

# COLLEGE STUDENT EXPERIENCES OF THE COVID-19 PANDEMIC: CONCERNS, PREVENTIVE BEHAVIORS, AND IMPACT ON ACADEMICS AND CAREER CHOICE

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*Abstract: In response to the COVID-19 pandemic, during the Spring 2020 semester universities cancelled campus activities and moved all instruction online resulting in significant changes for college students. This study examined COVID-related concerns, engagement in preventive behaviors, barriers to academic success, and the impact of the pandemic on academic performance and career plans among 743 undergraduate students. Highest concerns were expressed for health of family and the pandemic's economic effects. Over 70% reported engaging in preventive behaviors, with hand washing, wearing a face mask, and social distancing most prevalent. Despite anxiety, distracted home environments, and time management difficulties, most students indicated a relatively small effect of the pandemic on their academic success and anticipated career choice. Significant relationships were found between concern for contracting the virus and engaging in preventive behaviors, and between perceived barriers to academic success and change in academic performance.*

**Keywords:** COVID-19, Preventive Behaviors, College Students, Public Health

## INTRODUCTION

COVID-19 was first reported in China in late 2019, where the outbreak grew substantially and infected thousands of individuals daily. Spread through direct interaction with others or through droplets from sneezing or coughing from surrounding individuals, the virus induces symptoms that include fatigue, fever, cough, and dyspnea widely ranging in severity (Rothan & Byrareddy, 2020). By March 2020, COVID-19 was recognized as a worldwide epidemic, causing catastrophic death rates and great concern for public health, impacting economies and educational systems, and bringing about significant changes to daily life. State and local governments issued “stay-at-home” orders and recommendations to prevent further spread of COVID-19 include increasing hand washing, wearing masks in public, reducing face touching, and engaging in physical distancing from others. In response to federal and state actions, during the Spring 2020 semester, universities across the U.S. sent residential students home, cancelled on-campus activities, and moved all instruction online to reduce the risk among students and faculty. Over 25 million U.S. college students were affected (Rhea, 2020). The shift was abrupt, with little advance notice that would allow faculty and students to prepare for the transition.

The experiences of college students and the

effects of the COVID-19 pandemic on them are topics of significant interest. University students are considered an at-risk group who live with and attend classes in close proximity, and may experience a variety of hardships affecting life, academic performance, educational plans and expectations for future employment (Aucejo et al., 2020; Charles et al., 2021; Kecojevic et al., 2020; Lederer et al., 2020; Liu et al., 2020; Owens et al., 2020). Much of the initial literature on the impact of the COVID-19 pandemic on college students emerged from China followed by European countries, where the disease first spread. Research on the impact of the pandemic and the mid-semester mandated transition to online instruction on U.S. college students has begun to be published.

Extensive research has documented that disasters and epidemics constrain physical movement, cause sudden changes to life, and create stress including fear and worry for self and others, resulting in a negative effect on mental health (Kecojevic et al., 2020; Rudenstine et al., 2021; Son et al., 2020). As a result, much of the COVID-19 research has examined variables related to mental health during the pandemic, documenting an increase in depression, stress, and anxiety (Charles et al., 2021; Hoyt et al., 2021; Liu et al., 2020; Murphy et al., 2020; Rudenstine et al., 2021; Son et al., 2020). Additionally reported

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worsening health changes among college students include a decrease in physical activity (Barkley et al., 2020; Maher et al., 2021) and sleep quality (Maher et al., 2021), and increases in alcohol consumption (Charles et al., 2021) and food insecurity (Owens et al., 2020). Sources of stress identified by college students include worry about personal health and that of others, difficulty concentrating, reduced social interaction, and concerns about academic performance (Son et al., 2020). Several studies have reported that the majority of university students indicate more concern for the welfare of family than themselves (Charles et al., 2021; Cohen et al., 2020; Son et al., 2020).

Data collected soon after the emergency transition to online instruction indicated many students struggled to adapt, and reported distractions at home and reduced motivation and interest in their classes (Aguilera-Hermida, 2020; Garris & Fleck, 2020; Hoyt et al., 2021; Kecojevic et al., 2020; Serhan, 2020; Son et al., 2020). With many universities returning faculty and students to campus, it is now possible to study students' perspectives of the impact of the pandemic on academics, as well as anticipated career paths. Additionally, little research has examined specific COVID-related concerns of college students and their engagement in preventive behaviors over time. The purpose of this survey-based study was to explore university students' perceptions of and experiences during the COVID-19 pandemic. Of interest were the severity of student concerns, engagement in preventive behaviors, effect of the pandemic on and perceived barriers to academic success, and the pandemic's impact on career expectations.

## METHODS

### *Participants, Context, and Timing of the Survey*

Participants were 743 undergraduate students enrolled at a regional comprehensive university in the southeastern United States. The university is located near two large metro areas, and enrolled a total of 14,000 students. Reflective of the gender composition of the university, the sample included 142 males (19.1%) and 599 females (80.6%). Most participants (80.3%) were juniors or seniors; freshman and sophomores represented 19.7% of the sample. Respondents' ages ranged from 19 to 63 years, with the majority (79.0%) between 19 and 23 years old. Students were pursuing 19 different degrees from various colleges at the university. The most frequently indicated majors included kinesiology (n=197, 26.6%), nursing (n=175, 23.6%), and degrees leading to teacher certification (n=115, 15.5%) and social work (n=55, 7.4%).

The university where data were collected cancelled on-campus activities and moved all instruction online in mid-March of the Spring 2020 semester. On-campus instruction resumed at the start of the Fall 2020 semester, with precautionary policies in place that included reducing the number of students in classrooms, and mandatory physical distancing and wearing of a face mask

in buildings. During the Fall 2020 semester, the majority of courses were delivered using a hybrid format involving a combination of face-to-face on-campus sessions and online instruction. Data were collected during the first month of the Fall 2020 semester.

Following approval of the study by the university's Institutional Review Board, permission to recruit student volunteers was sought from college deans, department heads, and faculty. Undergraduate students were recruited via email and in-person visits to courses. Participants completed either a printed or online version of a survey designed for the study. Printed surveys were available for completion at designated areas on campus, and a link to the online version was sent via email. Students were assured of anonymity and informed their participation was voluntary.

### *The Survey Instrument*

The survey instrument included four sections: Concerns about the COVID-19 pandemic, engagement in behaviors to prevent its spread, and the impact of the pandemic on academics and anticipated career pursuits. Survey items were developed and reviewed by faculty with expertise in survey-based research, and the initial survey was pilot tested on a small sample of students prior to data collection. The final survey included demographic items and the following sections (see Appendix A for survey questions).

### *Concerns about the COVID-19 Pandemic*

This section included 8 concerns including those related to personally contracting the virus, family or close friends getting the virus, the negative impact of the pandemic on personal and family employment and the economy, others failing to take preventive precautions, and the possibility of a resurgence in the pandemic causing a subsequent disruption life. Participants rated each as a "Low of," "Moderate," or "High" concern.

### *Engagement in Preventive Behaviors*

This section presented a list of behaviors that may be used to reduce or prevent the spread of COVID-19. Examples included wearing a face mask when in public areas, maintaining physical distance from others, frequent hand washing, and avoiding touching surfaces. Participants indicated the extent to which they engaged in each preventive behavior by choosing an option from a scale indicating "Never," "Sometimes," "Often" or "Always." The survey presented the list of behaviors twice; respondents indicated their behavior during the Spring 2020 semester, and currently (during the Fall 2020 semester).

### *The Impact of the COVID-19 Pandemic on Academics*

With regard to the impact of COVID-19 on academics, the survey addressed three areas. To examine factors perceived by students as barriers to academic success during the pandemic, partici-

pants were presented a list of 8 issues/barriers and were prompted to indicate the extent to which each “interfered with you doing well academically after the switch to all online instruction during the Spring 2020 semester.” Barriers included lack of a computer or other needed technology, anxiety and stress, and a distracted environment at home. Respondents rated each as “Not a problem,” “A moderate problem,” or “A significant problem.”

Two items sought to determine whether students’ academic performance was different during the Spring 2020 semester compared to previous semesters. Participants were asked to compare their grades during the Spring 2020 semester to previous semesters, and responded on 5-point scale anchored by “Much lower” and “Much higher” than previous semesters. Additionally, they indicated their cumulative and Spring 2020 GPA.

The final question in this section addressed the influence of the Spring 2020 online learning experience on students’ attitude about enrolling in online classes in the future. This item asked “To what extent has your online experience during the Spring 2020 semester changed your attitude about taking an online class in the future?” Responses were on a 5-point scale ranging from “Much less likely” to “Much more likely” to voluntarily enroll in an online class.

#### ***The Impact of the COVID-19 Pandemic on Career Choice***

The final section of the survey was composed of two items addressing the potential impact of the COVID-19 pandemic on students’ anticipated career choices. The first item focused on the economic impact, and was prefaced by the statement: “The COVID-19 pandemic resulted in changes in businesses and employment of many people, with many worksites temporarily closing and workers temporarily laid-off.” This was followed by a question pertaining to the extent to which this caused a reconsideration in career path. Students responded they were “Not at all,” “Somewhat,” or “Seriously” considering a change. Since COVID-19 caused a healthcare crisis and changes in the work-life of healthcare providers, an additional item specifically addressed students anticipating careers in healthcare: “To what extent has the COVID-19 healthcare crisis and dangers to healthcare providers caused you to consider a change in your career goals?” Response options for this item indicated “Not at all,” “Somewhat,” or “Seriously” considering a change from a healthcare career.

#### ***Data Analysis and Results***

Descriptive data on responses to items (frequency and percent) are reported. In addition, relationships between selected variables of interest were examined using Chi Square analysis. Specifically, relationships were examined between participants’ concern for personally contracting the virus and their engagement in preventive behaviors during the Spring 2020 semester. In addition, the relationships between perceptions of the severity of barriers to academic success and Spring 2020 grades were explored.

#### ***Concerns about the COVID-19 Pandemic***

Respondents’ ratings of COVID-19 related concerns are presented in Figure 1, which indicates the percent of participants rating each as a “moderate” or “high” concern. With the exception of personally contracting the virus, a high level of concern was expressed by 40% or more of participants for all items. Items with the most students indicating high concern were family or close friends contracting the virus (n=448, 60.3%), others not taking precautions (n=427, 57.5%), employment of family members (n=411, 55.3%), and the effects of the pandemic on the economy (n=393, 52.9%). By comparison, fewer students indicated high concern for personal employment (n=345, 46.4%) and personally contracting the virus (n=187, 25.2). When “moderate” and “high” levels of concern were combined, the greatest concerns were COVID-19 interfering with the economy (n=660, 88.8%), family or close friends getting the virus (n=656, 88.3%), and a resurgence of COVID-19 that extended the crisis (n=643, 86.5%).

#### ***Engagement in Preventive Behaviors***

Data on the frequency of engaging in behaviors to prevent the spread of COVID-19 is presented in Figure 2, which indicates the percent of respondents indicating “often or always” engaging in each behavior during the Spring 2020 and Fall 2020 semesters. The behaviors reported by the greatest numbers of students during the Spring 2020 semester included frequent hand washing (n=687, 92.5%), wearing a face mask when in public areas (n=643, 86.5%) and maintaining physical distance from others (n=595, 80.1%). Additionally, over 70% of students indicated often or always attempting to limit touching surfaces (n=553, 74.4%) or the face (n=542, 72.9%). Of the listed behaviors, wearing protective gloves was reported least, with 131 (17.6%) of students indicating this behavior. The frequency of engaging in most behaviors was relatively consistent over time, with small differences between Spring 2020 and Fall 2020 semesters. The greatest differences between semesters were for limiting contact with others by staying home, for which 18.3% fewer students indicated “often” or “always” doing so during the Fall 2020 semester. In addition, 7.0% more students reported often or always wearing a face mask during the Fall 2020 than the Spring 2020 semester.

#### ***Impact of the COVID-19 Pandemic on Academics***

Barriers to academic success. Respondents rated their perception of challenges/barriers to academic success during the Spring 2020 semester (when course delivery was moved to 100% online format). The frequency and percent of responses is in presented in Table 1. Barriers to academic success identified most often as “significant” problems were anxiety or stress (53.7% of students) and having a distracted environment at home (42.8%). This was followed by lack of motivation (37.4%) and difficulties with time

management (32.4%). Relatively few students indicated lack of technology (5.1%), or lack of time due to caring for children or family (10.8%) as a significant barrier. When “moderate” and “significant” responses were combined, the barriers rated highest were anxiety or stress (87.3% of participants), lack of motivation (84.3%), distracted home environment (76.3%), and time management (74.7%).

**Impact on school performance**

When asked to compare their grades during the Spring 2020 semester to previous semesters, 50.1% (n=372) of students indicated their grades were “about the same.” Slightly less than 20% indicated their grades were “slightly lower” (n=139, 18.7%) or “slightly higher” (n=142, 19.1%), and relatively few indicated their grades were “much lower” (n=53, 7.1%) or “much higher” (n=37, 5.0%) than previous semesters. Of the 743 students who completed the survey, 706 (95.0%) provided a self-reported Spring 2020 and cumulative GPA. Average Spring 2020 GPA (3.45, SD=0.49) was slightly higher than overall GPA (mean = 3.27, SD = 0.47).

**Future online course enrollment**

The final question in this section addressed the potential influence of the Spring 2020 emergency online experience on students’ attitude about voluntarily enrolling in online classes in the future. The most common response to this item indicated students were less likely to do so (46.3%), with 180 (24.2%) indicating being “much less likely” and 164 (22.1%) “somewhat less likely.” One third (n=244, 32.8%) reported their attitude was “unchanged.” By comparison, fewer students indicated being “somewhat more likely” (n=86, 11.6%) or “much more likely” (66, 8.9%) to enroll in future online courses.

**Impact of the COVID-19 Pandemic on Anticipated Career Choice**

Two items addressed the impact of the COVID-19 pandemic on students’ anticipated career choices. The first item referenced the impact of the pandemic on the economy and employment. The majority (n=568, 76.4%) of respondents indicated this aspect of the pandemic did not result in a reconsideration in career path. Approximately 20% indicated this had prompted them to “somewhat” (n=149, 20.1%) reconsider their intended career path, while few reported “serious” (n=26, 3.5%) reconsideration.

Students pursuing careers in healthcare responded to a second question, addressing the pandemic-induced healthcare crisis and associated changes in the life of healthcare workers. Of the 743 total respondents, 504 (67.8%) indicating pursuing a degree leading to a career in healthcare. Of these, the vast majority (n=477, 94.6%) indicated unchanged career goals. Relatively few reported “somewhat” (n=26, 5.2%) or “seriously” (n=1, 0.2%) considering changing to a non-healthcare career path.

**Relationships Between Variables**

*Personal virus concern and engagement in preventive behaviors*

Significant relationships were observed between the level of concern for personally contracting the COVID-19 virus and engaging in all preventive behaviors (see Figure 3). Among students with high concern, 80.1% indicated often or always maintaining physical distance from others, compared to 66.5% of student with low personal concern [X2(6)=127.31, p<.001]. Similar results were found for engaging in stay-at-home behavior [X2(6)=141.48, p<.001], frequent hand washing [X2(6)=42.17, p<.001], avoiding touching of surfaces [X2(6)=67.39, p<.001],

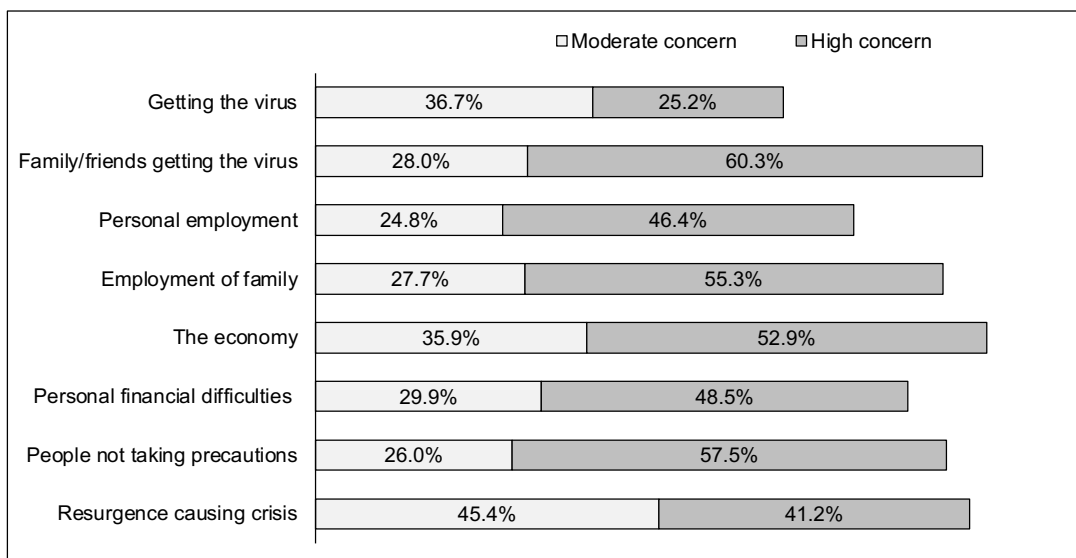


Figure 1. Percent of Students Expressing Moderate and High Levels for COVID-related Concerns

avoiding touching one's face [X2(6)=75.57,  $p < .001$ ], wearing protective gloves [X2(6)=47.73,  $p < .001$ ], and wearing a face mask when in public [X2(6)=90.14,  $p < .001$ ].

**Barriers to academic success and impact on academics**

Significant relationships were also observed between seven barriers to academic success and students' ratings of academic success during the Spring 2020 semester. Individuals who reported barriers to academic success as more problematic more likely to also indicate their Spring 2020 grades were lower than normal. Students who indicated lack of technology as a significant problem were more likely to indicate their Spring 2020 grades were "much lower" than normal (26.3%) than those who indicated technology was not a problem (5.5%) [X2(8)=42.31,  $p < .001$ ]. Similar results were found when analyzing differences in students who reported motivation was a significant barrier compared to those who indicated motivation was not a problem (12.2% vs. 1.6%) [X2(8)=46.09,  $p < .001$ ], as well as stress (12.3% vs. 0.0%) [X2(8)=73.01,  $p < .001$ ], time management (14.5% vs. 1.6%) [X2(8)=60.49,  $p < .001$ ], distracted home environment (13.8% vs. 2.8%) [X2(8)=59.40,  $p < .001$ ], lack of time due to caring for others (12.5% vs. 4.0%) [X2(8)=39.25,  $p < .001$ ], and financial difficulties (15.7% vs. 2.6%) [X2(8)=39.17,  $p < .001$ ].

**DISCUSSION**

With many states issuing restrictions on daily life and universities attempting to limit the spread of COVID-19, college students experienced profound changes in academic and daily life. Research examining the impact of the COVID pandemic on U.S. college students has ex-

amined factors including mental health, physical activity, sleep, and alcohol consumption (e.g., Barkley et al., 2020; Charles et al., 2021; Hoyt et al., 2021; Liu et al., 2020; Maher et al., 2021; Murphy et al., 2020; Rudenstine et al., 2021; Son et al., 2020). Initial investigations also reported that many students reported distractions at home and reduced motivation as well as struggles adapting to online learning (Aguilera-Hermida, 2020; Garriss & Fleck, 2020; Hoyt et al., 2021; Kecojevic et al., 2020; Serhan, 2020; Son et al., 2020). As many universities returned faculty and students to campus during the Fall 2020 semester in some capacity, research can now examine the impact of the pandemic and the emergency online experience on academic performance and anticipated future career paths. This study used a survey to explore university students' perceptions of and experiences during the COVID-19 pandemic, and focused on COVID-related concerns, engagement in preventive behaviors over time, perceived barriers to success during the pandemic, and the extent to which the pandemic influenced career expectations. Data were collected on a sample of undergraduates from a regional public university which had transitioned all instruction to online delivery during the middle of the Spring 2020 semester, then re-opened campus with COVID-limiting policies to begin the Fall 2020 semester.

**Concerns and Preventive Behaviors**

Over 70% of participants expressed a moderate-to-high level of concern about issues with the exception of personally contracting the virus. This finding parallels that of Kecojevic et al. (2020) who reported that 66.7% of students surveyed in their study indicated being very or extremely concerned about the epidemic. Similar to previous research (Charles et al., 2021; Cohen

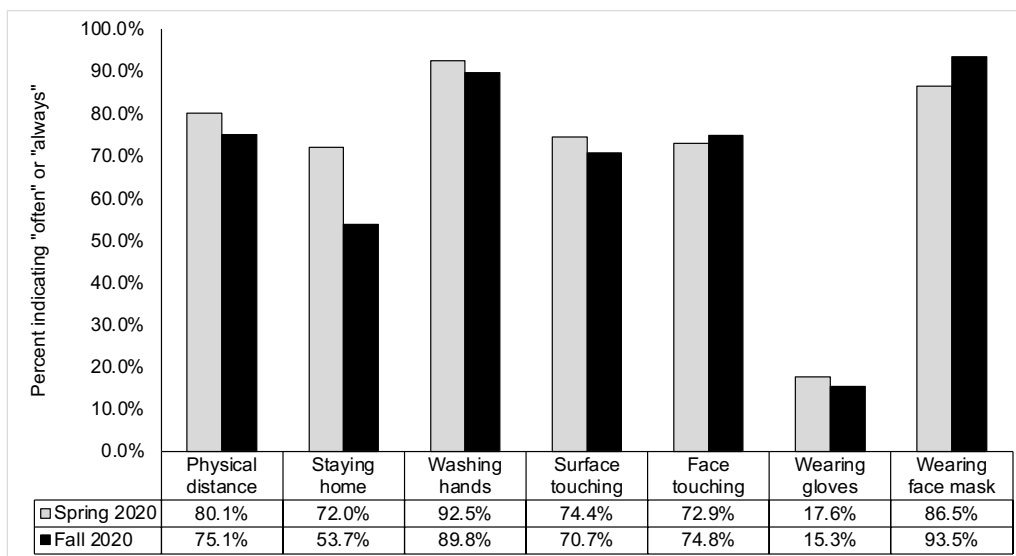


Figure 2. Percent of College Students Indicating "Often" or "Always" Engaging in Preventive Behaviors

**Table 1. Rating of Barriers to Academic Success During the Spring 2020 Semester**

	Not a problem	Moderate problem	Significant problem
Lack of computer, printer, other technology	527 (70.9%)	178 (24.0%)	38 (5.1%)
Lack of motivation	123 (16.6%)	342 (46.0%)	278 (37.4%)
Anxiety/stress	94 (12.7%)	250 (33.6%)	399 (53.7%)
Difficulties with time management	188 (25.3%)	314 (42.3%)	241 (32.4%)
Distracted environment at home	176 (23.7%)	248 (33.5%)	318 (42.8%)
Lack of time due to work	362 (48.7%)	249 (33.5%)	132 (17.8%)
Lack of time due to caring for children/family	506 (68.1%)	157 (21.1%)	80 (10.8%)
Financial difficulties	342 (46.0%)	235 (31.6%)	166 (22.3%)

et al., 2020; Son et al., 2020), college students from our sample expressed greater concern for the health implications of others contracting the virus than themselves. Cohen et al. (2020) additionally reported that college students were aware of and had concerns about the effects of the epidemic on the U.S. economy. Our results support that conclusion; over 50% identified the effects on the economy as a high concern, and over 80% were moderately or highly concerned about the economic impact of the pandemic. Over half of students in this study also expressed great concern about other people failing to engage in preventive behaviors and the employment of their family, and over 80% were concerned about a viral resurgence that extended the pandemic. While concerns about personal finances/employment were slightly lower than other concerns, they were identified as a high concern by over 40% of students.

Given these concerns, it is not surprising that most students indicated engaging in behaviors to prevent the spread of COVID-19. Little previous research on U.S. college students has examined preventive behavioral responses. In their national sample collected early in the pandemic, Cohen et al. (2020) reported 95% sheltered in place, 77% engaged in social distancing, 73% engaged in frequent hand washing, and approximately half wore a face mask. Our findings similarly indicated most students engaged in preventive behaviors during the Spring 2020 semester, with more than 80% washing hands frequently, wearing a face mask in public, and engaging in physical distancing, and over 70% staying home more, and trying to reduce touching of the face and surfaces. In addition, our results indicate that students continued to engage in these behaviors as they returned to campus in the Fall 2020 semester. Most behaviors tended to be reported by slightly fewer students during the Fall 2020 semester, with the exception of wearing a face mask which in-

creased from 86.5% to 93.5%. These behaviors are largely consistent with recommendations of public health professionals, and Spring-to-Fall changes likely reflect a reduction in stay-at-home policies, re-initiation of on-campus classes, and university policies that required all personnel to wear face masks in campus buildings.

Data analysis also included an examination of the relationship between individual's level of concern for personally contracting the virus and engaging in preventive behaviors. We are aware of no other studies examining this relationship. Findings indicate a significant link between COVID concern and preventive behavior. Students with higher concern for contracting COVID-19 were more likely to report often or always engaging in all preventive behaviors.

#### ***Impact of the COVID-19 Pandemic on Academics and Career Choices***

Previous research indicated that, during the Spring 2020 semester, students reported difficulties transitioning to the online learning environment; increases in anxiety and stress; decreases in interest, attention, and enthusiasm for their classes; as well as challenges to being successful in classes due to a distracted home environment (Aguilera-Hermida, 2020; Garris & Fleck, 2020; Kecojevic et al., 2020; Serhan et al., 2020). The extent to which the pandemic and the associated emergency online transition negatively affected academic performance has yet to be established. Similar to previous findings, students in this study most often reported anxiety/stress and a distracted home environment as significant barriers to overcome during the Spring 2020 semester. In addition, over one-third reported lack of motivation and time management difficulties as significant barriers, and over 70% indicated these were "moderate to significant" problems. Less than 20% indicated lack of time due to work or caring for

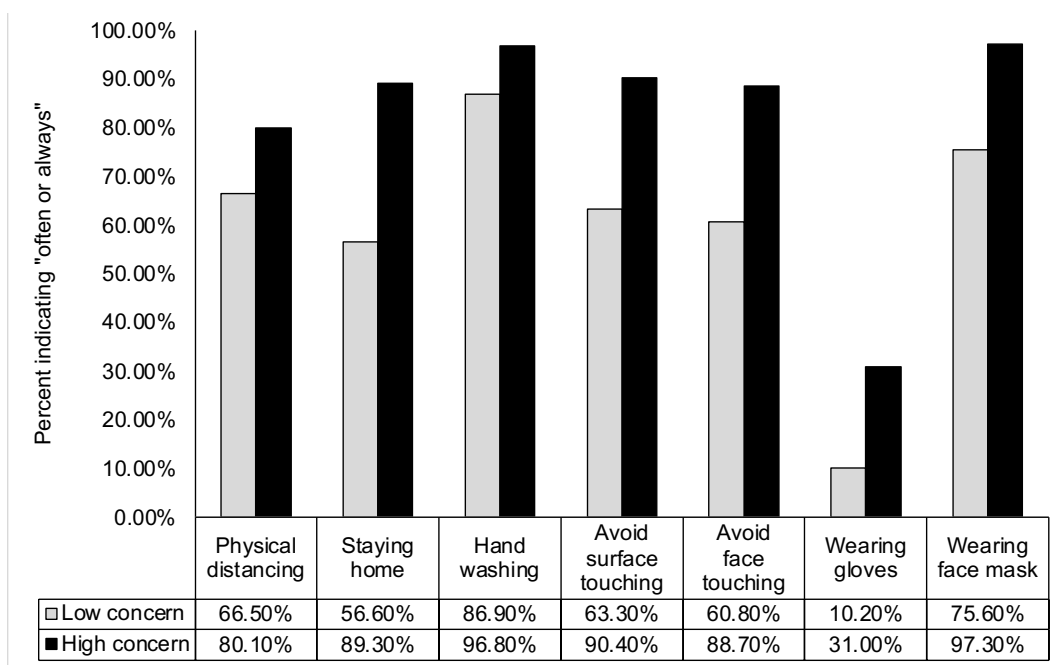


Figure 3. Preventive Behavior Engagement among Students with Low vs. High Concern for Contracting the COVID-19 Virus

others as significant, and lack of adequate technology to complete online coursework was reported as a significant barrier by only 5.1% of the sample. Previous research has indicated technological challenges are reported by between 5% (Serhan et al., 2020) and 22% of students (Kecojevic et al., 2020).

Because data in this study were collected during the Fall 2020 semester, it was possible to examine how the pandemic affected academic performance. Half of college students indicated their Spring 2020 grades were similar to previous semesters, with approximately 20% indicating their grades were slightly lower or higher. Few indicated drastic differences in cumulative and Spring 2020 GPA. Average self-reported Spring 2020 and cumulative GPA were similar. These data suggest that, while the college students in this study identified barriers to academic success, most were able to overcome them and achieve grades relatively similar to previous semesters. Despite this general conclusion, slightly over 7% of the students in this study reported their Spring 2020 grades were significantly lower than previous semesters, and relationships between perceived significance of barriers and Spring 2020 GPA were observed. Students for whom stress, motivation, technology, financial difficulties, time management, distracted home settings, and lack of time due to caring for others were significant barriers were much more likely to report their Spring 2020 grades were lower than typical.

Online learning has increased in the U.S. each year since 2012, with as many as one-third of college students enrolling in at least one online

course (Seaman et al., 2018). While online courses have been found to deliver equivalent learning outcomes as in-person classes, they have been associated with a higher withdrawal rates (Bawa, 2016) and lower engagement (Hu & Hui, 2012). Based on their online experience during the Spring 2020 semester, approximately half of participants in this study indicated being less likely to voluntarily enroll in an online class in the future, with fewer (20%) reporting an increase in the probability for doing so. Aguilera-Hermida (2020), Aucejo et al. (2020), and Serhan (2020) similarly reported the majority of college students reported a preference for face-to-face instruction, and a general decline in the quality of the learning process during the emergency transition. These findings are not unexpected given the urgent unprecedented mid-semester transition to online course delivery which gave students and faculty little time to plan for and master online learning environments.

With respect to the impact of the COVID-19 pandemic on students' anticipated career paths, over 75% of all participants indicated the pandemic had not caused them to seriously reconsider their career intentions, and 95% of students anticipating careers in health care reporting persisting toward those goals despite the pandemic's impact on healthcare. There exists limited previous research on the impact of the pandemic on college students' career choices. In their survey of over 1400 college students, Aucejo et al. (2020) found only 12% indicated their choice of major was affected, and students pursuing STEM degrees were less likely to report so.

### Conclusions and Recommendations for Future Research

This study explored college students' concerns, preventative behaviors, and perceptions of the COVID-19 pandemic's impact on academics and career choice. Findings indicate most students had significant COVID-19 related concerns, greatest for the health of family members, others failing to engage in preventative behaviors, and the pandemic's economic impact. High levels of preventative behavior engagement were reported with most students indicating frequent hand washing, wearing of a face mask, and physical distancing during the Spring 2020 semester, and persisting in these behaviors as campus re-opened. Students' academic performance during the Spring 2020 semester was consistent with previous semesters for the majority of participants, however, a number of barriers to academic success were identified as significant including stress, lack of motivation, a distracted home environment, and time management. Individuals who reported greater barriers were more likely to perform more poorly academically than in past semesters. Finally, few students indicated a change in anticipated career path as a result of economic or work setting changes resulting from the COVID-19 pandemic. The implications of COVID-19 continue to emerge, and this survey-based study adds to a growing body of research on U.S. college students during the pandemic, and may inform future research on the topic. Limitations of this study include the sample, which was limited to undergraduates attending one university, and the gathering of data using scaled survey items. Recommendations for future research include continued study of the impact of COVID-19 on degree and career choices as the pandemic evolves. Additionally, further study of preventative behavior engagement, how those behaviors change, and factors underlying behavioral decisions is warranted.

Universities have been forced to adapt to the COVID-19 pandemic, modifying instructional delivery and campus housing arrangements, creating strategies to keep students and faculty safe, and developing policies that facilitate student success. As students return to campus, it is important that university leaders and faculty are informed about pandemic-related behaviors, concerns, and barriers to student success, and data such as that reported in this study, may be used for evidence-based decisions, as well as advising and teaching practices.

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Appendix A: Survey Items

**Section 1: Concerns during the COVID-19 Pandemic**

Rate your level of concern/anxiety for each of these:

	Low concern	Moderate concern	High concern
You getting the virus			
Family or close friends getting the virus			
COVID-19 interfering with your work/employment			
COVID-19 interfering with work/employment of parents/family			
COVID-19 interfering with the economy			
COVID-19 resulting in financial difficulties for you			
Other people not taking precautions			
The possibility of a resurgence of COVID-19 causing further disruptions in life, school, work, etc.			

**Section 2: Behaviors to Prevent the Spread of COVID-19**

During the Spring 2020 semester, the virus spread quickly. People were encouraged to engage in some behaviors to reduce the spread of the virus.

Indicate the extent to which you engaged in these behaviors during the Spring 2020 semester.

	Never	Sometimes	Often	Always
Maintaining physical distance from others				
Limiting contact by staying at home (not leaving much)				
Washing my hands often (more than normal)				
Limiting touches of surfaces/objects				
Trying not to touch my face				
Wearing protective gloves				

Indicate the extent to which you are engaging in each of these behaviors currently (during the Fall 2020 semester).

	Never	Sometimes	Often	Always
Maintaining physical distance from others				
Limiting contact by staying at home (not leaving much)				
Washing my hands often (more than normal)				
Limiting touches of surfaces/ objects				
Trying not to touch my face				
Wearing protective gloves				
Wearing a face mask when in public				

**Section 3: Barriers/Challenges to Academic Success During the Online Semester**

During the Spring 2020 semester, the university made the decision to transition all classes to online format. Indicate the extent to which each of these interfered with you doing well in courses after the switch.

	Not a problem	Moderate problem	Significant problem
Lack of a laptop computer, printer, or other technology			
Lack of motivation			
Anxiety / stress			
Difficulties with time management			
Distracted environment at home			
Lack of time due to work			
Lack of time due to caring for children/ family			
Financial difficulties			

**Section 4: Impact of the Pandemic on Spring 2020 Grades**

How were your grades during the Spring 2020 semester, compared to previous semesters?	Much lower	Slightly lower	About the same	Slightly higher	Much higher
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What was your Spring 2020 GPA?	
What is your cumulative GPA?	

**Section 5: Impact of the Spring 2020 Semester on Attitude about Taking Online Classes**

To what extent has your online experience during the Spring 2020 semester changed your attitude about voluntarily taking an online class in the future?

I am much less likely to voluntarily enroll in an online class	I am somewhat less likely to enroll in an online class	Unchanged	I am somewhat more likely to enroll in an online class	I am much more likely to voluntarily enroll in an online class
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**Section 6: Impact of the Pandemic on Career Plans**

The COVID-19 pandemic resulted in changes in businesses and employment of many people, with many worksites temporary closing and workers temporarily laid-off.

To what extent has this aspect of the virus caused you to consider a change in your career path?	Not at all considering a change in career path	Somewhat considering a change in career path	Seriously considering a change in career path
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Are you planning to pursue a career in healthcare (for example, medicine, physical therapy, occupational therapy, nursing, physician assistant, speech pathology)?	No	Yes
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If you answered YES to the previous question: To what extent has the COVID-19 healthcare crisis and dangers to healthcare providers caused you to consider a change in your career goals?	Not at all. I am still interested in healthcare.	I am somewhat considering changing to a non-healthcare career.	I am seriously considering changing to a non-healthcare career.
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