were more likely to report feeling worried or concerned generally relative to students with higher maternal education, $B = -0.14$, $SE = 0.06$, 95% Confidence Interval (CI) $[-0.26, -0.03]$, Odds Ratio (OR) = 0.87, $p = .017$. They also were more likely to report being sick or knowing someone who was sick, $B = -0.18$, $SE = 0.08$, 95% CI $[-0.33, -0.03]$, OR = 0.84, $p = .017$. Additionally, students with lower maternal education were more likely to report having trouble concentrating on their academic work, $B = -0.15$, $SE = 0.06$, 95% CI $[-0.27, -0.03]$, OR = 0.86, $p = .016$.

Finally, maternal education was related to concerns regarding basic needs. Students with lower maternal education were more likely to report problems related to food security, $B = -0.38$, $SE = 0.16$, 95% CI $[-0.69, -0.07]$, OR = 0.69, $p = .017$, and greater financial concerns, $B = -0.31$, $SE = 0.10$, 95% CI $[-0.51, -0.12]$, OR = 0.73, $p = .002$.

Diverse Student Concerns

In addition to examining the general themes of student concerns and challenges during the transition to remote instruction, we also sought to highlight diverse student concerns. After discussion, the researchers identified four diverse concerns present in the data but distinct from the coded themes: increased logistical challenges for international students, increased housing insecurity for a former foster youth, expressions of discomfort at the idea of moving back home, and experiences of racism associated with COVID-19 among Asian American students.

For international students, the abrupt closing of the university during finals week represented a particularly difficult logistical challenge. One international student elaborated on this, explaining:

... as an international student, I had to decide whether staying or going home would be safer. And after that I also had to think about the problems coming with moving out, like formal documents for international students, packing up, where to store my packages and the car, and all of this while studying for the finals.

Other international students who decided to return back home also mentioned the difficulty of completing their exams in a radically different time zone, as the academic quarter continued in spite of the transition to remote instruction. "I am an international student, so I travelled across the world to go back home," one student reported, "and so I'm very jet lagged."

Although many students noted issues with housing and returning to their families, not all students necessarily had a place to live once the dorms had closed. For instance, one student was a foster youth and noted:

I have been more anxious and worried about what will happen with my housing situation. I am a former foster youth and I do not have the same opportunity as other students who can easily just go back to a home. All of my roommates moved

out and went back home, so I have been alone in my suite dorm, which has been very hard.

Alternatively, returning home was a challenging option for some students. Whereas many students acknowledged having technological and workspace limitations at their home, a couple of participants hinted at having problems living at home with their families. As one participant explicitly explained, “A sudden decision to move back home has NOT been good for my mental health. My home is very toxic, and I constantly find myself regressing to old and bad habits whenever I come back home.”

In addition to the logistical, emotional, and environmental challenges prompted by a COVID-19 campus shutdown, two Asian American participants reported concerns regarding racial discrimination. One student reported, “White people are constantly looking at me with glaring eyes. I even had a student come up to me to ask me if I was sick. Racism, fear, everything... I’m just tired.” A second student mentioned racism as a concern and elaborated on specific incidents of violence, stating:

Coming from the Asian American community, I was scared I would experience racial violence because of the recent news. Friends of mine have had family beaten in the streets. I was worried at certain times to leave my room and could not focus on my academics as much.

Collectively, these experiences (i.e., international travel, lack of appropriate home environment, racial discrimination) are infrequent in this sample, but they reflect unique and potentially impactful concerns for diverse students who may be underrepresented in our sample and at universities more broadly.

Ratings of COVID-19 Impact

Finally, participants also provided quantitative ratings. Almost all participants (94.40%) reported that their emotions were affected to some degree by the pandemic and related containment measures including the transition to remote instruction, and on average reported that their emotions were affected a great deal ($M = 4.29$, $SD = 0.94$). Participants also reported that their sleep ($M = 3.06$, $SD = 1.43$) and their academic performance were impacted a fair amount ($M = 3.12$, $SD = 1.29$). We then used ANOVAs to examine whether there were differences for each of these ratings by maternal education. No differences emerged in the impacts of COVID-19 pandemic and related precautions on emotions, academics, and sleep by maternal education, all $ps > .15$ (Table S1).

Discussion

The COVID-19 pandemic has been devastating and forced an unprecedented transition to remote instruction in higher education. Despite much speculation regarding how students have been affected by the aftermath of the pandemic (e.g., Lederer et al., 2020; Patel et al., 2020), empirical evidence of the student experience collected during the transition to remote instruction is lacking. The present study utilized open-ended responses and ratings to investigate the experiences and concerns of university students during the initial transition to remote instruction, providing a rich account of student challenges and concerns during

this critical event. As a secondary aim, we tested whether certain concerns were more common for students of lower socioeconomic status. From students' open-ended responses, we identified 13 major themes regarding concerns and challenges experienced during this transition, which were primarily related to emotional distress, social life concerns, academic problems, sleep, and concerns of basic needs.

Students frequently reported emotional distress, including feelings of uncertainty, stress, worry or concern, sadness, and depression. This finding corroborates other research that has found these emotions in other populations during the onset of the COVID-19 pandemic and in college students throughout the pandemic (Nelson et al., 2020; Son et al., 2020). One aspect of the pandemic and educational transition that might be driving these negative emotions is the uncertainty of the future. Anxiety and other negative emotions peak during anticipation and uncertainty (Grupe & Nitschke, 2013), and COVID-19 has introduced great uncertainty into all aspects of daily life (social, academic, etc.). This transition also disrupted student's daily routines, and major life changes outside one's control contribute to stress (Cundiff et al., 2020).

Students also mentioned how the campus closure disrupted their social relationships. Traditional college students are young adults, and still highly sensitive to peers and social relationships (Zarrett & Eccles, 2006). With the campus closure, many students reported feeling disappointed that they would miss social college experiences and seeing their friends. Research has thoroughly underscored the psychological toll of isolation and social distancing related to the COVID-19 pandemic (Nelson et al., 2020), and these effects may be more pronounced for this developmental population. Additionally, friends are a common source of social support to cope with stress, and students could not receive this support during the campus closure (Ye et al., 2020). In this way, separation from peers may have both been a source of negative emotion and hampered students' ability to cope with these emotions.

Because the transition to remote instruction occurred during the academic year, students frequently had problems with academics, namely difficulty focusing, lacking resources for schoolwork (e.g., WiFi, workspace), and having additional family responsibilities and distractions. Participants in this study attended a university on a quarter system, such that the transition to remote instruction coincided with finals week. Unsurprisingly, over one-third of the sample reported difficulty paying attention and studying for exams. Stress and anxiety often create intrusive worries, which consume critical and already limited working memory resources (Sweller, 2011) and can easily worsen attention (Levy et al., 2016). Finally, with the move from campus, a minority of students noted having additional family responsibilities of higher priority that detracted from their time and ability to focus on their studies.

Interestingly, many students reported longer sleep durations during the transition. Students may have slept longer for multiple reasons. First, it is possible that students who were able to easily go home experienced better sleep than they would on campus, where they may have shared a room. Second, the transition occurred abruptly such that students needed to rapidly move and address pressing concerns, including their coursework and supporting their

families, which may have influenced their sleep. Therefore, students may have accumulated sleep debt—as commonly occurs during academic examinations—and had longer sleep duration to compensate (Dewald et al., 2014). Lastly, emotions can impact mood, and longer sleep duration is often related to depressive mood (e.g., Liu et al., 2020). Because their schedules were greatly disrupted, students frequently reported having difficulty getting out of bed and being motivated to start their day.

Finally, in line with prior work, students reported concerns with material resources. Many reported difficulty accessing basic needs, such as finances, housing or moving, food security, and the health of them and their family (Son et al., 2020). Because of the move from campus, students also reported struggling with limited technological resources for completing academic work such as WiFi and computer access, as well as space in their home for studying. Issues with resource access are not unique to the pandemic, although this transition likely escalated concerns particularly when students were simultaneously continuing their academic work.

Lower socioeconomic status may impose unique needs and concerns during the pandemic and transition to remote instruction (Van Lancker & Parolin, 2020). Findings from the present study suggested that students of low maternal education were more likely to report food insecurity and financial instability. People of lower socioeconomic status often already live in areas with more limited access to fresh food (Hendrickson et al., 2006), and they may have been particularly influenced by shortages related to the upsurge in purchasing during the pandemic. Additionally, education often has implications for occupation grade, such that more educated people also tend to be salaried with higher job security. In turn, less educated people are more likely to have hourly-wage and service-related jobs, and consequently were at higher risk of unemployment during quarantine (Daly et al., 2020; Hedin et al., 2020). Students with lower maternal education may have also been working part-time, such as through work-study, and needed to temporarily give up this form of income. As hypothesized, students with lower maternal education were also more likely to be concerned about themselves or their family getting sick, perhaps because of customer-service jobs or not having the option to work from home (Patel et al., 2020). These concerns may have been particularly warranted given evidence that neighborhoods with lower socioeconomic status had higher infection rates (Clouston et al., 2020; Wadhera et al., 2020).

Students with lower maternal education were also more likely to feel worried and have trouble concentrating on their academic work. People with lower education often experience life events and stressors more frequently than people of higher education (Cundiff et al., 2020). As a result, their livelihood may be particularly affected by the pandemic. Additionally, frequent exposure to such stressors can contribute to difficulties with emotion regulation (Gallo & Matthews, 2003), such that students with lower maternal education may be especially distressed by the pandemic. In fact, poorer emotional responses to stress have been posited to contribute to existing academic disparities by race and socioeconomic status (Levy et al., 2016), and these disparities may be exacerbated during times of extreme stress.

Finally, there were additional unique concerns that students noted. One student from the foster system noted having nowhere to move, resulting in them living alone as their

roommates moved back home. Having aged out of care, these students must independently secure housing and financial stability during a time of unrest (Ruff & Linville, 2020). Other students, such as LGBTQIA students, may deal with an unsupportive or toxic home environment or may similarly struggle to independently secure basic needs (Fish et al., 2020). Indeed, some students in our sample noted how going back to their home environment could negatively impact their mental health. We also found that international students experienced specific logistical concerns in addition to their health and safety, such as considering their ability to follow university instruction from abroad and to return to the country following the pandemic. Finally, ethnic minority students noted concerns regarding racism during the pandemic. The virus was quickly racialized in media and political rhetoric as the Chinese virus, promoting negative bias and hate crimes directed at Asian Americans (e.g., Darling-Hammond et al., 2020). The sad result of this rhetoric was that some Asian American students needed to be extra vigilant for racial discrimination.

Although the pandemic imposed new challenges such as concerns regarding illness, the pandemic also exacerbated existing concerns and inequalities that students from diverse backgrounds experience. For example, 8.8% of U.S. undergraduates reported that they are homeless or self-supporting students and 45% report housing insecurity and concerns regarding housing prices between 2009 and 2018, prior to the pandemic (Broton, 2020). Also, many Asian Americans and other racial minority students experienced discrimination before the COVID-19 pandemic. Such experiences can undermine academic performance (Levy et al., 2016), and it is unreasonable to expect students to maintain their peak academic performance in these circumstances. Finally, international students expressed concerns regarding flying costs and jetlag, but these concerns likely already existed for shorter breaks including Thanksgiving break when institutions close. These student concerns will not completely dissipate post-pandemic, and institutions should develop infrastructure to address these concerns and promote equity for students from diverse backgrounds.

Limitations

There are several limitations of this study. First, findings were limited to students' experiences during a brief, but important, transitory period and do not generalize to all college student experiences throughout the pandemic. Results are limited to a large public university in the U.S. Undergraduate students' initial responses and concerns regarding the pandemic likely varied with their living situation (i.e., on- versus off-campus), their institutions' approaches to the online transition, the immediate threat and national caseload of the pandemic, and the level of information and resources universities and local governments provided during this transitory period. The sample also included a primarily male sample. Additionally, the present study was administered at an institution that followed the quarter system, with 10 instructional weeks per quarter. Whereas the COVID-19 transition to remote learning occurred at the end of the quarter for this institution, this transition likely occurred in the middle of the semester for other institutions. Students' concerns and emotions may have been amplified due to the timing of the quarter, such that results—particularly those regarding academic concerns and emotional distress—may not generalize to universities that follow the semester system. Because the study was also administered to students in a statistics course which already included online modules and

quizzes, results may not be representative of students in other areas of study or students whose courses had a larger in-person component, such as laboratory courses. Likewise, results may not generalize to all institutions because institutional responses to the pandemic likely differed by prevalence within the geographic region and political pressures at the local and state level.

Finally, assessment of students' initial responses to the pandemic were limited given the abruptness of this transition. Data collection was unfortunately limited to one time point—during the week of the transition—because the sample was limited to students in one course, and the transition to remote instruction occurred during the final week of instruction. Participants' attitudes regarding the pandemic and transition to remote-learning likely changed as they received more information from their institution and as their institution responded to ongoing circumstances (von Keyserlingk et al., 2022). Administering the survey multiple times would have enabled assessment of changes in students' responses over time and thereby improved the study. We also could not incorporate more intensive measures because students were already stressed by current circumstances. Although prompts for open-ended response were general, interviews may have enabled students to describe other concerns in greater detail.

Recommendations for Practice

We identified several concerns that students had during the transition to remote instruction which could have been addressed by university supports. Below, we provide recommendations for how university and college institutions can provide supports to ameliorate these concerns.

- Given concerns regarding student food access, institutions could have a food pantry available for local students in need. Further, they can also publicize existing resources to support students in securing housing, especially for those with financial hardship or who lack family support due to varied reasons.
- During times when students are uniformly distressed such as the transition to remote instruction, colleges can have an emergency plan for how to fairly allocate mental health resources for students who may be disproportionately affected. We also agree with previous researchers that establishing a university chief wellness officer may help to solicit and address student input regarding mental and physical health concerns (Fox, 2021).
- In light of the finding that some Asian American participants experienced racial discrimination related to the pandemic, institutions can release statements noting their stance regarding racialization of the pandemic, as well as other current political events, and note a zero-tolerance policy regarding discriminatory sentiment of any kind. Such efforts can validate minority students' concerns, ease their fear of being harmed on campus, encourage them to speak up if they experience or witness discrimination, and promote a sense of belonging during a time when students feel particularly disconnected from their university community (e.g., Anand & Hsu, 2020; Castellanos & Gloria, 2007).

- In the event that future transitions between in-person and remote instruction continue, professors and university administrators must consider the technological and financial limitations that students face and their impact on students' performance. Although alterations in class structure and test format are understandably troublesome for professors, these changes and allowing greater flexibility in deadlines may promote a more equitable class environment during times of stress. Such accommodations are particularly important given existing disparities in academic outcomes by socioeconomic status as well as other factors (e.g., race, gender), which may be exacerbated by times of stress.
- When evaluating students' academic transcripts from the spring of 2020 and beyond, educators should also consider how differences in students' backgrounds and access to supports likely influenced students' capacity to succeed. Specifically, students' grades from this time may not be a valid indicator for comparison of ability, given that students greatly differed in the challenges they faced due to the transition to remote instruction and the pandemic more broadly. Transcripts should be judged leniently or with space for students to describe their extenuating circumstances.
- As the transition to remote instruction exposed existing inequities that students regularly experience, campuses can reevaluate their current efforts and adjust campus centers to accommodate students' needs. For instance, students of lower maternal education had more difficulty focusing, which may have been in part due to lacking academic resources at home. Rather than merely accommodating students and addressing these inequalities during the pandemic when they are most visible, universities and other school systems can use this time as an opportunity to ensure appropriate scaffolding is provided going forward to promote a more equitable learning environment.

Conclusions

By documenting students' concerns and responses to the onset of the transition to online instruction, we hope that universities and colleges will be better able to address students' concerns in the event of future major, acute events. We acknowledge this is a developing situation and that students' needs have changed over time, but facilitating smoother transitions going forward is of high priority given the disruptive role that transitions can play in students' learning and their lives more broadly. Specifically, the COVID-19 pandemic and the procedures implemented by the university did not equally impact students. Although students of lower maternal education may already face additional challenges, worry and concerns regarding finances, food security, and risk for illness imposed by the pandemic may need to be prioritized for students of lower socioeconomic status. It is unrealistic to expect students from diverse backgrounds to perform equally well without further institutional accommodations given that these students may experience unique challenges as part of abrupt academic transitions. In light of the concerns that students experienced during this unique transition, universities can proactively provide equalizing resources to better prepare students in case of subsequent transitions.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1.

Themes coded from open-ended responses with corresponding frequencies and inter-rater reliability values.

Theme	Description	Example(s)	Frequency	Cohen's κ
Finances	Concerns about how COVID-19 will impact immediate or future socioeconomic status of oneself or one's family	"I couldn't study the night before this final because I got news that my dad got laid off due to the low business because of the corona virus."	8.55%	.78
Housing or Moving	Concerns about moving out of current housing or securing future housing	"Due to the coronavirus and closing of campus/LA area restaurants, I am having to move out much earlier than anticipated, which has made me quite stressed the past few days trying to pack and find places to store my things until I can get back since I live out of state."	37.18%	.76
Food Security	Concerns about obtaining or paying for food	"To be honest, I did not have much time to study this weekend because me and my mother have been trying to find food and water everywhere to prepare to stay at home."	4.70%	.81
Health or Sickness	Student or students' family is sick, or concerns about future illness	"Found out my father has corona the day of my final" "I was also sick for 2 weeks and was very anxious that I had the virus and had to self-quarantine."	16.24%	.62
Uncertainty	Unsure of what to do in the given moment or in the future	"I don't know where I'm going to be 2 weeks from now and I feel like that's more important than a final"	19.66%	.70
Stressed	Description of feeling or experiencing stress	"I feel so stressed from packing, figuring out travel plans, saying goodbye to people I thought I'd have more time with, etc."	32.48%	.85
Concerned or Worried	Description of feeling concerned or anxious	"I am more worried about future events."	47.44%	.67
Depressed	Description of feeling depressed	"I'm always so down and depressed from being locked up at home." "I have been working hard at combatting feelings of depression."	9.83%	.90
Sad or Upset	Description of feeling sadness and less extreme negative emotions	"I have gotten discouraged and sad not being able to see classmates and friends." "I have been feeling pretty down because I have been stuck at home"	32.48%	.62
Social Life	Concerns about missing friends and social experiences in college	"My mood has become more negative as it has been difficult to have the school year cut off so abruptly and become isolated from my friends."	16.67%	.71
Longer Sleep Duration	Sleeping longer or spending more time in bed	"I feel as though I sleep more because I am emotionally and mentally drained during the day."	12.82%	.92
Harder to Concentrate or Focus	Description of difficulty concentrating and focusing	"I have become more anxious and I found that it has been harder to focus and collect my thoughts."	32.62%	.77
Lack of Resources or Limited Space	Concerns about lack of resources or workspace for studying	"It's been very hard to study when my whole family is in the house. There's limited space and internet/computers for everyone"	14.53%	.70
Family Responsibilities or Distractions	Concerns about time being consumed by family responsibilities or distractions	"I wake up earlier to help with my sisters."	11.97%	.65

Note. Cohen's κ values from .61 - .80 are considered "substantial" agreement, .81-1.0 are considered "almost perfect" agreement (Landis & Koch, 1977).