Unprecedented Times: Assessing Impacts of the COVID-19 pandemic on College Students' Academic Experiences and College Life

Osasohan Agbonlahor[1]*, Esther O. Lamidi[2], Larry Gibbs[3] and Sue P. Nash[4]

[1]*Assistant Professor of Leadership Studies, North Carolina Agricultural and Technical State University, USA*
[2]*Associate Professor of Sociology, University of Colorado Colorado Springs, USA*
[3]*Associate Professor of Sociology, Southern Oregon University, USA*
[4]*Associate Professor of Sociology, St. Mary's University, San Antonio, Texas, USA*

ARTICLE INFO

*Corresponding Author
Osasohan Agbonlahor
E-mail: oagbonlahor@ncat.edu

Co-Author(s):
Author 2: Esther O. Lamidi
E-mail: elamidi@uccs.edu

Author 3: Larry Gibbs
E-mail: gibbsl@sou.edu

Author 4: Sue P. Nash
E-mail: snash1@stmarytx.edu

ABSTRACT

Introduction: The COVID-19 pandemic brought unprecedented disruption to higher education, affecting students' academic experiences and overall college life. This study aims to assess the multifaceted impacts of the pandemic on six key aspects of students' academic journeys: academic focus, graduation, college life, pursuit of higher education, job search difficulties, and job loss. By identifying the challenges faced by students, especially those from vulnerable backgrounds, the study provides insights to guide institutional support and policy interventions. **Methods:** Data for this study were collected through a multi-campus online survey administered to college students. The survey responses were analyzed using a series of regression models to identify the relationships between key variables and the impacts of the COVID-19 pandemic. Specific attention was given to factors such as family financial stability, emotional support, internet access, and demographic characteristics like minority status. **Results:** The analysis revealed that students from financially disadvantaged families and those lacking emotional support experienced more severe disruptions to their academic progress. Limited access to reliable internet and difficulties with remote learning were linked to reduced academic focus, delays in graduation, and hindrances to higher education pursuits. Students also faced heightened job search challenges and job loss. Relocation during the pandemic negatively influenced academic performance and employment prospects, with minority students encountering disproportionate challenges across multiple dimensions, including academics, graduation, and employment. **Discussion:** The findings highlight the compounded effects of the COVID-19 pandemic on students' academic experiences, particularly for those from vulnerable backgrounds. Financial hardship, emotional isolation, technological limitations, and displacement had a cascading impact on students' educational and career pathways. These results emphasize the need for targeted institutional support, such as financial aid, mental health resources, and enhanced access to digital learning tools, to mitigate future disruptions of this nature. **Conclusion:** The COVID-19 pandemic had far-reaching effects on students' academic experiences and life trajectories, disproportionately affecting students from marginalized groups. By understanding these impacts, educational institutions can develop more inclusive policies to address disparities in access, support systems, and employment outcomes. This study offers crucial guidance for policymakers and higher education administrators to better prepare for future crises.

1. Introduction

In March 2020, the World Health Organization (WHO) declared the COVID-19 outbreak a global pandemic. As a result, many residential students in the United States were required to vacate their campus housing, while most universities had to transition their courses to an online delivery format (Binkley, 2020; Crawford et.al 2020; Lamidi et.al 2024). The shift away from a structured classroom environment had a significant impact on students' ability to stay focused and motivated, exacerbating issues of inequality (Gillis & Krull, 2020). Students faced numerous challenges while participating in virtual learning, including limited access to computers, unreliable internet connections, lack of private spaces, and the additional responsibilities of caring for sick family members (Gelles et.al 2020). Furthermore, many students had to return home and adapt to different circumstances for their academic work compared to pre-pandemic times. During the pandemic, students encountered difficulties such as finding caretakers for their young children during online classes, dealing with distractions and noise from household members, and lacking suitable rooms/spaces for virtual learning in their homes (Gillis & Krull, 2020). These challenges significantly reduced their ability to focus on course material, comprehend information, and actively participate in meaningful class discussions.

The COVID-19 pandemic presented numerous challenges for college students, impacting their academic experiences and well-being (Kaur & Bhatt, 2020; Mohan, 2020). Understanding these experiences and their effects is crucial for developing strategies to mitigate the negative consequences and support students during these unprecedented times. This study employs Glover et al.'s (2020) conceptual framework to address the equity harms of COVID-19. By analyzing the data collected from three different institutions, this study aims to shed light on the specific issues faced by students and contribute to efforts in mitigating the inequities exacerbated by the pandemic.

Analyses of the effects of COVID-19 on college students have predominantly focused on the psychological and other health impacts. The profound disruptions caused by the pandemic have led to increased attention on mental health challenges, anxiety, depression, and stress experienced by college students (Soria & Horgos, 2021). While these studies have shed light on the emotional toll of the pandemic, there is a need to broaden the understanding of its impact by considering social and academic outcomes as well.

Recent research (e.g., Aucejo et al., 2020, Kecojevic et al., 2020, Reyes-Portillo et al., 2022, and Soria & Horgos, 2020) have started to explore the broader implications of COVID-19 on college students. For instance, research conducted by Kecojevic et al. (2020) indicated that the most reported academic difficulties during the pandemic were the ability to focus on schoolwork, reported by 74% of students, and general adjustments to online learning (59%). Additionally, students faced financial hardships due to job loss, obstacles to degree completion and thesis development, worsened mental health issues, and food and housing insecurity (Soria & Horgos, 2020). The social distancing requirements and stay-at-home policies implemented during the pandemic also contributed to feelings of isolation and loneliness among college students (Aristovnik et al., 2020; Lederer et al., 2021). Many students who had secured internships experienced cancellations, leading to a loss of income. Aucejo et al. (2020) found that 13% of students had their internships canceled due to the pandemic, 29% experienced unemployment, and 61% had a family member who suddenly became unemployed. These studies provide descriptive accounts of the challenges faced by students, including limited access to resources, remote learning difficulties, and disrupted social interactions. However, there remains a gap in the literature when it comes to a comprehensive examination of various dimensions, such as academic success, graduation rates, aspirations for higher education, and job loss during the pandemic.

To address this gap, the present study aims to contribute to the existing literature by delving into the multifaceted experiences of college students during the COVID-19 pandemic. Specifically, the study investigates the impact of the pandemic on academic success, perceived likelihood of graduation, aspirations for higher education, and job loss. By focusing on these key areas, a more comprehensive understanding of the consequences of the pandemic on college students can be gained. Data for this research was collected from colleges located in the Midwest, South, and Pacific Northwest regions of the United States. By including institutions from different geographic locations, the study aims to capture a diverse range of experiences and provide a broader perspective on the effects of COVID-19 on college students.

2. Theoretical Framework

This study incorporates multiple theoretical frameworks to provide a comprehensive understanding of the factors influencing student persistence and adaptation

during the COVID-19 pandemic. The interrelationships among the different theoretical frameworks are represented in Figure 1. Tinto's (1975) Model of student persistence, Schlossberg's (1981) transition theory, and Glover et al.'s (2020) conceptual framework for mitigating the equity harms of COVID-19 serve as the theoretical foundation for this study.

Tinto's (1975) model seeks to understand the factors that influence students' decisions to persist or withdraw from college. It emphasizes two key principles: academic integration and social integration, which are mutually reinforcing and contribute to student persistence. Students are more likely to persist when they are both academically and socially integrated into the formal and informal systems of the institution. Tinto argues that successful interactions with the academic and social aspects of college life leads to integration and persistence. Academic integration is measured by factors such as personal development, academic self-esteem, grades, and enjoyment of the subject matter. Social integration is evaluated through personal relationships on campus, connection to academic departments, and overall satisfaction with the academic environment. Tinto's original model establishes a link between the college environment and student retention rates, suggesting that students who adapt effectively to the institutional context are more likely to persist academically and socially (Tinto, 1975).

The COVID-19 pandemic presented a significantly different environment and college experience for students, disrupting both the academic delivery system and personal relationships on campus. Consequently, the alignment of students with this new environment has become vital in determining their academic experiences. Building upon Tinto's model, this study incorporates not only individual student characteristics such as gender, race/ethnicity, sexual orientation, marital status, presence of children in the household, and mother's education level but also considers the impact of residential moves during the COVID-19 pandemic and support from family and friends as indicators of social integration during this unique period.

Schlossberg's (1981) transition theory provides valuable insights into understanding and navigating various life transitions. Schlossberg (1981) defines transition as any event or non-event that brings about changes in an individual's relationships, routines, assumptions, or roles. According to this theory, individuals navigate transitions by utilizing their strengths and managing their challenges. Schlossberg's transition theory has proven effective in understanding and supporting individuals during times of change since its initial publication in 1981. The theory has further evolved into a framework that facilitates comprehension of the coping mechanisms necessary for navigating transitions in adulthood. Therefore, Schlossberg's transition theory was chosen as the applicable framework for studying the transition of students from on-campus to virtual learning during the COVID-19 pandemic, as it provides a flexible structure for understanding the impact of such a significant lifestyle change on students' academic experiences and college life.
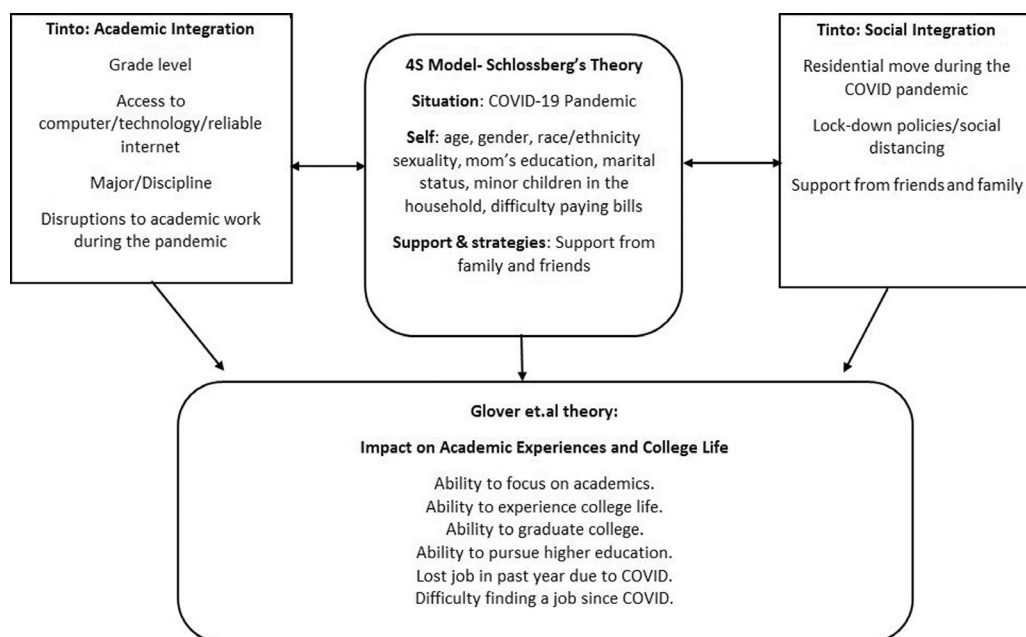

Figure 1. Conceptual Framework for Assessing Impacts of the COVID-19 Pandemic on College Students' Academic Experiences and College Life.

Source: *Agbonlahor, Lamidi, Gibbs, and Nash (2024).*

The 4S model of negotiating transition, proposed by Schlossberg (1981), consists of four factors: situation, self, support, and strategies. These factors contribute to an individual's coping mechanisms during a transition. The situation factor refers to the circumstances individuals encounter during a transition. In the context of our study, it encompasses the significant changes students faced during the COVID-19 pandemic, particularly the abrupt shift from on-campus learning activities to online education and the implementation of lockdown policies. The sudden disruption of established routines and the need to adapt to a new mode of learning presented significant challenges for students. The situation factor recognizes the importance of understanding the specific context in which a transition occurs and how external factors can impact individuals' experiences.

The self-factor examines how personal experiences and individual characteristics influence the transition process. It takes into account demographic factors and unique situations that impact individuals. Demographic factors, such as age, gender, socioeconomic status, sexuality, and previous educational experiences, can shape individuals' reactions and responses to the transition. For example, students from low-income backgrounds may face additional financial challenges during the pandemic, which can impact their ability to access resources and support for successful online learning. The support factor refers to the available assistance that helps individuals navigate the transition successfully. The support factor recognizes the importance of assistance and resources available to individuals during a transition. It includes various types of support, such as academic support services, counseling services, peer support networks, and family support. Adequate support can help individuals navigate the uncertainties and difficulties associated with the transition. In the case of the COVID-19 pandemic, these include the provision of virtual academic support services, online counseling, and community-building initiatives to help students adapt to the new learning environment and maintain a sense of connection and belonging. Lastly, the strategies factor focuses on the coping strategies individuals employ to manage the transition effectively. These strategies may include seeking information and guidance, setting goals and priorities, problem-solving, seeking social support, and utilizing personal strengths and resources.

In addition to Tinto and Schlossberg's theory, the study also incorporates the conceptual framework proposed by Glover et al. (2020) to examine the equity harms of COVID-19. Glover et al. (2020) assert that COVID-19 policies may disproportionately harm individuals who were already marginalized, oppressed, or disenfranchised prior to the pandemic. Their model incorporates demographic predictors to investigate how COVID policy interventions affect individuals, groups, and the resulting social inequalities. According to this perspective, lockdown policies have had a disproportionate impact on vulnerable populations, exacerbating pre-existing inequities and potentially creating new ones. By considering demographic predictors, such as gender, race/ethnicity, socioeconomic status, and other intersecting identities, the framework sheds light on how the pandemic's policies and disruptions may have disproportionately affected certain groups. For example, stay-at-home or shelter-in-place policies may have limited the ability of college students from low-income backgrounds to work and earn wages at their pre-pandemic rates, which could have adverse effects on their academic outcomes.

In conclusion, the combination of Tinto's Model, Schlossberg's transition theory, and Glover et al.'s conceptual framework provides a robust theoretical foundation for understanding the complexities of student persistence, adaptation, and equity during the COVID-19 pandemic. Taken together, these theories highlight several factors that are likely to have impacted college students' academic experiences and college life. These include family socioeconomic status, residential move during COVID-19 pandemic, transition to remove learning (including internet access), social support from friends and family, and individual characteristics such as race/ethnicity, college major, and presence of minor children in the household. By incorporating these frameworks, the study aims to shed light on the challenges faced by students, identify effective interventions, and promote equitable opportunities for all students.

3. Methods

The data for this study was obtained from an online survey conducted among college students to investigate their experiences during the COVID-19-19 pandemic. The survey was administered to students enrolled at the University of Colorado Colorado Springs (UCCS), St. Mary's University (StMU) in Texas, and Southern Oregon University (SOU) in Spring 2021. Between April 2021 and May 2021, students from these institutions were invited to participate in the survey, which was hosted on Qualtrics.

The survey was sent out to all students at UCCS and StMU, while at SOU, it was sent to a specific survey randomly selected panel of students. The three institutions included in the study vary in size, with UCCS having a student population of approximately 12,000, StMU around 3,500, and SOU enrolling about 4,000 students. Additionally, they are located in different regions, with UCCS and SOU in the western region and StMU in the Southwest. However, all three institutions have a diverse

representation of minoritized student populations. StMU is designated as a Hispanic-serving institution (HIS) by the U.S. Department of Education. Furthermore, all three institutions offer both undergraduate and graduate education. The analytic sample for this study comprised 2,466 students with valid responses on all the variables included in the analysis, with 1,871 students from UCCS, 396 from StMU, and 199 students enrolled at SOU.

This study aims to assess the impact of the COVID-19 pandemic on six key aspects of students' academic experiences and college life. Approximately a year into the pandemic, we analyzed how COVID-19 affected students' ability to: [1] focus on their academics, [2] experience college life, [3] graduate college, [4] pursue higher education, [5] experience job loss, and [6] face difficulties in finding a job. While the survey included other areas of impact such as housing situations and internet access, these six factors are considered central to college students' experiences and are also areas of concern for college administrators.

The main independent variables included in the analysis were difficulty paying bills by respondents' family (had difficulty = 1, no difficulty=0), residential move during COVID-19 pandemic (moved=1, did not move=0), COVID-19 impacted on internet access (Yes=1, No=0), COVID-19 impacted on remote learning (Yes=1, No=0), needed more emotional support than received during the pandemic (Yes=1, No=0), mom's education (no college degree=1, college degree or higher=0), sexual orientation (non-heterosexual=1, heterosexual/straight=0), race/ethnicity (non-Hispanic white as reference, non-Hispanic black, non-Hispanic Asian, Hispanic, and non-Hispanic others), college major (STEM=1, others=0), and co-residence with minor children (no children present=0, children present=1). Other predictors include gender (female=1), age (in years), relationship status (single=1, married/cohabiting=0), and college grade level (freshman as reference, sophomore, junior, senior, and graduate). We included a variable indicating the college campus where students were enrolled (UCCS, StMU, and SOU).

We used logistic regression to predict the likelihood of students reporting COVID-19 impact on their ability to focus on academics, experience college life, graduate college, and pursue higher education (Thomas & Heck, 2001). We also predicted the likelihood of reporting job loss and difficulty finding a job within the first year of COVID-19. Logistic regression allows researchers to determine the best combination of variables that predict an outcome by estimating the odds probability of the dependent variable occurring as the values of the independent variables change (Thomas & Heck, 2001). The six outcome variables (ability to focus on academics, graduate college, experience college life, finding a job, and job loss in the past year) were regressed on the set of independent variables.

Overall, this study sheds light on the effects of the COVID-19 pandemic on college students' academic experiences and provide valuable insights for college administrators and policymakers.

4. Results
Descriptive Results

Table 1 presents the descriptive statistics for all students within the analytical sample. The results suggest that COVID-19 was most impactful on students' ability to focus on their academics and their ability to experience college life; close to three-quarters of students reported being impacted in those two areas. Substantial shares of students also reported COVID-19 impacts on their ability to graduate college (9%) and to pursue higher education (15%). College students were not immune to the economic impacts of COVID-19. At least one out of every four students surveyed experienced job loss within the first year of COVID-19 pandemic and more than half (56%) reported difficulty finding a job.

The college students sampled in this study appear economically disadvantaged even before COVID-19; 60% were from families with some level of difficulty paying their bills. More than half (52%) experienced residential instability during the pandemic, and 42% had mothers or mother figures with no college degree. Seventeen percent (17%) of the students reported that their internet access was adversely affected by COVID-19, while 33% indicated that the pandemic had a negative impact on their remote learning experience. Additionally, a significant majority (64%) expressed the need for greater emotional support than what they received during the pandemic. One out of every four students in our sample identified as a sexual minority (Gay, Lesbian, Bisexual, Pansexual or other category), 42% were non-whites, 23% were in STEM majors, and 30% lived with minor children. The sample consists of 67% female students, with an average age of 25, and most were single. Undergraduates accounted for about 79% of our sample and 76% of the students were enrolled at UCCS.

Family socioeconomic indicators and impacts of COVID-19

Table 2 present the results of the logistic regression models predicting the likelihood of reporting the six COVID-19 impacts covered in this study – ability to focus on academics, ability to experience college life, ability to graduate college, ability to pursue higher education, job loss, and difficulty finding a job. Compared to students whose families had no difficulty paying bills, students from families experiencing difficulty paying their bills were

Table 1. Descriptive Statistics for Dependent and Independent Variables (n = 2,466)

Variable	Mean	SD	Min	Max
Dependent variables				
Effect on ability to focus on academics	0.732		0	1
Effect on ability to experience college	0.743		0	1
Effect on ability to graduate college	0.086		0	1
Effect on ability to pursue higher education	0.148		0	1
Lost job in past year due to COVID-19	0.263		0	1
Difficult to find job since COVID-19	0.562		0	1
Independent variables				
Had difficulty paying bills	0.602			
Residential move during COVID-19	0.523		0	1
COVID-19 impacted internet access	0.174		0	1
COVID-19 impacted ability to use remote learning	0.333		0	1
Needed more emotional support than received	0.639		0	1
Mom's education				
College degree or higher	0.394		0	1
No college degree	0.421		0	1
Unknown mom's education	0.185		0	1
Non-heterosexual	0.247		0	1
Race/ethnicity				
Non-Hispanic White (%)	0.582		0	1
Non-Hispanic black (%)	0.040		0	1
Non-Hispanic Asian (%)	0.051		0	1
Hispanic (%)	0.269		0	1
Non-Hispanic other (%)	0.058		0	1
STEM major	0.232		0	1
One or more minor children in the household	0.305		0	1
Gender				
Male	0.308		0	1
Female	0.668		0	1
Other	0.025		0	1
Age	25.087	8.106	17	68
Single (Not married or cohabiting)	0.666		0	1
Grade level (%)				
Freshman	0.146		0	1
Sophomore	0.148		0	1
Junior	0.250		0	1
Senior	0.241		0	1
Graduate	0.214		0	1
College campus (%)				
UCCS	0.759		0	1
StMU	0.161		0	1
SOU	0.081		0	1

Source: *A multi-campus survey of college students' experiences during COVID-19*

significantly more likely to report on five out of the six impacts. Specifically, students from financially constrained families were more likely to have the pandemic impact their ability to focus on academics (OR = 1.43, p < 0.001), graduate college (OR = 1.20, p < 0.001), pursue higher education (OR = 1.48, p < 0.01), more likely to have lost job in the past year due to COVID-19 (OR = 2.02, p < 0.001), and had difficulty finding a job since COVID-19 (OR = 2.32, p < 0.001). Similarly, relative to students with college educated moms, students whose moms did

Table 2. Logistic Regression Models for COVID-19 Impacts on College Student's Experiences (n = 2,466)

Independent Variable	Effect on ability to focus on academics	Effect on ability to experience college	Effect on ability to graduate college	Effect on ability to pursue higher education	Lost job in past year due to COVID-19	Difficult to find job since COVID-19
Focal independent variables						
Had difficulty paying bills	1.422***	1.130	1.997***	1.479**	2.018***	2.313***
	(0.142)	(0.123)	(0.363)	(0.196)	(0.215)	(0.210)
Residential move during COVID (Did not move = 0)	1.033	1.214	1.094	1.290*	1.515***	1.627***
	(0.106)	(0.133)	(0.176)	(0.163)	(0.154)	(0.149)
COVID-19 impacted internet access	1.267	1.356	1.889***	1.012	1.161	1.419**
	(0.191)	(0.212)	(0.349)	(0.156)	(0.150)	(0.183)
COVID-19 impacted ability to use remote learning	1.309*	1.042	1.286	2.269***	1.245*	1.166
	(0.143)	(0.119)	(0.204)	(0.276)	(0.128)	(0.112)
Needed more emotional support than received during COVID-19	2.359***	1.574***	2.528***	1.793***	1.179	1.666***
	(0.237)	(0.172)	(0.479)	(0.250)	(0.125)	(0.156)
Mom's education (College degree or higher = 0)						
No college degree	0.968	0.861	1.696**	1.341*	1.135	1.032
	(0.108)	(0.102)	(0.306)	(0.179)	(0.124)	(0.103)
Unknown mom's education	0.985	1.068	1.649*	1.022	1.131	1.063
	(0.136)	(0.162)	(0.368)	(0.186)	(0.155)	(0.135)
Non-heterosexual	1.027	1.011	1.597**	1.305	1.398**	1.333**
	(0.125)	(0.131)	(0.274)	(0.179)	(0.155)	(0.145)
Race/ethnicity (Non-Hispanic White = 0)						
Non-Hispanic Black	1.296	0.862	1.358	0.728	1.492	1.899**
	(0.339)	(0.223)	(0.481)	(0.249)	(0.354)	(0.458)
Non-Hispanic Asian	0.514**	1.145	1.010	0.536	1.040	2.056***
	(0.106)	(0.274)	(0.369)	(0.195)	(0.237)	(0.436)
Hispanic	0.998	0.850	1.064	1.071	1.124	0.977
	(0.131)	(0.117)	(0.214)	(0.166)	(0.141)	(0.114)
Non-Hispanic other	0.974	1.006	1.615	1.639*	1.183	1.064
	(0.203)	(0.218)	(0.433)	(0.365)	(0.239)	(0.202)
STEM major	1.328*	0.855	1.198	1.022	0.959	1.080
	(0.150)	(0.101)	(0.198)	(0.136)	(0.103)	(0.107)
Minor children in the household (No children = 0)	1.010	0.747*	1.254	0.922	0.983	0.969
	(0.111)	(0.087)	(0.212)	(0.124)	(0.108)	(0.097)
Other predictors						
Gender (Male = 0)						
Female	1.144	0.931	0.418***	0.646***	1.068	0.849
	(0.123)	(0.109)	(0.068)	(0.085)	(0.118)	(0.084)
Other	1.103	0.791	0.484	1.098	0.632	0.795
	(0.400)	(0.303)	(0.221)	(0.376)	(0.210)	(0.245)
Age	0.963***	0.944***	1.006	1.009	0.972**	0.984*
	(0.007)	(0.007)	(0.012)	(0.009)	(0.009)	(0.007)
Single (Married or cohabiting = 0)	0.950	1.538***	0.994	0.834	0.959	1.273*
	(0.110)	(0.176)	(0.171)	(0.114)	(0.108)	(0.133)
Grade level (Freshman = 0)						
Sophomore	1.657**	0.468**	2.288*	0.615*	1.158	0.792
	(0.311)	(0.114)	(0.899)	(0.143)	(0.203)	(0.131)
Junior	1.452*	0.493**	2.769**	0.704	1.173	0.747

Independent Variable	Effect on ability to focus on academics	Effect on ability to experience college	Effect on ability to graduate college	Effect on ability to pursue higher education	Lost job in past year due to COVID-19	Difficult to find job since COVID-19
	(0.241)	(0.112)	(1.024)	(0.145)	(0.192)	(0.113)
Senior	1.524*	0.438***	5.134***	1.150	1.638**	0.938
	(0.259)	(0.099)	(1.840)	(0.227)	(0.268)	(0.145)
Graduate	1.101	0.197***	4.670***	1.044	1.069	0.576**
	(0.205)	(0.047)	(1.808)	(0.239)	(0.212)	(0.101)
College campus (UCCS = 0)						
StMU	1.859***	2.047***	0.481**	1.090	0.570***	1.345*
	(0.322)	(0.376)	(0.131)	(0.201)	(0.091)	(0.192)
SOU	1.006	1.206	1.076	1.053	1.080	0.942
	(0.182)	(0.236)	(0.281)	(0.222)	(0.187)	(0.155)
Constant	1.957*	18.304***	0.006***	0.058***	0.204***	0.586
	(0.566)	(6.131)	(0.003)	(0.021)	(0.065)	(0.160)

Source: Source: A multi-campus survey of college students' experiences during COVID-19; standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05

not graduate college were more likely to report that the pandemic affected their ability to graduate college (OR = 1.70, p < 0.01), and to pursue higher education (OR = 1.34, p < 0.05).

Pandemic challenges and impacts of COVID-19

In line with Glover et al.'s (2020) framework to address the equity harms of COVID-19, students who experienced residential instability during the pandemic were also significantly more likely to report COVID-19 impacts on their ability to pursue higher education (OR = 1.29 p < 0.05), job loss (OR = 1.52 p < 0.001), and problems finding a job since COVID-19 (OR = 1.63 p < 0.001). Similarly, students who required more emotional support than they received during the pandemic were more likely to report on five out of the six impacts. Specifically, students who lacked sufficient emotional support during the pandemic were more likely to have COVID-19 impact their ability to focus on academics (OR = 2.36, p < 0.001), experience college life (OR = 1.57, p < 0.001), graduate college (OR = 2.53, p < 0.001), pursue higher education (OR = 1.79, p < 0.001) and encounter difficulties in finding a job since COVID-19 (OR = 1.67, p < 0.001). The study found that students whose internet access was impacted by COVID-19 were more likely to report that the pandemic affected their ability to graduate college (OR = 1.89, p < 0.001) and difficulty in finding a job (OR = 1.42, p < 0.05). Additionally, students who experienced challenges with remote learning due to COVID-19 were more likely to report that the pandemic affected their ability to focus on their academics (OR = 1.31, p < 0.05), ability to pursue higher education (OR = 2.30, p < 0.001), and job loss in the past year (OR = 1.25, p < 0.05).

Student characteristics and impacts of COVID-19

Non-heterosexual students were more likely than those identifying as straight to report COVID-19 impacts on their ability to graduate college (OR = 1.60, p < 0.01), job loss (OR = 1.40, p < 0.01), and problems finding a job since COVID-19 (OR = 1.33, p < 0.01). Although Asian students were less likely to have their academic focus impacted by COVID-19, Black and Asian students were almost twice as likely as their White counterparts to report difficulty finding a job during COVID-19. Perhaps because some of their courses required hands-on approach such as in laboratories, students in STEM majors were significantly more likely to report COVID-19 impact on their ability to focus on academics (OR = 1.33, p < 0.05). Students living with minor children were significantly less impacted by COVID-19 in their ability to experience college life (OR = 0.75, p < 0.05).

Other significant predictors of COVID-19 impacts in this study include gender, age, relationship status, grade level, and college campus. Relative to males, female students were significantly less likely to report COVID-19 impacts on their ability to graduate college (OR = 0.50, p < 0.001) and to pursue higher education (OR = 0.69, p < 0.01). The likelihood of reporting COVID-19 impact on ability to focus on academics, ability to experience college life, and on job loss declines significantly with increasing age of students. Single students, relative to those who were married or cohabiting, were significantly more likely to report COVID-19 impact on their college life (OR = 1.54, p < 0.001) and difficulty finding a job (OR = 1.27, p < 0.01). Regarding college grade level, sophomore, junior, and senior students were significantly more likely than freshmen to report their academic focus and ability to

graduate as impacted by COVID-19. However, freshmen seem more significantly impacted by COVID-19 in their ability to experience college life. In terms of the institution attended, students at StMU may have experienced COVID-19 differently than UCCS students; they were significantly more likely to report impact on their academic focus (OR = 1.86, p < 0.001), ability to experience college life (OR = 2.05, p < 0.001), and difficulty finding a job (OR = 1.35, p < 0.05). UCCS students were, however, significantly more likely than StMU students to report COVID-19 impact on their ability to graduate college (OR = 0.56, p < 0.05) and job loss within the first year of COVID-19 (OR = 0.59, p < 0.01).

5. Discussion

The contemporary portrait of the collegiate population indicates an increasing diversity with a growing number of nontraditional students. These students are typically older, balancing work and familial responsibilities, and many are students of color and first-generation (Bill and Melinda Gates Foundation, 2020; Higher Learning Advocates, 2018). Amidst these demographic changes, higher education faces challenges such as transition and adaptation to college, class attendance, college student learning environments, as well as the overall mental and social well-being of students (Bowman, 2010; Conley et al., 2020; Mahalik, 2020; Maryanti et.al, 2020). These experiences were further intensified in the spring of 2020 with the onset of the Coronavirus pandemic (COVID-19), which dealt a catastrophic blow to colleges and universities. The pandemic has exacerbated the college students' experiences, leaving them feeling dejected that personal milestones and dreams have been left unachieved (Lederer et al., 2021). According to Peltier et al. (2000), "students' college experience in or outside of the classroom...is fundamental to their well-being and success." Therefore, within this context, colleges and universities are left to tackle the question of how COVID-19 has impacted college students' experiences.

This study confirms Glover et al.'s theory that COVID-19 exacerbated pre-existing inequalities. Students from families facing financial difficulties and those with mothers who have less than a college education experienced more adverse effects during the pandemic. Moreover, our findings highlight the disproportionate impact on minoritized student populations, including non-heterosexual students and Black students. These students faced greater challenges in their ability to focus on academics, graduate college, pursue higher education, and were more likely to experience job loss or encounter difficulties in finding employment during the COVID-19 pandemic. Recognizing the disparities faced by various student populations, it is crucial for universities

to develop targeted support programs tailored to the needs of economically disadvantaged backgrounds, first-generation college students, racial and ethnic minorities, LGBTQ+ students, and other marginalized groups.

Additionally, the study aligns with Tinto's (1975) and Schlossberg's (1981) theories. Consistent with Tinto's theory, our results demonstrate that students who had limited integration within the online college environment during the pandemic were more susceptible to negative impacts from COVID-19. Specifically, students whose internet access and remote learning experiences were impacted by COVID-19 reported more significant effects on their academic experiences. Furthermore, in line with both Schlossberg and Tinto's theories, students who lacked sufficient emotional support were also more heavily impacted across the six measured areas.

To address the challenges many students faced in focusing on academics during the pandemic, universities should provide resources and support systems to help students maintain their academic engagement. This can include virtual study groups, academic coaching, and online workshops on time management and study skills. As the pandemic forced a shift to online learning, universities should invest in improving the quality of virtual education. This may involve faculty training in effective online teaching methods, ensuring accessibility and inclusivity in online course materials, and incorporating interactive elements into virtual classrooms to promote student engagement.

Financial challenges were widespread among students due to job loss and economic uncertainty during the pandemic. Universities should consider implementing financial assistance programs and emergency grants to support students during such challenging times. Recognizing the social distancing requirements and isolation experienced by students, universities should prioritize building virtual and in-person communities. This can involve organizing virtual social events, student organizations, mentorship programs, and providing opportunities for peer support. Creating a sense of belonging and connection is crucial for student well-being and academic success, particularly during uncertain times.

Unsurprisingly (given the disproportionate impacts of COVID on disadvantaged groups), more than half of the students (52%) experienced residential instability during the pandemic. Residential instability can significantly impact a student's ability to focus on their academics, maintain their well-being, and engage fully in their educational experience. Universities could establish housing support and stability programs to assist students who are facing or at risk of residential instability. These programs can include initiatives such as emergency

housing assistance and collaboration with local housing agencies or community organizations to offer rental assistance programs specifically tailored to students.

Additionally, it is essential for universities to conduct ongoing research and assessment to monitor the impact of the pandemic on students' experiences and well-being. Research and assessment studies can provide valuable insights for designing targeted interventions and adapting support strategies as needed. By implementing these recommendations, universities and student affairs professionals can effectively support students during and beyond the COVID-19 pandemic, ensuring their well-being, academic success, and sense of belonging within the university community.

It is important to acknowledge the limitations of this study, including potential selection bias, the cross-sectional nature of the data, and limited generalizability. The study is also unable to capture the impacts of grades/GPAs and COVID-19 infections (of respondents and family members) on these outcomes. Nonetheless, the study sheds light on the effects of the COVID-19 pandemic on college students' academic experiences and provide valuable insights for college administrators and policymakers.

Our findings have important implications for policy development in higher education, particularly regarding crisis response and student support. Based on our analysis, we recommend several key policy solutions:

First, institutions should implement flexible academic policies that account for diverse student circumstances, including adjusted attendance requirements, flexible assessment methods, and modified progression criteria. Second, we recommend developing comprehensive emergency response protocols that include financial assistance programs, particularly for students facing economic hardships. Third, institutions should invest in robust virtual learning infrastructure while ensuring equitable technology access across student populations.

Additionally, our findings suggest the need for enhanced support services. This includes expanding mental health resources with both remote and in-person options, creating early warning systems to identify struggling students, and developing targeted support programs for marginalized populations. Housing stability programs should also be established, given our finding that 52% of students experienced residential instability during the pandemic.

These policy recommendations aim to address both immediate crisis response and long-term institutional preparedness. By implementing these solutions, institutions can better support students during future disruptions while promoting more equitable educational outcomes.

Future Research

Our findings have raised important questions about the long-term effects of COVID-19 on college students, particularly in terms of persistence, retention, and overall well-being. However, given the cross-sectional nature of our data, there is a need for further research to delve deeper into these areas and provide a comprehensive understanding of the challenges faced by students. Future studies should prioritize investigating the long-term academic, career, and mental health outcomes of minoritized students and other marginalized groups who experienced disproportionate impacts during the pandemic. By examining the lasting effects on their educational trajectories, career prospects, and psychological well-being, we can gain insights into the necessary interventions and support programs needed to ensure their long-term success.

Secondly, future research should employ mixed-methods approaches to capture both broad patterns and individual experiences. While our quantitative analysis revealed important trends, incorporating qualitative interviews would provide deeper insights into students' lived experiences during the pandemic. This could help identify specific challenges and coping strategies that might not be captured in survey data alone.

Moreover, there is a critical need to explore the intersectional experiences of students from multiple marginalized identities. Intersectionality recognizes that individuals possess various intersecting social identities, such as race, gender, sexuality, and socioeconomic status, which shape their unique experiences and challenges. Research should focus on understanding the compounded effects of these intersecting identities on students' academic and personal lives. For instance, investigating the experiences of students of color or low-income first-generation students can shed light on the specific barriers they face and inform the development of more targeted and inclusive support initiatives.

Additionally, assessing the effectiveness of existing policies and interventions in addressing disparities and supporting marginalized student populations is crucial. It is essential to evaluate the implementation and impact of financial assistance programs, housing stability initiatives, and other support measures to determine their efficacy. By conducting rigorous assessments, we can identify areas for improvement, refine existing strategies, and allocate resources more effectively. This will ultimately contribute to the development of evidence-based policies that better address the needs of marginalized students.

Furthermore, exploring the role of technology and virtual platforms in supporting students' academic success and well-being is an emerging area that warrants

attention. As the pandemic accelerated the adoption of online learning and remote support systems, it is crucial to assess the effectiveness of these virtual resources. Future research should examine the quality of virtual education, accessibility of online course materials, and the impact of virtual engagement on student outcomes. This knowledge will inform best practices for online teaching, student support, and the creation of inclusive virtual learning environments.

6. Conclusion

The COVID-19 pandemic has fundamentally altered the landscape of higher education, with particularly significant impacts on already vulnerable student populations. Our study reveals that these impacts extend beyond immediate academic concerns to affect students' broader educational trajectories and career prospects. The disproportionate effects on students from economically disadvantaged backgrounds, those lacking adequate emotional support, and minoritized populations highlight the urgent need for targeted interventions and systemic change in higher education.

The findings underscore the importance of developing comprehensive crisis response frameworks that prioritize equity and accessibility. Educational institutions must implement flexible academic policies, enhance support services, and strengthen virtual learning infrastructure while ensuring equitable access to resources. Additionally, the development of early warning systems and targeted support programs for marginalized populations should be prioritized to prevent the exacerbation of existing educational disparities during future crises.

For policymakers and higher education administrators, our findings provide crucial guidance for institutional preparedness. The high prevalence of residential instability, technological barriers, and emotional support needs among students suggests that comprehensive support systems must extend beyond traditional academic services. Future policy development should focus on creating resilient institutional structures that can adapt to crises while maintaining educational quality and accessibility for all students.

In conclusion, the COVID-19 pandemic had far-reaching effects on students' academic experiences and life trajectories, disproportionately affecting students from marginalized groups. By understanding these impacts, educational institutions can develop more inclusive policies to address disparities in access, support systems, and employment outcomes. This study offers crucial guidance for policymakers and higher education administrators to better prepare for future crises.

Competing interests

The authors declare that they have no competing interests.

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Biographical Statement of Author(s)

Osasohan Agbonlahor is an Assistant Professor of Leadership Studies at North Carolina Agricultural and Technical State University. She earned her Ph.D. from Central Michigan University.

Her research focuses on the trajectories of international students, postsecondary outcomes, and the participation of underrepresented minorities in STEM fields.

Dr. Osasohan Agbonlahor
Department of Leadership Studies and Adult Education
College of Education
North Carolina Agricultural and Technical State University
USA
E-mail: oagbonlahor@ncat.edu
TTel: (+1) 336-285-2145

Esther Lamidi is an Associate Professor of Sociology at the University of Colorado at Colorado Springs. She earned her Ph.D. from Bowling Green State University. Lamidi studies health and wellbeing of families and children.

Her research interests include social and spatial inequalities in health and wellbeing, maternal and child health, and food security.

Dr. Esther Lamidi
Department of Sociology
College of Letters, Arts, and Sciences
University of Colorado Colorado Springs
USA
E-mail: elamidi@uccs.edu

Larry Gibbs is an Associate Professor of Sociology and Healthcare Administration at Southern Oregon University, Ashland, OR. He earned his Ph.D. from Bowling Green State University.

His research interests include community-based health assessments, social determinants of health, and reproductive health.

Dr. Larry Gibbs
Department of Sociology and Anthropology
Southern Oregon University
USA
E-mail: gibbsl@sou.edu

Sue P. Nash is an Associate Professor of Sociology and Public Health at St. Mary's University, San Antonio, TX. She earned her Ph.D. from Bowling Green State University.

Her research interests include health and wellbeing, social psychological processes such as compassion, the intersection of race and religion and food insecurity.

Dr. Sue P. Nash
Department of Sociology
College of Arts, Humanities, and Social Sciences
St. Mary's University
USA
E-mail: snash1@stmarytx.edu