Rural College Students' Academic, Financial, and Health-Related Obstacles During the COVID-19 Pandemic: Implications for Academic Advisors

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We examined whether the odds of experiencing academic, financial, or health-related obstacles during the COVID-19 pandemic were significantly ($p < .05$) different between students attending rural and suburban/urban colleges. We used data from a multi-institutional survey of 31,575 four-year college/university students attending seven rural and 62 suburban/urban colleges/universities in our analyses. Controlling for additional demographic, collegiate, and institutional variables in 19 logistic regressions, the results suggested that the odds of experiencing academic obstacles (e.g., lacking access to instructors), financial obstacles (e.g., losing wages from employment), and health-related obstacles (e.g., hospitalization from COVID-19) during the pandemic were significantly ($p < .001$) higher for rural college students compared to suburban/urban students.

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In March 2020, the World Health Organization declared a global pandemic for an outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes the coronavirus disease (COVID-19). Quickly, U.S. higher education leaders enacted policies to prevent the spread of the virus, including shifting in-person classes to remote delivery, closing residence halls and campus facilities, and requiring staff—including many academic advisors—to work remotely. These disruptive events disproportionately affected marginalized and disenfranchised students who experienced significantly more academic disruptions, financial obstacles, and mental health concerns than other college students (Grim et al., 2023; Molock & Parchem, 2022; Soria & Horgos, 2021; Soria et al., 2021; Soria et al., 2022; Soria et al., 2023).

Although researchers continue to illuminate the disparate effects of COVID-19 policies on college students, at present few have focused on pandemic-related experiences of students enrolled at rural colleges/universities (hereafter, referred to as "rural students"). Rural students encounter structural obstacles that compromise their success in higher education, including geographic isolation and limited economic and education resources (Crain, 2018; Koricich et al., 2018; Lumina Foundation, 2023; McCauley, 2022). Consequently, only 29.6% of first-time, full-time students who started college in 2013 and attended rural four-year colleges/universities completed their bachelor's degrees in 8 years compared to 53.4% of students who attended urban four-year colleges/universities (Integrated Postsecondary Education Data System [IPEDS], 2023a). Academic advisors support college student success, so it is important for advisors to learn about barriers facing rural students (Dawson & Dell, 1997; Ford et al., 2023; Goldman, 2019; McGill, 2016; Yenney, 2021).

The structural barriers rural students experienced prior to the pandemic may have been exacerbated by pandemic-related policies, leading to further disparities between rural students and students attending suburban/urban colleges/universities (hereafter, suburban/urban students). Investigating such disparities can help academic advisors support rural students. Therefore, we developed the following research question to guide this study: After controlling for additional demographic, collegiate, and institutional variables, are the odds of experiencing academic, financial, or health-related obstacles during the COVID-19 pandemic significantly ($p < .05$) different between rural and suburban/urban students? Due to the structural barriers rural students encounter in higher education, we hypothesized that rural students would have higher odds of experiencing academic, financial, or health-related obstacles during the pandemic than suburban/urban students.

Literature Review

Most research on college students' experiences during the pandemic features three primary themes: academic, financial, and health-related obstacles. All three obstacles impact academic advisors because of their effects on students'

degree completion (Barbera et al., 2020) and are described below as they intersect with rural students' structural barriers.

Academic Obstacles

In the spring of 2020, most students shifted to online learning. Many experienced difficulties accessing technology, connecting with faculty/classmates, or finding distraction-free study spaces (Coman et al., 2020; Soria et al., 2022). Academic advisors became lifelines to students amid those challenges, often devoting personal time to respond to student emails and meet increasing requests for assistance (Survase & Johnson, 2023). While academic advisors have always been at the forefront of integrating technology into their practices (White, 2020), rural students often have limited access to technology given their geographic location and social circumstances. Rural communities tend to have reduced or subpar access to broadband internet connections (Jaggars et al., 2021). Close to half of rural students live in areas without high-speed internet access and over one-third do not have a home computer (Hampton et al., 2020). Increasingly, having access to reliable high-speed internet is a necessity for college students—even in in-person classes—so students without reliable internet are not as likely to succeed (Jaggers et al., 2021; Reisdorf et al., 2020). Students with slower internet connections, no home computer, or insufficient software programs are less likely to collaborate with classmates or seek academic assistance, more likely to experience academic stress, and more likely to have lower grade point averages (Gonzales et al., 2020; Hampton et al., 2020). The reliance upon technology for online classes during the pandemic may have exacerbated rural students' academic obstacles.

Financial Obstacles

Academic advisors are often *the* primary source of information for students, so they play a paramount role in assisting students with questions related to financial aid and emergency financial resources. Academic advisors' role in relaying financial-related information is so critical that advisor interactions can sometimes make or break a student's decision to remain enrolled (Elliott, 2020). In the spring of 2020, advisors helped students navigate new financial obstacles, such as increased expenses, increased basic needs insecurity, lost wages or health insurance (ElTohamy et al., 2022; Soria, 2023; Soria et al., 2020; Soria et al., 2023; Soria & Coca, 2023). Indeed, during the pandemic, student demand for financial aid advising increased considerably (Blankstein et al., 2020).

Those financial hardships were aggravated for rural students, especially those who lived in communities with the highest poverty rates, lowest graduation rates, and deeply rooted interconnected issues such as poverty and historical racism (Ratledge et al., 2020). Rural communities have more limited employment opportunities, higher rates of poverty and unemployment, and lower educational achievement rates and household incomes compared to urban communities (Ratledge et al., 2020; U.S. Department of Agriculture, 2023).

Magnifying those existing challenges in rural communities, over time, the states with the highest percentage of rural areas have cut funding for public colleges and universities since the 2008 recession, which shifted the burden of paying for tuition to students (Mitchell et al., 2019). The precarious economic situations of rural communities, pandemic-related job losses and closures of businesses, and reduced public support for higher education contributed to declines in the number of enrolled students at rural colleges and universities from spring 2021 to spring 2023 (National Student Clearinghouse Research Center, 2023). Academic advisors' ability to bridge intra-, inter-, and extra-organizational boundaries and create seamless interactions with financial aid offices, emergency financial assistance programs, basic needs resources, and governmental assistance programs is critical in ensuring students have adequate economic resources to enroll and persist (Elliott, 2020).

Health-Related Obstacles

Some of the concerning health-related obstacles college students experienced during the pandemic—contracting COVID-19, having family or friends who contracted the virus, or knowing individuals who died from the virus (ElTohamy et al., 2022; Soria, 2023; Soria & Horgos, 2021)—are associated with lower grade point averages and increased class absences, financial challenges, psychological distress, anxiety, and depression (ElTohamy et al., 2022; Harris & Lockwood Reynolds, 2024; Soria & Horgos, 2021, Soria et al., 2022). Thus, those health-related conditions have implications for academic advisors, who are

often on the "frontlines" of helping students navigate academic policies, procedures, and resources that benefit students with health-related setbacks (Elliott, 2020).

As it relates to the present study, structural inequalities in healthcare leave rural communities chronically underserved, with fewer healthcare and mental health providers, shortages in primary health services, and more barriers to adequate physical and mental healthcare (McClure et al., 2021). Early in the pandemic, public health agencies invested more resources in denser urban areas and rural communities experienced higher rates of COVID-19 infection and mortality (Centers for Disease Control and Prevention, 2021; Elharake et al., 2023; Ullrich & Mueller, 2023). Those inequalities may mean that rural students were more susceptible to contracting COVID-19 earlier in the pandemic than suburban/urban students (Dasinger & Gibson, 2024; Elharake et al., 2023).

Given such evidence, rural students may have experienced higher levels of academic, financial, and health-related obstacles during the pandemic than suburban/urban students. However, there is limited research to address all three areas of students' experiences and their implications for academic advisors. Therefore, we designed the present study to fill this gap and illustrate potential disparities between rural and suburban/urban students during the pandemic.

Conceptual Framework

Glover et al.'s (2020) work acts as a conceptual framework for mitigating the equity harms of COVID-19. Glover et al. asserted that implemented inequitable COVID-19 policies placed additional harm upon the marginalized, oppressed, and disenfranchised prior to the pandemic. For instance, rural students who lost campus jobs likely struggled to find other work (Brown, 2020). When campus buildings closed, rural students disproportionately lost access to free high-speed internet or high-functioning computers (Jaggars et al., 2021). Rural students who lived on campus and were required to relocate to off-campus housing may have struggled to find affordable alternative accommodations (Waters-Bailey et al., 2019). Additionally, based on the work of Glover et al., we paid special attention to demographic variables (i.e., location, occupation, race, gender, etc.) and used those demographic variables (or proxies) as control variables in our analyses.

Methodology

Instrument

We administered a Multi-Institutional Study of Leadership (MSL) survey to undergraduate students at 69 U.S. four-year colleges/universities from January to May of 2021. Each participating college/university randomly administered our online survey to a sample of undergraduate students ($n = 234{,}981$), with larger colleges/universities sampling at least 4,000 students and some colleges/universities oversampling selected groups. The overall response rate was 21.0% ($n = 49{,}307$). The MSL survey is known for its sound psychometric properties (Dugan, 2015). In the spring 2021 MSL survey, the principal investigators added items related to students' academic, financial, and health-related obstacles during the COVID-19 pandemic.

Sample

The final sample included 31,575 students (13.4%) who responded to all items. There were seven four-year rural colleges/universities serving 3,073 (9.7%) students and 62 suburban/urban colleges/universities serving 28,502 (90.3%) students in the sample. We defined rural colleges/universities using the rural-serving institution metric developed by Koricich et al. (2022), which incorporates location alongside five other measures of rurality (e.g., whether the institution's county is adjacent to a metro area). The sample primarily included cisgender women (67.0%), White students (63.4%), domestic students (95.7%), and students who were enrolled full-time (96.1%; Table 1).

Measures

Independent Variables

We used students' demographic characteristics, collegiate experiences, and other institutional characteristics as control variables (Table 1). The demographic characteristics included students' gender, race/ethnicity, international status, parental education, sexual orientation, social class, disability, and age ($\bar{x} = 21.13$, $s = 4.67$). The variables related to students' collegiate experiences included transfer status, enrollment status, class level, employment, residence, and academic major. The institutional characteristics included Carnegie classification, institutional size, control, and setting (rural vs. suburban/urban).

Table 1. Descriptive Information for Participants

	n	%
Institutional setting		
Rural	5,433	17.2
Suburban or urban	26,142	82.8
Gender		
Man	9,711	30.8
Woman	21,168	67.0
Transgender or gender non-conforming	696	2.2
Race/ethnicity		
Middle Eastern or Northern African	285	0.9
African American or Black	1,580	5.0
American Indian or Alaska Native	89	0.3
Asian American	2,765	8.8
Native Hawaiian or Pacific Islander	27	0.1
Latinx or Hispanic	2,465	7.8
Multiracial	3,569	11.3
White	20,030	63.4
Race not listed	765	2.4
Citizenship		
Domestic student	30,185	95.7
International student	1,370	4.3
Parental education		
Continuing-generation	20,918	66.2
First-generation	10,657	33.8
Military experience		
Non-military	31,031	98.3
Military	544	1.7
Transfer status		
Non-transfer	25,577	81.0
Transfer	5,998	19.0
Enrollment status		
Full-time	30,256	96.1
Part-time	1,239	3.9
Sexual orientation		
Asexual	1,176	3.7
Bisexual	2,958	9.4
Gay	477	1.5
Lesbian	456	1.4
Heterosexual	23,195	73.5
Pansexual	401	1.3
Queer	300	1.0
Questioning or unsure	695	2.2
Preferred response not listed	1,918	6.1
Multiple categories selected	1,489	4.7
Class level		
First year	7,427	23.6
Second year	7,195	22.8
Third year	8,266	26.3
Fourth year and beyond	8,587	27.3

Table 1. Descriptive Information for Participants (cont.)

	n	%
Social class		
Low-income or poor	3,120	9.9
Working-class	6,153	19.5
Middle-class	13,526	42.8
Upper professional or upper middle-class	8,009	25.4
Wealthy	767	2.4
Employment		
Working in an off-campus job unaffiliated with school	10,152	32.2
Working in an on-campus job	7,661	24.3
Residence		
Off-campus with partner, spouse, and/or children	2,169	6.9
Off-campus with parent/guardian or other relative	8,000	25.3
Other off-campus home, apartment, or room	9,103	28.8
College/university residence hall	9,752	30.9
Other on-campus student housing	1,784	5.7
Fraternity or sorority house	542	1.7
Other residence	218	0.7
Academic major		
Natural sciences	3,934	12.5
Science, technology, engineering, or mathematics	5,550	17.6
Business or communications	5,864	18.6
Health-related	3,070	9.7
Education	1,768	5.6
Humanities	2,584	8.2
Social sciences	4,366	13.8
Undeclared or other	2,778	8.8
Disability		
Deaf or hard of hearing	147	0.5
Blind or visual impairment	261	0.8
Speech or language condition	142	0.5
Learning disability	150	0.5
Physical or musculoskeletal (e.g., multiple sclerosis)	69	0.2
Attention deficit disorder or attention deficit hyperactivity disorder	597	1.9
Neurological condition (e.g., brain injury, stroke)	74	0.2
Medical (e.g., diabetes, severe asthma)	203	0.6
Does not have a disability	25,154	79.7
Disability not listed	226	0.7
Multiple disabilities	3,057	9.7
Carnegie Classification		
Baccalaureate	1,480	8.9
Master's colleges and universities: small and medium programs	985	5.9
Master's colleges and universities: larger programs	4,061	24.5
Doctoral/professional universities	2,444	14.7
Doctoral universities: high research activity	2,575	15.5
Doctoral universities: very high research activity	5,025	30.3
Institutional size		
Under 4,999	6,477	20.5
5,000 to 9,999	8,976	28.4
10,000 to 19,999	5,591	17.7
20,000+	10,531	33.4

Table 1. Descriptive Information for Participants (cont.)

	n	%
Control		
Public	16,894	53.5
Private	14,681	46.5
Institutional setting		
Rural	3,073	9.7
Suburban or urban	28,502	90.3

Dependent Variables

The COVID-19 variables included students' academic, financial, and health-related obstacles during the pandemic (Table 2). Students responded either *yes* (1) or *no* (0) regarding whether any of these factors became obstacles for them during the pandemic: lack of access to instructors, learning support services, technology necessary for online learning (e.g., computer hardware, software, access to reliable internet), and an appropriate study space.

Students also responded *yes* (1) or *no* (0) regarding the following potential financial obstacles: lost wages, loss or reduction of scholarship or grant aid, loss or reduction of insurance coverage, cancellation of an expected internship, and loss or reduction of family members' income. Students also indicated their level of pandemic-related concern about sufficient access to food, sustainable access to housing, sustainable employment for themselves, and sustainable employment for their parents/guardians. Students also shared their concern in meeting routine financial obligations (e.g., utility bills, car loans) and paying for their education in the future. Those items were scaled 0 = *not at all*

Table 2. COVID-19 Related Obstacles for the Full Sample

	n	%
COVID-19 academic obstacles		
Lack of access to instructors	12,966	41.1
Lack of access to learning support services	8,102	25.7
Lack of access to an appropriate study space because of a distracting home environment	18,726	59.3
Lack of access to technology necessary for online learning (e.g., computer hardware, software, access to reliable internet)	7,021	22.2
COVID-19 financial obstacles		
Loss of wages from employment	11,025	34.9
Loss or reduction of scholarship or grant aid	3,605	11.4
Loss or reduction of insurance coverage	2,296	7.3
Loss or cancellation of an expected internship	6,374	20.2
Loss or reduction of income of other family members	10,330	32.7
Concerns about sufficient access to food	2,178	6.9
Concerns about sustainable access to housing	2,694	8.6
Concerns about ability to meet routine financial obligations (e.g., utility bills, car loan)	6,905	21.9
Concerns about sustainable employmentfor self	10,524	34.0
Concerns about sustainable employment for a parent/guardian	7,209	23.3
Concerns about ability to pay for your education in the future	11,359	36.3
COVID-19 health-related obstacles		
A family member or close friend passed away from COVID-19	4,288	13.6
A family member or close friend contracted COVID-19 requiring hospitalization and eventually recovered	6,739	21.3
Student contracted COVID-19 requiring hospitalization	659	2.1
Concerns about adequate medical care	4,496	14.2

concerned, 1 = *somewhat concerned*, 2 = *concerned*, and 3 = *very concerned*, which we recoded to 0 = *somewhat or not at all concerned* and 1 = *concerned* or *very concerned*.

Finally, students responded *yes* (1) or *no* (0) regarding whether any of the following were health-related obstacles for them during the pandemic: a family member or close friend who passed away from COVID-19, a family member or close friend contracted COVID-19 requiring hospitalization, and the student contracted COVID-19 which required hospitalization. Students also reported whether they were concerned about receiving adequate medical care during the pandemic, an item scaled 0 = *not at all concerned*, 1 = *somewhat concerned*, 2 = *concerned*, and 3 = *very concerned* which we recoded to 0 = *somewhat or not at all concerned* and 1 = *concerned or very concerned*.

Data Analyses

We analyzed the data using 19 different multiple binary logistic regressions to examine whether the odds of experiencing academic, financial, or health-related obstacles during the COVID-19 pandemic were significantly ($p < .05$) different between rural and suburban/urban students. The regression equation is below:

$$P(Y_1) = \frac{1}{1 + e^{-(b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + \cdots + \ b_{63}x_{63})}}$$

Where Y_1 = obstacle (0 = no, 1 = yes), b_o = intercept, x_1 = institution location (0 = suburban/urban, 1 = rural), x_{2-36} = demographic variables (e.g., gender), x_{37-53} = collegiate variables (e.g., academic major), and x_{54-63} = institutional variables (e.g., size).

We utilized R Statistical Software for analyses (v4.1.3) and tested data analysis assumptions. Although homoscedasticity (i.e., equal variances of the models' residuals) is not commonly tested in logistic regressions, unequal sample sizes can create problems related to heteroscedasticity (i.e., unequal variance of the residuals; Parra-Frutos, 2013). Therefore, we examined Q–Q plots of the predicted and observed residuals for each of the 19 logistic regression models and conducted dispersions tests (Hartig, 2022). The results suggest that heteroscedasticity was not problematic. We also examined the data for multicollinearity: There were no bivariate correlations above $r = .5$ and none of the variance inflation factors had values above 3.0, so multicollinearity may not be problematic (Field et al., 2012). We examined the linear relationships between the continuous predictor values and the logit values by visually inspecting the scatterplots between each predictor and logit value and observed linear relationships. We also examined a visualization of Cook's (1977) distance values and computed the standardized residuals. There were no standardized residuals above 3.0, nor were there influential values or outliers.

We ran additional diagnostics to assess the models. We compared the Akaike Information Criterion (AIC) values in the final models against the null models; our results suggest the final models had lower AIC values, and typically models with the lowest AIC values are preferred due to their better fit (Kline, 2010). We used McKelvey and Zavoina's (1975) pseudo-R^2 value, one of the better estimates to evaluate the fit of binary models (Langer, 2016). The results ranged from .19 to .37. To assess how well the data fit the models, we used Hosmer et al.'s (2013) test, which calculates whether the observed event rates match the expected event rates in subgroups. Due to the large sample size, we modified the number of groups based upon Paul et al.'s (2013) recommendation for a sample of $n >$ 25,000, $g = 688$. The results suggested that the data fit each separate model well ($p > .01$).

Finally, we computed the beta coefficients, Wald statistics, odds ratios, 95% confidence intervals for the odds ratios, and *p*-values via 19 different logistic regressions (Table 3). In the present study, the odds ratios (OR) represent the odds that rural students experienced a pandemic-related obstacle compared to suburban/urban students. For example, if 40% of rural students lacked computers (A) and 60% did not (B) and 30% of suburban/urban students lacked computers (C) and 70% did not (D), the OR = (A/B)/(C/D) = 1.556. In that example, the odds of lacking computers are 1.556 times higher for rural students than for suburban/urban students.

Results

To save space, we only report results for the focal independent variable (students attending rural colleges/universities compared to students attending suburban/urban colleges/universities) below. Overall, these results suggest that the odds of experiencing any of the 19 academic, financial, and health-related obstacles during the pandemic were significantly ($p < .001$) higher

Table 3. Results of the Logistic Regressions

	B	*SE*	*Wald*	*OR*	*95% CI*	*OR*	*p*
COVID-19 academic obstacles							
Lack of access to instructors	.102	.048	4.581	1.107	1.009	1.216	<.001
Lack of access to learning support services	.128	.031	16.910	1.137	10.69	1.208	<.001
Lack of access to an appropriate study space because of a distracting home environment	.171	.033	27.478	1.186	1.113	1.264	<.001
Lack of access to technology necessary for online learning (e.g., computer hardware, software, access to reliable internet)	.296	.064	21.618	1.344	1.187	1.523	<.001
COVID-19 financial obstacles							
Loss of wages from employment	.266	.041	41.480	1.304	1.203	1.414	<.001
Loss or reduction of scholarship or grant aid	.287	.141	4.137	1.333	1.011	1.758	<.001
Loss or reduction of insurance coverage	.282	.029	93.131	1.326	1.252	1.404	<.001
Loss or cancellation of an expected internship	.259	.039	43.217	1.296	1.199	1.400	<.001
Loss or reduction of income of other family members	.236	.033	51.146	1.266	1.187	1.351	<.001
Concerns about sufficient access to food	.440	.091	23.343	1.553	1.299	1.857	<.001
Concerns about sustainable access tohousing	.269	.052	26.331	1.309	1.181	1.450	<.001
Concerns about ability to meet routine financial obligations (e.g., utility bills, car loan)	.269	.098	7.480	1.309	1.079	1.588	<.001
Concerns about sustainable employment for self	.318	.033	93.719	1.375	1.289	1.466	<.001
Concerns about sustainable employment for a parent/guardian	.234	.039	35.914	1.263	1.170	1.364	<.001
Concerns about ability to pay for your education in the future	.208	.069	9.009	1.231	10.75	1.411	<.001
COVID-19 health-related obstacles							
A family member or close friend passed away from COVID-19	.227	.069	10.792	1.255	1.096	1.437	<.001
A family member or close friend contracted COVID-19 requiring hospitalization and eventually recovered	.184	.087	4.457	1.202	1.013	1.425	<.001
Student contracted COVID-19 requiring hospitalization	.209	.096	4.712	1.232	1.020	1.488	<.001
Concerns about adequate medical care	.165	.033	24.330	1.179	1.104	1.258	<.001

Note. The models included all independent variables, but only the results for rural students (= 1) compared to suburban/urban students (= 0) are shown.

for rural students than suburban/urban students, even after considering the effects of other demographic, collegiate, and institutional variables (Table 3). For academic obstacles, the odds of lacking access to instructors (OR = 1.107, $p < .001$), learning support services (OR = 1.137, $p < .001$), an appropriate study space (OR = 1.186, $p < .001$), and to technology necessary for online learning (OR = 1.344, $p < .001$) were significantly higher for rural students than suburban/urban students.

Rural students also had higher odds of facing financial obstacles during the pandemic compared to suburban/urban students. The odds of reduced employment (OR = 1.304, $p < .001$), lost or reduced scholarships/financial aid (OR = 1.333, $p < .001$), lowered insurance coverage (OR = 1.326, $p < .001$), cancelled internships (OR = 1.1.296, $p < .001$), and losses in family members' income (OR = 1.266, $p < .001$) were also significantly higher for rural students. Additionally, the odds of feeling concerned about having sufficient access to food and (OR = 1.553, $p < .001$) sustainable access to housing (OR = 1.308, $p < .001$), meeting routine financial obligations (e.g., utility bills; OR = 1.309, $p < .001$), retaining sustainable employment for themselves (OR = 1.375, $p < .001$)

or parents/guardians (OR = 1.263, $p < .001$), and paying for education (OR = 1.231, $p < .001$) were significantly higher for rural students than suburban/urban students.

Finally, rural students were more likely to experience health-related obstacles during the pandemic than suburban/urban students. The odds of having a family member or close friend pass away from COVID-19 (OR = 1.255, $p < .001$), contract COVID-19 and recover (OR = 1.202, $p < .001$), become hospitalized from COVID-19 (OR = 1.232, $p < .001$), or feeling concerned about access to medical care (OR = 1.179, $p < .001$) were significantly higher for rural students than suburban/urban students.

Discussion

The results corroborate Glover et al.'s (2020) proposition that the policies enacted during the pandemic likely generated additional harm upon rural college students. If cumulative or multiplicative, those disparities could signal long-term challenges for rural students (Glover et al., 2020). While some of these obstacles are less pronounced as the emergency pandemic wanes, our results highlight the underlying ways in which the systemic barriers experienced by rural communities manifest into inequities for rural students. These inequities may persist, have lingering effects on rural students, or resurface during future societal challenges or disruptive events (e.g., natural disasters, economic recession, industry closures); therefore, the results have important implications for academic advisors.

Coupled with the long-term disinvestment in rural colleges/universities, the disruptive nature of the COVID-19 pandemic likely contributed to rural students' academic obstacles. Since 2008, 15 of the 20 most rural states have decreased funding for public colleges and universities, leading colleges/universities to reduce full-time faculty (Mitchell et al., 2019). As austerity measures, rural colleges/universities are increasingly relying upon contingent or adjunct faculty to teach classes. In 2001, 25.3% of faculty at four-year rural colleges/universities were in non-tenure track positions; however, 20 years later, 50.0% of faculty at four-year rural colleges/universities were in non-tenure track positions (IPEDS, 2023b). Over half of non-tenure track or non-tenured faculty at rural four-year colleges/universities work part-time, which can reduce faculty's availability to support students and may have contributed to rural students' difficulties in accessing instructors. Rural colleges/universities have also cut student services (Mitchell et al., 2019), which may have contributed to rural students' challenges accessing learning support services during the pandemic.

While it is disconcerting that rural students experienced greater academic obstacles during the pandemic, it should not be surprising given current higher education trends. The public disinvestment in rural colleges/universities over the last 2 decades has led to the elimination of academic programs and campus closures at rural institutions (Mitchell et al., 2019). Rural communities are already disproportionately impacted by a lack of proximate higher education institutions (Koricich et al., 2020) and the closures of satellite or branch campuses can impede rural students' access to adequate study facilities close to home.

Online education is often touted as a means of closing educational gaps and increasing accessibility for rural students; however, rural communities often lack affordable and reliable internet services. While only 1.3% of U.S. adults live in "complete education deserts"—meaning they lack access to both proximate postsecondary institutions and broadband internet that is fast enough to participate in online education—82% of those who live in "complete education deserts" live in rural areas (Rosenboom & Blagg, 2018, p. 3). Thus, when campuses shifted to online operations during the pandemic, the rural students bore the brunt of persistent technology- and internet-related challenges.

Further, rural students experienced greater financial obstacles than their suburban/urban counterparts. Rural areas have fewer job opportunities, higher poverty levels, and increased vulnerability to labor market disruptions than suburban/urban areas (Mueller et al., 2020). The pandemic worsened these trends, leading to fourfold increases in unemployment among rural residents (Mueller et al., 2020). Over one-fifth of fully employed rural residents lost their full-time status during the pandemic (Mueller et al., 2020). Rural students working on campuses or in their surrounding communities were not likely to have been immune from those challenges, leading to disproportionately higher rates of financial obstacles compared to suburban/urban students. For instance, we observed that rural students felt more concerned than suburban/urban students about meeting basic financial needs (i.e., food, housing, etc.). Given the disproportionate economic effects

of the initial pandemic policies on employment and wages in rural communities, rural residents experienced much higher rates of food, housing, and financial insecurity (Perry et al., 2021).

Similarly, the results suggest that rural students were more concerned than suburban/urban students about retaining sustainable employment for themselves or parents/guardians and paying for their education than suburban/urban students. Compared to urban colleges/universities, rural institutions receive nearly three times less funding from state appropriations, which has led rural higher education leaders to increase tuition and fees at rural colleges (Koricich et al., 2020; Mitchell et al., 2019). Therefore, the economic ramifications of the pandemic, alongside higher tuition and fee expenses, may have increased rural students' concerns regarding how they may pay for their education.

Finally, compared to suburban/urban students, rural students had higher odds of being hospitalized, or having a family member hospitalized, or pass away, from COVID-19. Rural students were also more likely to feel concerned about receiving adequate medical care. Like the academic and financial obstacles, the health obstacles that rural students experienced during the pandemic are emblematic of the structural challenges facing rural residents. Compared to suburban/urban residents, rural residents have lower rates of vaccination for the COVID-19 virus, higher rates of contracting the COVID-19 virus, and higher rates of death from the COVID-19 virus (National Institute for Health Care Management, 2022; U.S. Department of Agriculture, 2021). The average distance to access general inpatient services in rural communities has increased eightfold since 2012 due to hospital/clinic closures (U.S. Government Accountability Office, 2021), which is problematic because many rural communities do not have a strong public transportation infrastructure (West, 2021). Therefore, rural students' experiences with higher rates of COVID-19 virus infection and concerns about access to medical care are indicative of the obstacles experienced in rural communities.

Recommendations

Even as the pandemic is waning, the academic, financial, and health-related obstacles that rural students experienced continue to have long-lasting implications. While academic advisors cannot single-handedly rectify structural inequities in higher education, they can support individual students as they navigate barriers and provide access to resources to ameliorate the effects of inequalities (White, 2020). To support students who have challenges accessing instructors, advisors may find it useful to work with academic departments to retain a list of alternate contact information for faculty, especially for part-time, contingent, or adjunct faculty. Advisors can also create their own advising spaces (shells/courses) in their institutional learning management system (LMS) to disseminate information to students. Academic administrators can embed advisors into faculty LMS courses so that advisors can view course materials and assignments, communicate with students and instructors, and support students in partnership with faculty. Some campuses annually retire used technology equipment (e.g., laptops, tablets) and hold equipment sales. Advisors can inform students of those sale events, use department budgets to purchase used equipment and loan/donate it to students, or advocate that information technology offices reserve sales specifically for students most in need of technology.

Given the lack of public transportation in rural communities and higher transportation expenses (West, 2021), rural students may only be able to secure employment closer to their home or campus. In response, academic advisors can share their network and connect students with career advisers, local employers, and remote employment or internship opportunities. Advisors can also identify students who would benefit from free/reduced transportation passes and advocate that campus leaders enhance transportation infrastructure (e.g., offer shuttles to local employers, low-cost car rentals).

The pandemic's initial waves constituted a collective traumatic event, which negatively affected students who experienced grief from lost loved ones (Copeland et al., 2021; Soria et al., 2022). Academic advisors can support rural students' health needs by informing them about on-campus or local health services and coordinating health and wellness events in partnership with community health officials (e.g., vaccination clinics, health fairs). We encourage advisors to apply the following trauma-informed approaches in their practices: Realize the impact of trauma, recognize the symptoms and signs of trauma, respond by integrating knowledge about trauma into policies and practices, and resist re-traumatization (Substance Abuse and Mental Health Services Administration, 2014). Advisors can help

rural students feel less threatened, create a sense of safety and support, and refer students to counseling centers where they can access mental health services (Firestein, 2019).

Limitations and Recommendations for Future Research

We used the location of students' college/university as a proxy for whether students lived in a rural or suburban/urban area and assumed that most students lived much of the year in those rural communities. Although rural colleges/universities enroll nearly three times as many high school students from rural communities as from suburban/urban areas, rural college students still experience different structural barriers than students who grew up in rural communities (National Center for Education Statistics, 2024). Consequently, the proxy variable is limited, so we encourage researchers to separately explore the pandemic-related experiences of students from rural communities.

While large, this study's sample included only four-year college students with limited demographic diversity. Further, the rural students in the sample (9.7%) are over-representative of the students who attended all U.S. rural four-year colleges/universities in the same year (1.9% in 2020-2021; IPEDS, 2024), which can introduce sampling bias. Therefore, future researchers should analyze students' experiences using more diverse and representative samples, especially at rural community or technical colleges, which enroll over three times as many students as rural four-year colleges/universities (IPEDS, 2024).

The survey's timing (January to May of 2021) also limits the results to a specific semester during a years-long pandemic. Students completed the survey approximately 1 year after pandemic-related policies were initiated, so students' concerns may have diminished over time. The survey items related to students' academic, financial, or health-related COVID-19 obstacles omitted details about the obstacles or their implications for students' outcomes. Therefore, we recommend that researchers continue to engage in longitudinal or qualitative studies to understand the nuances of rural students' experiences during the pandemic.

Conclusion

This study suggests that rural students experienced greater levels of academic, financial, and health-related obstacles during the COVID-19 pandemic than suburban/urban students. Some of those obstacles may have lingering effects that compromise rural students' educational success. Academic advisors are uniquely positioned to disrupt some of the systemic barriers rural students face in higher education, so we encourage campus leaders to prioritize academic advising's role for rural students in higher education.

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