

FACING COVID-19 AT HOME

An assessment
of College
Persistence for
UNC-CH's First
Generation
College
Students

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***Facing COVID-19 at Home: An Assessment of College Persistence for UNC-CH's
First Generation College Students***

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INTRODUCTION

On March 3rd, 2020, the North Carolina Governor announced the state's first case of COVID-19 to the general public. Eight days later, on March 11th, officials from the University of North Carolina at Chapel Hill (UNC-CH) announced the suspension of all face-to-face classes and the decision to move all undergraduate students to a virtual platform beginning on Monday, March 23rd. Students were also asked to collect their belongings from their dorm rooms and head home. This university-wide decision prompted a collaboration between the research team and the Director of Lookout Scholars Program¹, Carmen Gonzales, to seek answers to "What does college persistence look like for UNC-CH First-generation College Students (FGCS)? And to what extent will FGCS encounter barriers to their schooling while away from campus?"

Our research team is an interdisciplinary group that consists of scholars of color, FGCS, and members of underrepresented groups, who intentionally investigate topics that affect marginalized communities. The team consists of faculty and administrators across six universities, Bucknell University (PA), Florida A & M University, Rowan University (NJ), the University of Colorado Boulder, the University of North Carolina at Chapel Hill, and the University of Pittsburgh (PA). Team members represent the following fields: Education, Engineering, Environmental Studies, Public Policy, and Sociology.

The purpose of this report is to present findings from our initial survey of FGCS at UNC-CH. We aim to assess the persistence of FGCS through a pandemic by identifying new and existing barriers students face. Our results will be shared with university officials as they strive to identify and reduce the difficulties of FGCS and create meaningful interventions for students through COVID-19.

Relevant Literature

According to the Postsecondary National Policy Institute (2018), FGCS are less likely to graduate college as compared to their non-FGCS peers. In fact, FGCS are less likely to complete their degree within six years (RTI, 2019). Additionally, an average of 20% of FGCS earn their bachelor's degree compared to 49% of their non-FGCS peers at this same time (RTI, 2019). Research credits the disparity in college degree attainment to low-household income and financial strain on students and caregivers (PNPI, 2018; RTI, 2019; Falcon, 2015). Data shows that 27% of FGCS are from households with an average income of \$20,000 or less than 6% of non-FGCS (PNPI, 2018). In addition to financial strain, research suggests that FGCS cite a lack of family support, low self-esteem, a struggle with adjusting to college, racial disparities, and not being prepared for college, as barriers to persistence (Flacon, 2015; Roksa & Kinsley, 2018). The recent spikes in the

¹ The Lookout Scholars Program is housed at UNC-CH in the Office of Undergraduate and Retention. The purpose of this program is to create a community for FGCS to thrive academically and socially.

unemployment rate is an indication that our already burdened low-income families will be disproportionately impacted by COVID-19 and experience more significant loss (Berube & Bateman, 2020). Given these sudden changes, FGCS will likely encounter additional barriers to persistence in part due to COVID-19.

METHODS

The research team is interested in how FGCS persist in college and assess their barriers to persistence due to COVID-19. This study will address the following research questions:

- (1) What does college persistence to graduation look like for FGCS living through the COVID-19 pandemic?
- (2) How, if at all, does COVID-19 exacerbate already existing barriers? And,
- (3) What factors improve or reduce the likelihood of college graduation for FGCS who face COVID-19?

During summer 2020, the team conducted a pilot study that encompassed the distribution of an online survey and employed a photovoice visual aid summary form. Photovoice is a qualitative and participatory method that allows participants to use photography to deconstruct existing problems in a community (Wang & Burris, 1997). The team asked students to submit a visual aid (e.g., photos) and summary form in summer 2020, which captured their schooling environments during COVID-19. This report only presents the findings from the June 2020 pilot deployment of the online survey.

To assess the effect of COVID-19 on college persistence to graduation amongst FGCS, the data sources focused on the following four constructs, (1) Impacts, (2) Schooling, (3) Self, and (4) Home Environment. Survey questions followed a retrospective pre-post design to assess FGCS changes in constructs from before COVID-19 disrupted schooling to the present day (June 2020). Specifically, survey questions included all four constructs, while the visual aid summary form focused only on the final construct—Home Environment.

The first construct, *Impacts*, focused on the short- and long-term impacts of COVID-19 on FGCS and their families. Students were asked to share the extent the pandemic affected their everyday life. Secondly, the *Schooling* construct addressed students' connectedness to the university and their peers, institutional supports, issues of justice on campus, and their overall university experiences. These questions addressed barriers to persisting in college and their career trajectory. Within the *Self* construct, the information focused on the student's identity, self-efficacy, and the physical and emotional discomfort students face. The final construct, *Home Environment*, focused on the students' life at home. Questions are geared toward family relationships, support, household income, employment statuses of the student and family members, and the caregiving responsibilities in the home.

For this report, the term "Before COVID-19" is defined as the period before spring break at UNC-CH in March 2020 - when students attended classes in a traditional face-to-face setting. The initial stage of COVID-19 is the period between March and June 2020. During this period, the university asked students to continue schooling through a virtual and distant learning format. Lastly, the term

“Today” refers to June 2020. This was the period when students received and completed the survey.

Participant Sample

The Office of Institutional Research and Assessment (2020) indicates that 18.5% of the undergraduate population at UNC-CH during the spring 2020 semester were FGCS, totaling 3,424 students. Additionally, data from fall 2017 show that FGCS primarily represented students of color, with 39.1% identified as Hispanic of any race, 28.9% as Black, and 20.7% as both Asian and American Indian, respectively.

In June 2020, 128 FGCS completed the initial online survey. Approximately 40% of respondents were White, 74% identified as a woman, and 38% described their households as low-income. Additionally, most respondents represented in-state residents (86.5%) and attended school as full-time students (95.3%). Table 1 provides additional information on the demographics of student respondents.

Table 1: Demographics of FGCS at UNC-CH

Student Demographics N= 128	N (%)
Race/Ethnicity	
White, Non-Hispanic	50 (39.7%)
Asian/ Asian American	30 (23.8%)
Hispanic/Latin American	25 (19.8%)
Black, Non-Hispanic	13 (10.3%)
Multiracial	5 (4.0%)
Other Race/Ethnicity	2 (1.6%)
Gender	
Woman	95 (73.6%)
Man	28 (21.7%)
Gender non-conforming	3 (2.3%)
Family Income	
Low-income	47 (37.6%)
Lower-middle income	43 (34.4%)
Middle income	23 (18.4%)
Upper-middle income	11 (8.8%)
Class Year & Status	
Senior	43 (33.9%)
Junior	41 (32.3%)
Sophomore	28 (22.1%)
Freshman	11 (8.7%)
In-state	109 (86.5%)
Full-time	121 (95.3%)
Transferred from another college	19 (15.0%)
Interested in science career	40 (34.2%)

FINDINGS

The research team organized survey results into the five categories: (1) Barriers, (2) Resources, (3) Relationships, (4) Employment & Future Plans, and (5) Health. Below is a summary of each theme based on FGCS’s responses. This section concludes with a sample of open-ended responses from FGCS regarding their learning experiences and messages to university administrators.

Barriers

Research shows that FGCS are more likely to face barriers to college persistence as compared to non-FGCS. Based upon the reviewed literature, we identified the following barriers for assessment: (1) financial barriers, (2) personal barriers, (3) academic barriers, (4) family barriers, and (5) institutional barriers. Accordingly, we asked FGCS to assess, retrospectively, the extent to which existing barriers were more pronounced during the initial stages of COVID-19 than before the pandemic. Our findings revealed that when respondents compared their life before COVID-19 with their present state, FGCS were

- *less* likely to perceive they had enough money to return to college the next year.
- *more* likely to feel lonely and miss their friends from college.
- *more* likely to struggle with adjusting to college.
- *more* likely to admit to having poor study habits.
- *more* likely to be responsible for the emotional needs of their family.
- *less* likely to have resources that will help them excel in school.

Table 2 provides additional insight into FGCS’s perceptions of how their barriers altered their lives before and during the COVID-19 pandemic.

Table 2: Barriers FGCS Face Before and During COVID-19

	Before COVID-19 (Agree)	Today (Agree)
Financial Barriers		
I am concerned about having enough funds to complete college.	51 (39.8%)	77 (63.2%)
I will have enough funds to return to college next year.	107 (83.6%)	83 (68.1%)
I will not have enough funds to return to college at all.	9 (7.1%)	17 (13.9%)
I am unable to borrow money for college.	30 (23.4%)	42 (26.3%)
Personal Barriers		
I miss my friends from college.	55 (43.3%)	114 (93.4%)
I am experiencing loneliness.	57 (44.5%)	100 (82.0%)
I am homesick.	48 (37.8%)	20 (16.7%)
I struggle with adjusting to college.	53 (41.4%)	73 (60.3%)
I feel overwhelmed.	85 (66.4%)	103 (84.4%)
I am feeling stressed most of the time.	85 (66.4%)	96 (78.7%)
I struggle with low self-esteem.	80 (62.5%)	81 (67.0%)
I have personal health problems not related to COVID-19 (e.g., cancer, diabetes, etc.).	34 (26.6%)	34 (27.9%)

	Before COVID-19 (Agree)	Today (Agree)
I have a mental health condition not related to COVID-19.	53 (41.7%)	51 (42.1%)
Academic Barriers		
I have a great study environment.	108 (84.4%)	25 (20.5%)
I have poor study habits.	47 (37.0%)	86 (70.5%)
I like school.	114 (89.1%)	74 (60.7%)
I feel prepared for college.	102 (79.7%)	72 (59.0%)
My grades are lower than expected.	35 (27.3%)	58 (47.9%)
I am not concerned about my academic eligibility (e.g., academic probation).	81 (63.8%)	76 (62.8%)
Family Barriers		
I am physically close to my family.	58 (46.0%)	89 (75.4%)
My family obligations make it difficult to attend college.	19 (15.0%)	45 (37.5%)
I am responsible for the physical needs of my family.	17 (13.4%)	35 (28.9%)
I am responsible for the emotional needs of my family.	61 (48.0%)	71 (59.7%)
An immediate family member has a physical health problem not related to COVID-19 (e.g., cancer, diabetes, etc.).	81 (63.8%)	77 (64.7%)
An immediate family member has a mental health condition not related to COVID-19.	50 (39.4%)	46 (39.0%)
I am emotionally close with my family.	97 (76.4%)	91 (75.8%)
Institutional Barriers		
I have access to resources that will help me excel in school.	119 (93.7%)	65 (53.7%)
On average, my professors are knowledgeable in their field	124 (98.4%)	116 (95.9%)
At my university, I face inequalities because of my social class.	64 (50.4%)	62 (51.7%)
At my university, I face inequalities because of my race.	24 (18.9%)	22 (18.2%)
At my university, I face inequalities because of my proficiency to English.	6 (4.7%)	6 (5.0%)

Resources

We asked students to describe the types of resources they used during the initial stages of COVID-19. We defined resources as Wi-Fi, academic tools (e.g., books), personal supplies (e.g., food), space, and time. Almost half of surveyed respondents indicated having difficulty accessing resources.

Respondents were asked to indicate how they received access to the internet while at home. Overwhelming, 88.3% of FGCS (113) reported having access to Wi-Fi through their internet at home. About 8% of respondents (10) gained access to Wi-Fi outside of their homes and through cellular data. In contrast, 3.9% of respondents (5) indicated that they did not have consistent access to Wi-Fi.

We also asked FGCS if they had appropriate resources to be successful in the new virtual learning environment. Roughly, 75.8% of respondents (97) agreed, while 24.2% (31) indicated that they did not have adequate tools.

Besides academic resources, surveyed FGCS were also asked to indicate the extent COVID-19 affected their personal resources. Respondents stated that the pandemic negatively impacted their access to food (29.6%) and access to personal supplies like toiletries and washing machines (33.1%).

In terms of space, respondents were asked to specify the extent they had an adequate area for privacy to complete their academic work during the early stages of COVID-19. Only 30.5% of respondents (39) indicated having sufficient space. Almost half of respondents (46.1%) cited having adequate space “sometimes,” while about a quarter (23.4%) stated that they did not have space to complete their work.

We also asked FGCS to specify the amount of time they spent on academic work (Table 3). A majority of FGCS (74.2%) indicated spending, on average, more than three hours on completing their coursework in a given week. Conversely, about a quarter of respondents (23.4%) indicated spending less than three hours per week.

Table 3: Average Time FGCS Spent on Coursework

Answer	N (%)
Less than 1 hour	0 (0.0%)
1 hour - 2 hours	11 (8.6%)
2 hours and 1 minute - 3 hours	19 (14.8%)
More than 3 hours	95 (74.2%)
I don't know	3 (2.3%)
Total	128 (100%)

Relationships

The research team explored how FGCS remained connected to their peers and instructors during the initial stages of COVID-19. Additionally, the team assessed the degree FGCS connected with their family and developed newfound responsibilities of caregiving in the home. Overall, FGCS expressed feeling less connected to their fellow students and instructors during the distant learning period. Overwhelmingly, 90.6% of respondents (116) felt disconnected from their peers and slightly less, with 79.7% (102) indicated feeling separated from their instructors. Although respondents' felt separated from their peers, 35.6% of surveyed FGCS reported having a more positive connection with their family due to COVID-19.

We asked students to address their obligations related to caregiving during the initial months of COVID-19. Of those FGCS who indicated having children aged 0-18 in their home, over a quarter (27.7%) mentioned being accountable for most of their care. In addition, 18.3% of surveyed FGCS reported being fully responsible for an adult or older person in their home. Table 4 includes the full breakdown of caretaking responsibilities of surveyed FGCS.

Table 4: Caretaking Children and Adults

Question	Child(ren) in the home	Child(ren) outside of the home	Adult in the home	Adult outside of the home
I am responsible for the majority of their care	18	2	9	1
I share the responsibility with someone else in the household	26	2	23	4
I share the responsibility with someone else outside of the household	5	4	1	8
Someone else has the primary responsibility	16	5	16	10
Not applicable	41	47	26	46
Total	106	60	75	69

Employment & Future Plans

We asked surveyed FGCS about the extent COVID-19 affected their employment and the employment of their family members. Accordingly, 63.8% of respondents (81) were employed in March 2020 (Table 5). However, 46.0% of surveyed FGCS (51) were either laid off or forced to stop working during the initial stages of COVID-19. About 9% of respondents (10) started a new job during this time. Of those FGCS who were able to remain working, they were, on average, more likely to work fewer hours as compared to before COVID-19.

Table 5: Employment during Initial Stages of COVID-19

	Agree N (%)
Was laid off from my job (or was forced to stop working)	51 (46.0%)
Voluntarily stopped working	18 (16.2%)
Started working from home	17 (15.3%)
Continued working at my job, but worked more hours	6 (5.4%)
Started working a different job (part-time)	5 (4.5%)
Started working a different job (full-time)	5 (4.5%)
Continued working at my job, but worked fewer hours	5 (4.5%)
Continued working at my job, with no change	3 (2.7%)
Resumed working a job where I was needed because of COVID-19 (e.g., healthcare, grocery store)	1 (0.9%)
Total	111 (100%)

We also asked respondents to identify the extent COVID-19 disrupted the employment of those in their household. Eight-five FGCS (71.4%) stated that someone in their household had lost their job, received a pay cut, or was furloughed.

In addition to assessing how COVID-19 impacted FGCS employment, the research team asked students about their plans for the next academic year. Overall, 109 (85%) students indicated planning on returning to UNC-CH to progress toward their degree. Only one student said they intended to take the fall 2020 semester off, while no one said they would not return to college.

Health

Overall, students agreed that COVID-19 affected their mental health (71.5%) and physical health (42.4%) negatively. In a few instances, 15 students (12.2%) reported experiencing personal loss due to the pandemic. To assess a more in-depth perspective of mental health, we generated questions that focused on the extent COVID-19 impacted students’ physical and emotional discomforts (Table 6). Our findings revealed that when students compared their life before COVID-19 with their present state on discomforts, FGCS were

- more likely to feel tired or did not have energy.
- less likely to feel healthy.
- more likely to be nervous.
- more likely to have trouble sleeping.
- less likely to feel like they did right.

In addition to asking respondents about their mental health, we asked questions about their physical health and COVID-19. Overall, 74.8% (95) of surveyed FGCS indicated being of good health during the initial months of the pandemic. Only two respondents (1.6%) were tested for infection, while 23 (18.3%) reported that someone in their household was tested. No one recorded being hospitalized for COVID-19, but one person stated that someone in their household was sent to the hospital.

Table 6. Physical and Emotional Discomforts from COVID-19

	Before COVID-19	Today	Total
<i>Physical Discomforts</i>			
Tired easily or felt like I didn't have energy	41	80	121
Woke up feeling tired	54	67	121
Had a headache	36	45	81
Felt really healthy	45	25	70
Was pain free	33	26	59
Had skin problems	22	26	48
Had soreness in muscles or joints	21	26	47
Had watery or itchy eyes	17	28	45
Had diarrhea	13	20	33
Had bothersome pain	16	17	33
Had poor appetite	13	19	32
Was dizzy	16	15	31
Had a stomachache	13	17	30
Had constipation	13	16	29

	Before COVID-19	Today	Total
Lost weight without trying	13	16	29
Had a cough	13	9	22
Vomited or felt like vomiting	13	9	22
Had chest pain	11	10	21
Felt really sick overall	11	8	19
Was wheezing or had trouble breathing	9	5	14
Had a fever or chills	7	5	12
Had trouble urinating	3	2	5
<i>Emotional Discomforts</i>			
Was nervous	59	80	139
Felt loved	72	64	136
Had trouble sleeping	44	82	126
Felt depressed	50	73	123
Had trouble relaxing	51	72	123
Was moody	28	66	94
Cried a lot	33	54	87
Was irritable or grouchy	23	60	83
Was afraid of things	18	50	68
Felt like I did right	44	19	63
Woke up refreshed	40	16	56
Binged	13	12	25
Vomited on purpose	1	1	2

Open-Ended Responses

The following section is a summary of pulled open-ended responses from FGCS. All responses have been de-identified and represent a sample of participants' feedback.

How can UNC-CH improve your student experiences?

- Make all class pass/fail, make more classes remote, have options for students to make money with on campus jobs, be reimbursed tuition and meal plans since we won't be there the full academic year, have professors understand students' are struggling right now and don't need school to be one of their stressors, have professors ease up on grading rubrics, course work, homework and attendance.
- Keep us updated on the plans and specific regulations for the next semester. Continue to provide resources (money and food supplies) for students in need.
- Do more to fight institutionalized racism and acknowledge the disadvantage of Black students on campus.
- Be more open right when decisions are made so that we are informed of the steps the university is taking and have enough time to plan and make arrangements.
- A big part of my experience at Carolina came from the different events that were going on. That said, to the extent that the university can encourage/work closely with campus

organizations to ensure that at least virtual events are trying to be made as much as possible would be great.

And how about your distant learning experiences?

- Taking classes from home is an overall negative experience for me. Being home has given me too many responsibilities (taking care of my younger brother, preparing food for all my siblings, and cleaning and doing laundry) that takes all of my time in the day, causing me to have to wait until night time to do any school work which causes me to sleep less and worry more and with midnight due dates, I am not doing too well in my classes overall. I miss being on campus where I can focus more on my schoolwork and have more time to study outside of doing assigned assignments.
- Provide laptops/internet connection options for low income students whose CGI laptops are on their last legs.
- Work to make online more engaging
- I think my professors did a good job transitioning and given more time they could've made it better.
- Zoom lectures were very helpful with maintaining a connection, but I think that absolutely requiring attendance to them is problematic since some people do not have appropriate spaces or privacy for live lecture or were in different time zones that made attendance more difficult.

What currently motivates you to continue with schooling?

- Good academic performance enables better job prospects in the future. Though my family has not been deeply impacted yet, I feel a necessity to be in a better position to help financially should future change prove unkind.
- Being financially independent in the future and being able to help my family out.
- I enjoy learning the material that I am learning through my classes and need to finish my degree for my mother. I would not quit school even though I know my family would support me in my decision because it is important to them that I have a college degree.
- The one thing keeping me going is the fact that I only need a couple credits to graduate. Although I am still unsure of the future, money issues, living situations, etc. I am trying to return to finish up my final requirements. I am very unmotivated because I start thinking about the future and entering the job market and that's even more daunting with the current situation and the economy.
- I am passionate about education, and it is the only thing that I have to do to keep me productive

What do you want your university officials to know about how COVID-19 has affected your college experience?

- This pandemic has created a large disruption in my college experience, it feels like valuable time has been lost and I was left without a sense of direction or purpose for an extended amount of time.
- It has made it incredibly difficult both mentally and physically. The fear of contracting it or other loved ones is a lot to handle. On top of that, the necessary social isolation and college stress only adds on. The amount of uncertainty and fear that students have had to

deal with is a lot, so it would be highly appreciated if UNC officials could take it easy on students.

- I never expected to go home, I was not ready to. I never took an online class and being a first-year student, it was a difficult adjustments. I spent 3-4 hours on each subject a day, because I wanted to make sure I did it with my fullest effort.
- Financially, my FAFSA says I do not need aid, but physically I do. FAFSA goes by parent income not child income and most of the time I am paying for everything which leads me to take out loans. In this pandemic, paying for classes is becoming more challenging.
- It has negatively impacted me. I've had multiple panic attacks over the increased workload and overall the exams that my professor had made online was more difficult than usual.

Anything else to include?

- Thank you for caring about our opinions and experiences as first-generation college students.
- I really wished the school would refund a part of my tuition
- It would make me feel less stressed going in to the fall if we did not attend in person and I had the option to have all my major related classes online if I desired. It's not that I don't trust the university to attempt to make campus as safe as possible, it's that I do not trust everyone on campus to adhere to guidelines implemented by the University. I think the decision to return to campus in the fall came too soon and is irresponsible to not acknowledge those who are at high risk for Covid-19 and those in the community.
- Coming back from staying abroad made for a very abrupt and heartbreaking transition- I had waited my whole life [to] travel to Europe and to study abroad and it was cut short. I won't have the opportunity again during my time at Carolina, but I've reminded myself that things could be worse and everyone is suffering.
- Thank you all so much for reaching out and for caring, it really means a lot.

CONCLUSION & FUTURE WORK

The findings from this report suggest that COVID-19 has affected UNC-CH FGCS in multiple spheres, such as barriers to persistence, resources, relationships, employment, and health. Surveyed FGCS noted that they feel ill-equipped to finance future semesters and are facing emotional and physical anxieties due to the COVID-19 pandemic. Respondents are also taking up additional responsibilities at home, including supplementing lost income or caring for children or adults.

To bolster these results, the research team will continue and expand data collection across three points of the upcoming academic years – Fall 2020, Spring 2021, and Fall 2021 and will conduct interviews with a sample of available students. Lastly, data collection will expand to include five new universities; Bucknell University (PA), Florida A & M University, Rowan University (NJ), the University of Colorado Boulder, and the University of Pittsburgh (PA).

REFERENCES

- Berube, A. & Bateman, N. (2020, April 3). Who are the workers already impacted by the COVID-19 recession? Brookings. Retrieved from: <https://www.brookings.edu/research/who-are-the-workers-already-impacted-by-the-covid-19-recession/>
- Falcon, L. (2015). Breaking down barriers: First-generation college students and college success. Innovation Showcase. Retrieved from: <https://www.league.org/innovation-showcase/breaking-down-barriers-first-generation-college-students-and-college-success.>
- The Postsecondary National Policy Institute [PNPI]. (2018). First- Generation students in higher education. Retrieved from: [https://pnpi.org/first-generation-students/.](https://pnpi.org/first-generation-students/)
- Roksa, J. & Kinsley, P. (2018:2019). The role of family support in facilitating academic success of low-income students. *Research in Higher Education*, 60(4), 1-22.
- RTI International. (2019). *First year experience, persistence, and attainment of First-generation college students*. Washington, DC: NASPA. Retrieved from: [https://firstgen.naspa.org/files/dmfile/FactSheet-02.pdf.](https://firstgen.naspa.org/files/dmfile/FactSheet-02.pdf)
- Wang, C. & Burris, M.A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, 24(3).