

Homelessness and food & housing insecurity among NC State students during the COVID-19 pandemic

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Background

In March 2020, the World Health Organization declared a global pandemic as COVID-19 spread internationally at a rapid pace. Also in early March, the University of Washington was among the first universities in the U.S. to transition to fully online delivery of classes (Baker, Hartocollis, & Weise, 2020), and within a few weeks, more than 250 other institutions of higher education had also ceased on-campus operations (Dennon, 2020). With little notice, university campuses closed in an effort to slow the spread of COVID-19. Campus closures resulted in loss of students' on-campus jobs or reductions in their work hours, causing economic strain for many students. Residence hall closures disrupted students' living situations as well as their access to meal plans. There were interruptions to services that students counted on for essential needs (e.g., food pantries, health/mental health services). As campuses closed, nearby businesses where students worked in the service industry also closed, causing further loss of jobs for students. These events left many students who lacked financial security in dire straits and increased their risk for food insecurity and homelessness.

Over the past decade there has been mounting national concern about the scale of food insecurity and homelessness among college students. The largest investigation of four-year U.S. colleges conducted prior to the pandemic indicated that 36% of undergraduate university students (range of 15% - 60% across sites) reported being food insecure in the prior 30 days and 9% (range of 5% - 15% across sites) of the students had been homeless in the prior 12 months (Goldrick-Rab, Richardson, Schneider, Hernandez, & Cady, 2018). In fall of 2017 at our institution, nearly 15% of students had been food insecure in the prior 30 days and 9.6% had been homeless in the 12 months preceding the survey (Haskett, Majumder, Kotter-Grühn, & Gutierrez, 2020; Haskett, Kotter-Grühn, & Majumder, 2020).

Research conducted before the pandemic indicated that students who experienced basic needs insecurity reported a host of academic challenges. Those difficulties included lower academic achievement and degree completion compared to students who did not experience basic needs insecurity (Gallegos, Ramsey, & Ong, 2014; Maroto et al. 2015; Martinez et al., 2018; Morris et al., 2016; Patton-Lopez, et al., 2014; Payne-Sturges, et al., 2018; El Zein et al, 2019). Given the impact of the pandemic on students' access to food and housing and the financial strain caused by the pandemic, COVID-19 has likely further widened the gap in educational success and graduation between students with and without basic needs insecurity.

To the best of our knowledge, the scope of homelessness and food and housing insecurity in the context of the current pandemic has been examined in only one study, led by Sara Goldrick-Rab, founder of the Hope Center for College, Community, and Justice (Goldrick-Rab, Coca, Kienzl, Welton, Dahl, & Magnelia, 2020). The investigators administered an online survey to 38,602 students (6.7% response rate) at 39 two-year colleges and 15 four-year institutions in 26 states.

They found a food insecurity rate of 38% and homelessness rate of 15% at the four-year institutions. A peer-reviewed study of college student food insecurity during COVID-19 indicated that 34.5% of students at a Texas university were classified as food insecure (Owens et al, 2020). Owens and colleagues did not examine rates of homelessness, but they did find that the living situation of approximately 1 in 4 students had been impacted by the pandemic, and students whose housing was impacted were more likely to be food insecure. The data in both studies were collected in the very early stage of the pandemic, during the spring 2020 semester.

It is probable that rates would increase as the pandemic continued into the fall 2020 semester, with cumulative effects of the ongoing national health and financial crisis and a second round of campus closures that fall. Our aim was to measure homelessness as well as food and housing insecurity among students on our university campus in October 2020, about 7 months after the start of the spread of COVID-19 in the U.S. and 3 months before vaccines were approved for distribution. We also sought to gain understanding of the connection between students' food and housing insecurity and their work and financial circumstances as well as their wellbeing, use of resources, and learning experiences during the pandemic. We were also interested in the degree to which rates of food insecurity and homelessness varied by student identities.

Wellbeing. COVID-19 “lock-downs”, restrictions on social gatherings, and loss of lives and jobs have resulted in a spike in mental health concerns globally; in a large meta-analysis, student status was a predictor of psychological distress (Xiong, Lipsitz, Nasri, et al., 2020). Among college students, campus closures, stay-at-home orders and social distancing recommendations have led to social isolation (Zhai & Du, 2020). Isolation, in turn, predicts increased mental health concerns (Hamza, Ewing, Heath, & Goldstein, 2020). Rudenstine and colleagues (2020) found that rates of depression and anxiety during COVID-19 were very high at a public university with a large population of students with low incomes. Because college students who experience food and housing insecurity report indicators of low psychosocial health (Raskind, Haardorfer & Berg, 2019; Payne-Sturges et al., 2018), the impact of COVID-19 on mental health might be even more severe for students with basic needs insecurity. Indeed, Goldrick-Rab et al (2020) found that about half of the survey respondents were experiencing at least moderate anxiety at the time they were surveyed; students who were food or housing insecure experienced anxiety at higher rates than those who were not. In this study, we examined students' broad wellbeing as a function of their basic needs security.

Work and financial experiences. It is widely recognized that higher education tuition costs and living expenses have increased steadily at a pace that far exceeds increases in need-based financial aid (e.g., Ma, Pender & Libassi, 2020). As a result, many students take out loans and work several minimum-wage jobs simultaneously in an effort to pay for educational and living expenses. When campuses and businesses closed during the pandemic, many students were suddenly without income from the campus positions and jobs in the local community they relied on. In the study conducted by Owens et al (2020), more than 50% of students reported that their employment status had been negatively impacted by the pandemic, and these students were more likely to be food insecure. Goldrick-Rab and colleagues (2020) found that about 70% of students enrolled in a 4-year college lost a job and/or had a reduction in hours. Furthermore, food and housing insecurity was higher among students who faced those job losses. Our aim was to explore the work and financial circumstances of students with a focus on the link between those experiences and students' food and housing security.

Impact on learning. As noted above, research indicates that students who experience food insecurity and homelessness tend to be disadvantaged in terms of vulnerability to academic challenges and struggles to complete their degrees. Goldrick-Rab et al (2020) found many students' learning environments were negatively impacted in the early stage of the pandemic, with 63% of respondents at four-year colleges reporting they could not concentrate on their schooling. Many also reported increased responsibilities for family members (36%) and unreliable access to the internet (14%), and 7% had no functional laptop. All of these experiences are likely to affect students' classroom performance, grades, and retention. We explored students' reports of their learning experiences and success during the pandemic as a function of food and housing security.

Receiving and giving support/resources. Across the U.S., an increasing number of colleges implement various programs and offer a variety of services in an attempt to address student food and housing insecurity. For example, universities—including ours—have established emergency funds (Rosen, 2020), opened campus food pantries (Cady, 2020), and implemented meal share programs (e.g., Swipe Out Hunger; Sumekh, 2020). Unfortunately, the impact of these resources has not been investigated. Perhaps there is a “build it and they will come” assumption, but prior research shows that these programs are grossly under-utilized by students. To illustrate, findings at our own institution prior to the pandemic indicated that students with basic needs security were somewhat more likely to use the available resources than those without basic needs insecurity, but the percent of students with needs who accessed resources was very small. For example, among students who were food insecure, only 9% had used the campus food pantry. Perhaps students' increased basic needs during the pandemic might result in greater use of campus resources. In this investigation, we sought to determine use of university and community/public resources and services during the pandemic by students with and without basic needs insecurity. We also sought to determine the extent to which students shared their own personal resources with others during these very challenging times.

Current study. According to a recent in-depth report produced by the *Chronicle of Higher Education* (Patel & Field, 2020), many universities are scrambling to create a “safety net” to address the challenges that vulnerable students have faced during the pandemic. Our goal was to inform those efforts by identifying the scale of homelessness and food and housing insecurity at a large, land-grant university in the southeast U.S. Second, we sought to determine the degree to which students with basic needs insecurities differed from students who had not faced those challenges during COVID-19 in terms of their (a) wellbeing, (b) work and financial experiences, (c) learning experiences and (d) use and sharing of resources. Based on prior research findings, we hypothesized that students who had recently experienced food and/or housing insecurity and those who had been homeless during the pandemic would report a significantly greater impact during the pandemic in all of those areas of functioning.

Method

Participants and Procedure

Our university research office identified a random group of 7,641 students selected to be representative of the student population in terms of race, gender, and degree-seeking status (undergraduate/graduate). A total of 1,403 of the 7,641 students consented to participate in the study (18.4% response rate). The sample of students generally was representative of the student body, but the sample slightly over-represented female students. An email invitation to complete the survey was sent to the 7,641 potential participants. If students wanted to participate, they clicked the link, which sent them to a full explanation of the study and informed consent information. At the end of the survey, students could enter a drawing for a gift card by providing their email address (unlinked to their survey responses). Procedures were approved by the university IRB.

Measure

Our survey items were borrowed from Crutchfield and McGuire (2017) and the recent survey conducted by the Hope Center for College, Community, and Justice (Goldrick-Rab, et al., 2020), with some adjustments for our specific research questions. Completion of the survey required approximately 15 minutes. See Appendix A for all survey items.

Food security. To measure food security, we use the USDA's Household/Individual Food Security Survey Module (FSSM) 6-item version, with a 30-day timeframe (Blumberg, Bialostosky, Hamilton, & Briefel, 1999). Participants were classified into one of four categories: those who provided 0-1 affirmative responses to the FSSM items were considered High or Marginal Food Secure, participants with scores of 2-4 were considered Low Food Secure, and those with scores of 5-6 were considered Very Low Food Secure. We combined students who were Low Food Secure or Very Low Food Secure into a "food insecurity" group.

Homelessness. Homelessness was defined based on nine questions about housing status that equated to homelessness by U.S. Department of Education criteria in the McKinney Vento Act. The nine items have been used in prior studies of college student homelessness. If students indicated they had slept in any one of nine conditions (e.g., at a shelter, couch surfing, outdoor location, hotel or motel without a permanent home to return to) since COVID-19 began, they were classified as having experienced homelessness.

Housing Insecurity. Using the same items as Goldrick-Rab et al (2020), we assessed housing insecurity with four questions based on students' current living situation. The items were: "The place where I am living is only temporary, even if I wanted to stay.", "I feel confident about my ability to pay for this place so I can stay here next month.", "I am safe where I am living.", and "I can study and engage in classes where I am living." We classified students as Housing Insecure if they agreed or strongly agreed with the first statement, or disagreed or strongly disagreed with any of the other three statements.

Well-being. The World Health Organization Five Factor Well-Being Index (WHO-5; Johansen, 1998) includes five items that describe states of well-being (e.g., "I have felt cheerful and in good spirits"). Participants rated each statement on a 6-point scale based on how often each state was experienced (from "All of the time" to "At no time") in the past 30 days. Scores

ranged from 0-5 with higher scores indicating greater well-being. Psychometric properties are strong (Topp, Østergaard, Søndergaard, & Bech, 2015). The tool has been validated as a screener for college students (Downs, Boucher, Campbell, & Polyakov, 2017); specifically, scores of college participants correlated highly with validated criterion measures of depression and anxiety. Internal consistency of the measure for our sample was high (Cronbach's alpha = .89).

Financial experiences. Students were asked to indicate which of 13 listed ways they paid for the expenses associated with attending the university; options related to using personal finances (savings account; employment), financial aid (scholarships, fellowships), and help from others. They were also asked to check any of the seven listed job/finance-related experiences that applied to them during the pandemic, including job changes (e.g., I lost a job; I had to quit my job when I moved out of university housing, My employment situation has not changed), financial stress, and no impact.

Impact on learning. Students were asked to indicate the ways in which the pandemic had impacted aspects of their academic life. Items included difficulty studying and engaging in classes, reducing credit hours, experiencing increased stress associated with technology and wifi, and earning lower grades than usual. Two items related to positive aspects of the pandemic, including benefits associated with having all classes delivered online and having more time to engage in activities enjoyed by the student.

Receiving and giving support/resources. Students were asked to indicate whether they had received assistance from programs or services since the onset of the COVID-19 pandemic; the list included support from federal sources (CARES Act funds, SNAP, Medicaid, child care subsidy), local resources (e.g., food pantry) and university resources (e.g., emergency fund, campus food pantry). They were also asked to indicate whether they had (a) given money to a friend or family member to help them make ends meet, (b) let another student stay at their place because the person had nowhere else to stay, (c) provided food for another student because that person didn't have money for food and had skipped meals, and/or (d) loaned car because the person had transportation challenges.

Results and Discussion

Food insecurity, housing insecurity, and homelessness are the three challenging conditions measured in this study. These “challenge” measures were examined, and the descriptive statistics shown below are stratified by several demographic and academic-related characteristics of the respondents (referred to as “students” from this point on). In order to explore possible impacts of the challenges on college students, four impact domains were established that relate to students' lives: Wellbeing; Work/Finances; Learning; and Accessing Resources and Giving Support.

Student characteristics

Count and percentage statistics were calculated by several demographic and academic-related characteristics to describe participants, and to gain an understanding of the perspectives represented in the survey responses. A student profile that includes demographic characteristics was constructed. To avoid low cell frequencies for chi-square analysis, data subsets were used for gender identity, race, and sexual identity. Appendix B contains the complete data sets from

which the subsets were constructed. Table 1 below provides a compilation of count and percentage statistics for these data subsets as well as the other demographic characteristics examined.

Table 1

Student Profile – Demographic Characteristics

	Count of Students	Percentage of Students
Gender Identity		
Female	767	60.78
Male	495	39.22
Race		
Asian	219	17.35
Black or African American	81	6.42
Other	66	5.23
White	896	71.00
Ethnicity		
Hispanic or Latino or Spanish origin	93	7.31
Not Hispanic or Latino or Spanish origin	1180	92.69
Sexual Identity		
Heterosexual or straight	1028	81.14
LGBTQ+	239	18.86
Age Group		
Under 25	1030	81.49
25 to 34	179	14.16
35 and over	55	4.35

Academic-related characteristics of students

A student profile that includes academic-related characteristics was constructed. To avoid low cell frequencies for chi-square analysis, a data subset was used for ‘degree sought.’ Appendix B contains the complete data set from which the subset was constructed. Table 2 below provides a compilation of count and percentage statistics for this data subset as well as the other academic-related characteristics examined.

Table 2

Student Profile – Academic-Related Characteristics

	Count of Students	Percentage of Students
Attending NCSU full-time or part-time		
Full-time	1335	95.84
Part-time	58	4.16

Degree Sought		
Bachelor's degree	1008	73.04
Master's degree	180	13.04
Doctoral degree	192	13.91
Length of time attending NCSU		
I am in my first year at NC State.	378	27.21
I have been enrolled at NC State for more than a year.	1011	72.79

Challenges Faced by Students

Food insecurity, housing insecurity, and homelessness are the three challenging conditions measured in this study. To gain an understanding of the magnitude of these challenges faced by students, count and percentage statistics were calculated. Recognizing that students can face more than one of these challenges at the same time, count and percentage statistics were also calculated for combinations of these challenges (See Table 3 below).

Table 3

Prevalence of Challenges Faced by Students

Challenge	Count of Students	Percentage of Students
Food Security		
Insecure	304	23.00
Secure	1018	77.00
Housing Security		
Insecure	421	33.05
Secure	853	66.95
Experienced Homelessness?		
Yes	176	15.03
No	995	84.97
<i>Combination of above challenges</i>		
Food Insecure and/or Experienced Homelessness		
Yes	413	34.30
No	791	65.70
Food Insecure and/or Housing Insecure		
Yes	559	43.88
No	715	56.12
Food and/or Housing Insecure and/or Exper. Homelessness		
Yes	625	51.36
No	592	48.64

Domains of Possible Impact on Students

In order to explore possible impacts of the above challenges on college students, four impact domains were established that relate to students' lives: Wellbeing; Work/Finances; Learning; and Accessing Resources and Giving Support. Count and percentage statistics, calculated for these "impact" measures, are shown in detail in Appendix C. Table 4 below contains a subset of these measures.

Table 4

Impact Domains – Status of Students

	Count of Students	Percentage of Students
Wellbeing		
Poor	712	55.80
Not Poor	564	44.20
Work/Finances: Negative Job Experience?		
Yes	717	55.32
No	579	44.68
Work/Finances: What helps you pay for attending NCSU?		
Employment?		
Yes	484	35.67
No	873	64.33
Personal Resources?		
Yes	758	55.86
No	599	44.14
Learning: Negative Impact on Learning or Academic Progress?		
Yes	1020	81.53
No	231	18.47
Accessing Resources and Giving Support		
Accessing University Resources?		
Yes	187	14.54
No	1099	85.46
Helping Others (Providing Resources)		
Yes	551	42.85
No	735	57.15

Association between Challenges, Impacts, and Student Characteristics

Chi-square analysis was used to examine the association between the challenges, impacts, and student characteristics presented above.

Association between challenges and impact domains

The substantial prevalence of challenges faced by students regarding food and housing suggests the importance of further examining these challenges and how they are associated with the four

impact domains. Table 5 provides a summary of the results of chi-square tests of association between food/housing challenges and components of the four impact domains.

Table 5

Color-Coded Summary of Chi-Square Tests of Association between Challenges and Impact Domains

Impact Domain		Food Security	Housing Security	Homelessness
Wellbeing		**	**	*
Work /Finances	Work: Negative Job Experience?	**	**	**
	Pay to attend NCSU using Grant/Financial Aid	**		
	Pay to attend NCSU by working	**	*	
	Pay to attend NCSU using Social Network	**		
	Pay to attend NCSU using Personal Resources	**	**	
Learning		**	**	**
Accessing Resources and Giving Support	Help Received: Income Resources	**		
	Help Received: Expense Reduction	**	*	**
	Help Received: University Resources	**	**	**
	Helping Others	**	**	**
	Help Provided to Others: Give Money	**	*	*
	Help Provided to Others: Provide a Place to Stay	**	**	**
	Help Provided to Others: Provide Food	**	**	**
	Help Provided to Others: Allow Use of Your Car	**	**	**

Chi-Square tests were conducted to detect significant associations between challenges and impact domains:

*Significant association ($p < 0.05$); **Highly significant association ($p < 0.01$)

All three of the challenges are significantly associated with at least one component of each of the four impact domains. This snapshot of significant associations indicates how pervasive the effects of these three challenges are. It is noteworthy that the challenge of food security is strongly associated with all four impact domains, and all of their component factors as well.

Considering the survey context being an institution of higher education, it is critically important to note that of the four impact domains, ‘Learning’ was the only domain showing highly significant associations with all three of the challenges.

The above table provides a big picture view of the association between challenges and impacts, but it does not provide information regarding the nature of that association. Therefore, Table 6 was constructed to provide such information. For each state of food security, housing security, and homelessness, the percentage of each impact domain status (e.g. Wellbeing status of Poor or Not Poor; Employment? Yes or No; etc.) is shown. For example, of all the students deemed to be food *secure*, 51.33% have a Wellbeing status of ‘Poor,’ (and 48.67% have a Wellbeing status of ‘Not Poor,’) whereas of all the students deemed to be food *insecure*, 70.47% have a Wellbeing status of ‘Poor,’ (and only 29.53% have a Wellbeing status of ‘ Not Poor.’)

Table 6

Color-Coded Results of Chi-Square Tests of Association between Challenges and Impact Domains – Percentage Details

	Food Security		Housing Security		Experienced Homelessness	
	Secure (%)	Insecure (%)	Secure (%)	Insecure (%)	No (%)	Yes (%)
Wellbeing						
Poor	51.33**	70.47**	50.82**	66.75**	54.58*	62.86*
Not Poor	48.67**	29.53**	49.18**	33.25**	45.42*	37.14*
Work/Finance: Negative Job Exp.?						
Yes	47.51**	83.16**	49.69**	67.63**	51.89**	73.37**
No	52.49**	16.84**	50.31**	32.37**	48.11**	26.63**
Work/Finances: What helps you pay for attending NCSU?						
Employment?						
Yes	33.99**	43.42**	34.15*	40.62*	35.31	39.20
No	66.01**	56.58**	65.85*	59.38*	64.69	60.80
Personal Resources?						
Yes	53.69**	63.49**	52.93**	62.00**	54.93	60.80
No	46.31**	36.51**	47.07**	38.00**	45.07	39.20
Learning: Negative Impact on Learning or Academic Progress?						
Yes	79.37**	88.51**	77.94**	89.05**	80.27**	89.02**
No	20.63**	11.49**	22.06**	10.95**	19.73**	10.98**
Accessing Resources and Giving Support						
Accessing University Resources?						
Yes	9.25**	32.00**	11.61**	20.67**	12.96**	20.45**
No	90.75**	68.00**	88.39**	79.33**	87.04**	79.55**
Helping Others (Providing Resources)						
Yes	35.87**	66.00**	38.80**	52.02**	39.70**	61.36**
No	64.13**	34.00**	61.20**	47.98**	60.30**	38.64**

Chi-Square tests were conducted to detect significant associations between challenges and impact domains:

*Significant association ($p < 0.05$); **Highly significant association ($p < 0.01$)

Association between challenges and demographic characteristics

To avoid low cell frequencies for the analysis, data subsets were used for the demographic characteristics of gender identity, race, and sexual identity. For each demographic characteristic,

the percentage of each characteristic value (e.g. Male/Female) experiencing a challenge is shown in Table 7. For example, of all the male respondents, 75.76% were deemed to be food secure, and 24.24% were deemed to be food insecure, whereas of all the female respondents, 77.31% were deemed to be food secure, and 22.69% were deemed to be food insecure. As indicated by the color coding, gender does not appear to be a factor for any of the challenges; in other words, there are no significant gender differences for food security, housing security, or homelessness.

Table 7

Color-Coded Results of Chi-Square Tests of Association between Challenges and Demographic Characteristics – Percentage Details

	Food Security		Housing Security		Experienced Homelessness	
	Secure	Insecure	Secure	Insecure	No	Yes
Gender Identity						
Male (%)	75.76	24.24	65.45	34.55	83.04	16.96
Female (%)	77.31	22.69	68.32	31.68	86.40	13.60
Race						
Asian (%)	72.15**	27.85**	65.12**	34.88**	82.59	17.41
Black or African American (%)	70.37**	29.63**	54.32**	45.68**	88.00	12.00
Other (%)	51.52**	48.48**	54.55**	45.45**	74.19	25.81
White (%)	80.25**	19.75**	69.69**	30.31**	85.84	14.16
Ethnicity						
Hispanic or Latino or Spanish origin (%)	64.52**	35.48**	64.52	35.48	90.70	9.30
Not Hispanic or Latino or Spanish origin (%)	77.71**	22.29**	67.12	32.88	84.43	15.57
Sexual Identity						
Heterosexual or straight (%)	77.53	22.47	67.09	32.91	85.23	14.77
LGBTQ+ (%)	72.38	27.62	67.09	32.91	83.56	16.44
Age Group						
Under 25 (%)	76.80	23.20	65.82*	34.18*	85.11	14.89
25 to 34 (%)	75.42	24.58	71.51*	28.49*	83.54	16.46
35 and over (%)	80.00	20.00	83.64*	16.36*	86.54	13.46

Chi-square tests were conducted to detect significant associations between challenges and demographic characteristics: *Significant association ($p < 0.05$); **Highly significant association ($p < 0.01$)

There is strong evidence that level of food security and housing security are both associated with race. In particular, the percentages indicate that students who identify as white are less likely than students with other racial identities to experience food insecurity or housing insecurity. Furthermore, there is also strong evidence of an association between level of food security and ethnicity, with a higher percentage of students of Hispanic or Latino or Spanish origin experiencing food insecurity. The survey results also show a significant association between age

group and level of housing, with the ‘Under 25’ age group experiencing housing insecurity at more than twice the percentage of the ‘35 and over’ age group.

Association between challenges and academic-related characteristics

To avoid low cell frequencies for the analysis, data subsets were used for the ‘degree sought’ characteristic. For each academic-related characteristic, the percentage of each characteristic value (e.g. Full-time/Part-time) experiencing a challenge is shown in Table 8. For example, of all the full-time students, 76.50% were deemed to be food secure (and 23.50% were deemed to be food insecure), whereas of all the part-time respondents, 87.93% were deemed to be food secure (and 12.07% were deemed to be food insecure).

Table 8

Color-Coded Results of Chi-Square Tests of Association between Challenges and Academic-Related Characteristics – Percentage Details

	Food Security		Housing Security		Experienced Homelessness	
	Secure	Insecure	Secure	Insecure	No	Yes
Attending NCSU full-time or part-time						
Full-time (%)	76.50*	23.50*	66.31*	33.69*	84.79	15.21
Part-time (%)	87.93*	12.07*	80.70*	19.30*	88.68	11.32
Degree Sought						
Bachelor's degree (%)	77.49	22.51	65.00**	35.00**	85.01**	14.99**
Master's degree (%)	71.51	28.49	67.26**	32.74**	78.00**	22.00**
Doctoral degree (%)	79.35	20.65	77.53**	22.47**	90.96**	9.04**
Length of time attending NCSU						
In first year at NC State. (%)	82.44**	17.56**	69.82	30.18	85.29	14.71
Enrolled at NC State for more than a year. (%)	75.05**	24.95**	65.99	34.01	84.95	15.05

Chi-square tests were conducted to detect significant associations between challenges and academic-related characteristics: *Significant association ($p < 0.05$); **Highly significant association ($p < 0.01$)

The survey results suggest a complex dynamic between students’ academic-related characteristics and their food and housing challenges, with each challenge having a significant association with a unique set of academic-related characteristics.

Level of food security has a significant association with full-time/part-time attendance status, with a higher percentage of full-time students experiencing food insecurity. Level of food security has an even stronger association with the length of time attending NCSU, with a higher percentage of the students who have been enrolled at NCSU for more than a year experiencing food insecurity. The students’ food security does not appear to be significantly associated with their degree sought.

Housing security shares a similarity with food security in that housing security also has a significant association with full-time/part-time attendance status, with a higher percentage of full-time students experiencing housing insecurity. However, unlike food security, housing

security has a strong association with degree sought, with a higher percentage of bachelor's and master's degree students experiencing housing insecurity.

Similar to the challenge of housing security, the challenge of experiencing homelessness is strongly associated with degree sought, with a higher percentage of bachelor's and master's degree students experiencing homelessness, with the highest rate occurring among students pursuing their master's degree.

Conclusions

Findings point to a dramatic increase in food insecurity and homelessness on our campus over a three-year period, from fall of 2017 to fall of 2020. Further, the impact of basic needs insecurity on wellness and learning is immense.

- 15% of students at NC State have experienced homelessness since the pandemic began.
- Nearly 25% have experienced food insecurity in a 30-day period.
- Student wellness has been poor during the pandemic, with many students indicating that they rarely feel cheerful, calm, or in good spirits; they are not rested and they lack vigor. These feelings are much more intense for students who are food or housing insecure and those who have experienced homelessness.
- Learning has been impacted, with nearly 90% of students who have experienced homelessness reporting that their learning has been negatively impacted by their living situation.

Because experts agree that the global psychological, economic, and health impacts of COVID-19 likely will continue long after the pandemic has subsided, higher education institutions must move quickly to find innovative ways to support students who are most vulnerable to the negative impacts of COVID-19.

As noted by Goldrick-Rab and colleagues (2020), “The nation’s economic recovery depends, in part, on higher education’s recovery” (pg. 2). Food insecurity and homelessness are not yet at the forefront of concerns among college and university administrators; clearly, these challenges deserve much greater attention.

As is often the case, the words of students must teach educators. Motunrola Bolumole, a graduate student who published a personal account of experiences during the pandemic concluded *“After the virus passes, I am sure that the [higher education] industry will recover. Students will eventually be able to return to campuses safely, even international students. But I am deeply concerned about the sacrifices that institutions will make as they aim for ‘full’ (financial) recovery; in particular, I am worried about who and what will be left behind. I am worried that investments in programs and resources for marginalized students and communities, that were already miniscule on the larger scale of things, will dry up as budget trimming efforts continue... I hope that leaders remember that the ‘tough choices’ they claim to have to make are value ridden, and say a lot about what and who is important to the institution and about higher education’s place and purpose in our society.”*

The steering committee on student food and housing security at our land-grant institution produced a Call to Action in 2018. We repeat the Call, as it is even more critical now that the recommendations put forth in that document are pursued. A long-range plan for prevention that includes (a) a coordinated system that integrates campus and community resources and (b) a review of policies that impact students' basic needs is desperately needed.

Notes:

The steering committee on student food and housing security Call to Action can be found here: https://cdn.chass.ncsu.edu/sites/psychology.chass.ncsu.edu/school/documents/Call%20to%20Action_Study%20Food%20and%20Housing%20Security.pdf

More fine-grained analyses of the data is forthcoming. Contact the investigators for further information or suggestions for additional analysis that would be helpful in your advocacy.

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Appendix A – Survey Items

1. As of today, are you attending college full-time or part-time?

Full-time

Part-time

2. Currently, what degree are you pursuing?

Associate's degree

Bachelor's degree

Master's degree

Doctoral degree

Non-degree seeking

3. How many years have you been an NC State student?

I am in my first year at NC State.

I have been enrolled at NC State for more than a year.

4. How are you paying for the expenses associated with attending NCSU? (Check all that apply)

I receive financial aid

I have a work-study job

I work at a job that isn't a work-study job

I get the Pell grant

I get other grants from the government or from a private organization

I get a grant or scholarship from NC State

I draw funds from a 529 (tax-free) college savings plan

I take out student loans

My parents are responsible for my college expenses

I get help from extended family or friends

I use savings

I use credit cards

My employer pays at least some educational expenses

Other _____

5. Which of the following job-related experiences you have had as a result of the COVID-19 pandemic, starting in March (check all that apply):

- I lost a job.
- My work hours or hourly pay/salary were reduced.
- I had to look for and/or take an additional job to pay bills.
- I had to quit my job when I moved out of university housing.
- I am experiencing more financial stress than typical for me.
- I have been able to work more hours because of increased flexibility in my class schedule.
- My employment situation has not changed as a result of the pandemic.

6. In the last 30 days, did you have a job where you worked for pay?

Yes

No

7a. In the last 30 days, about how many hours a week did you work?

1-10 hours

11-20 hours

21-30 hours

31-40 hours

More than 40 hours

7b. In the last 30 days, have you been searching for work?

Yes

No

8. Please indicate whether you received assistance from each program or service below since the onset of the COVID-19 pandemic: (Check all that apply)

- Federal CARES funds
- SNAP (Food stamps, also called EBT or NC Food and Nutrition Services benefits)
- WIC (Nutritional assistance for pregnant women and children)
- TANF (Public cash assistance; formerly called ADC or ADFC)
- SSI (Supplemental security income)
- SSDI (Social security disability income)
- Medicaid or public health insurance
- Off campus food pantry/food bank/meal donations
- Child care assistance/subsidy
- Unemployment compensation
- Utility assistance
- Subsidized housing assistance
- Tax refunds
- Earned income tax credit (EITC)
- Veteran's benefits (Veteran's administration benefits for a serviceman's, widow's, survivor's pension, service disability or the GI bill)

9. Please indicate whether you received assistance from these university resources since the onset of the COVID-19 pandemic: (Check all that apply)

- Student Emergency Fund
- Meal share program
- Meal plan scholarship
- Feed the Pack food pantry
- Wolfpack Styled clothing closet
- University Libraries technology loan program

10. Since the onset of the COVID-19 pandemic, did you: (Check all that apply)

- Give money to a friend or family member to help them make ends meet?
- Let another student stay at your home, apartment or residence hall room because the person had nowhere else to stay?
- Provide food for another student because they didn't have money for food and had skipped meals?
- Offer to loan your vehicle because the person had transportation challenges?

11. Do you share most of your meals with people living in your household (i.e., family members/roommates) or manage your own food arrangements?

Share Meals

Manage my own meals

Please read the following statements that people have made about their food situation and state whether they were often true, sometimes true, or never true for your household *in the last 30 days* :

	Often True (1)	Sometimes True (2)	Never True (3)	Don't Know (4)
"The food that we bought just didn't last, and we didn't have money to get more." (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
"We couldn't eat balanced meals because we couldn't afford it." (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please respond to each question below concerning your food situation *over the last 30 days*.

	Yes (1)	No (2)	Don't Know (3)
In the last 30 days, did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food? (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many days did this happen? Fewer than 3 times; 3 or more times (2) [NOTE: format change for this question]	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the last 30 days, did you or other adults in your household ever eat less than you felt you should because there wasn't enough money for food? (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the last 30 days, were you or other adults in your household ever hungry but didn't eat because there wasn't enough money for food? (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12. Since the onset of the COVID-19 pandemic in March, have you slept in any of the following places? Please check all that apply.

- Campus or University housing
- Sorority/Fraternity house
- In a rented or owned house, mobile home or apartment (alone, or with roommates or friends)
- In a rented or owned house, mobile home or apartment with family (parent, guardian or relative)
- At a shelter
- In a camper
- Temporarily staying with a relative, friend or couch surfing until you found other housing
- Temporarily at a hotel or motel without a permanent home to return to (not on vacation or business travel)
- In transitional housing or independent living program
- At a group home such as halfway house or residential program for mental health or substance use
- At a treatment center (such as detox., hospital etc.)
- Outdoor location such as street, sidewalk, or alley, bus or train stop, campgrounds or woods, park, beach or riverbed, under bridge or overpass
- In a closed area/space with a roof, but not meant for human habitation such as abandoned building, car or truck, van, RV or camper, encampment or tent or unconverted garage, attic or basement

13. The place where I am currently living is only temporary, even if I wanted to stay.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

14. I feel confident about my ability to pay for the place I'm staying so I can stay here next month.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

15. I feel safe where I currently live.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

16. I can study and engage in classes adequately where I am living.

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

17. How do you describe yourself? (check one)

- Man
- Woman
- Transgender man
- Transgender woman
- I use a different term (please specify) _____

18. How do you identify? (check one)

- Heterosexual or straight
- Gay or lesbian
- Bisexual
- Asexual
- Questioning
- I use a different term (please specify) _____

19 How old are you, in years? _____

20 How would you describe your race? (Select all that apply)

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White
- Other

24. In which ways has the pandemic impacted you? Check all that apply.

- I have difficulty studying and engaging in classes where I live.
- I reduced my credit hours by dropping courses or registering for fewer hours than typical.
- I have increased responsibilities for taking care of family members.
- I'm experiencing some benefits associated with having all my classes online.
- My grades are lower than usual.
- I am having more stress than usual associated with technology and wifi.
- I am spending more "quality time" with family and friends.
- I'm having difficulty affording cell phone service.
- I have had to decrease or stop medications/medical care due to cost.
- I have had more time to engage in activities I enjoy.

END OF SURVEY _____

Appendix B – Student Participant Profile

Demographic Characteristics from which Data Subsets were Constructed

Gender identity

	Count of Students	Percentage of Students
Agender ^a	2	0.16
I use a different term (please specify) ^a	3	0.23
Man	495	38.67
Non-binary ^a	7	0.55
Queer ^a	1	0.08
Transgender ^a	5	0.39
Woman	767	59.92

^a In order to avoid low cell frequencies for Chi-Square analysis, a data subset was constructed that did not include this count.

Race

	Count of Students	Percentage of Students
American Indian or Alaska Native ^c	9	0.71
American Indian or Alaska Native,Asian,Black or African American ^c	1	0.08
American Indian or Alaska Native,Black or African American ^c	2	0.16
American Indian or Alaska Native,White ^c	3	0.24
Asian	189	14.98
Asian,Other ^a	1	0.08
Asian,White ^a	28	2.22
Asian,White,Other ^a	1	0.08
Black or African American	62	4.91
Black or African American,Native Hawaiian or other Pacific Islander,White ^b	1	0.08
Black or African American,Other ^b	2	0.16
Black or African American,White ^b	16	1.27
Native Hawaiian or other Pacific Islander ^c	3	0.24
Native Hawaiian or other Pacific Islander,White ^c	2	0.16
Other	38	3.01
White	896	71.00
White,Other ^c	8	0.63

^a In order to avoid low cell frequencies for Chi-Square analysis, a data subset was constructed that included this count in a broader count that includes multi-racial students that include ‘Asian’ as part of their identity.

^b In order to avoid low cell frequencies for Chi-Square analysis, a data subset was constructed that included this count in a broader count that includes multi-racial students that include ‘Black or African American’ as part of their identity.

^c In order to avoid low cell frequencies for Chi-Square analysis, a data subset was constructed that included this count in the ‘Other’ category.

Sexual identity

	Count of Students	Percentage of Students
Heterosexual or straight	1028	80.50
I use a different term (please specify) ^a	10	0.78
LGBTQ+	239	18.72

^a In order to avoid low cell frequencies for Chi-Square analysis, a data subset was constructed that did not include this count.

Academic-Related Characteristic from which Data Subset was Constructed

Degree Sought

	Count of Students	Percentage of Students
Degree Sought		
Associate’s degree ^a	11	0.79
Bachelor’s degree	1008	72.47
Master’s degree	180	12.94
Doctoral degree	192	13.80

^a In order to avoid low cell frequencies for Chi-Square analysis, a data subset was constructed that did not include this count.

Appendix C – Additional Impact Domain Components

Impact Domain: Wellbeing (fully shown in report table in main text of the report)

Impact Domain: Work/Finances (complete list of components)

	Count of Students	Percentage of Students
Work: Negative Job Experience?		
Yes	717	55.32
No	579	44.68
Finances: What helps you pay for attending NCSU?		
Grant/Financial Aid?		
Yes	851	62.71
No	506	37.29
Employment?		
Yes	484	35.67
No	873	64.33
Social Network?		
Yes	735	54.16
No	622	45.84
Personal Resources?		
Yes	758	55.86
No	599	44.14

Impact Domain: Learning (fully shown in report table in text portion of this report)

Impact Domain: Accessing Resources and Giving Support

	Count of Students	Percentage of Students
Accessing Resources		
Source/Type: Income Resources		
Yes	411	31.96
No	875	68.04
Source/Type: Expense Reduction		
Yes	93	7.23
No	1193	92.77
Source/Type: University Resources		
Yes	187	14.54
No	1099	85.46

Helping Others (Providing Resources)		
Yes	551	42.85
No	735	57.15
Type of Help Provided to Others		
Give Money?		
Yes	310	24.11
No	976	75.89
Provide a Place to Stay?		
Yes	170	13.22
No	1116	86.78
Provide Food?		
Yes	252	19.60
No	1034	80.40
Allow Use of Car?		
Yes	180	14.00
No	1106	86.00