

**Academic, Social, and Emotional Impacts of COVID-19 on
University Students in Puerto Rico**

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Abstract

Findings revealed that 52.6% of participants reported negative academic impacts, particularly difficulties with concentration, motivation, and adapting to distance learning. Social interaction was significantly affected for 58.5% of students, with reports of isolation, reduced peer interaction, and limited access to student services. Emotional and mental health challenges were reported by 50% of participants, with stress, frustration, and anxiety as the most prevalent symptoms. These results highlight the urgent need for Puerto Rican IHEs to strengthen remote learning support systems, mental health services, and crisis resilience policies. Strengthening faculty readiness and student services are essential for future emergencies.

Keywords: COVID-19, distance learning, academic impact, social interaction, emotional well-being, higher education

Resumen

Los resultados revelaron que el 52,6 % de los participantes reportó impactos académicos negativos, en particular dificultades de concentración, motivación y adaptación al aprendizaje a distancia. La interacción social se vio significativamente afectada en el 58,5 % de los estudiantes, con reportes de aislamiento, menor interacción con sus compañeros y acceso

limitado a los servicios estudiantiles. El 50 % de los participantes reportó problemas de salud emocional y mental, siendo el estrés, la frustración y la ansiedad los síntomas más prevalentes. Estos resultados indican la necesidad urgente de IHEs en Puerto Rico de fortalecer la educación a distancia, el sistema de apoyo, servicios de salud mental y políticas institucionales durante crisis. Mejorar la preparación de la facultad y los servicios a estudiantes es esencial para emergencias en el futuro.

Palabras claves: COVID-19, aprendizaje a distancia, impacto académico, interacción social, bienestar emocional, educación superior

At the end of December 2019, a massive outbreak of pneumonia began to be reported from Wuhan, Hubei Province, China. At the time, the information was alarming (Seow, 2020). However, the global socioeconomic, health, and education consequences of the pandemic generated by the spread of the virus known as COVID-19 were uncertain. The risk of contracting the virus was so serious for people's physical health that governments immediately and rapidly took measures to try to stop the spread of the virus responsible for COVID-19 (Elgueta Rosas, 2020). Among these measures was social distancing, which was adopted worldwide due to the human losses. In addition, consequences began to be felt in various areas of countries' social development, where there was a decline in economies, increases in unemployment, as well as radical and accelerated changes in the norms of coexistence and interaction between people, as a result of isolation and confinement in homes (Brown & Salmi, 2020).

Global education, at all levels, was disrupted by the emergence of the COVID-19 coronavirus pandemic (World Health Organization [WHO], 2025). The world was unprepared for a disruption on such a scale. Universities were forced to convert their teaching from in-person

to remote. This created a new way of teaching at institutions higher education (IHE) and at all levels of the education system.

Problem Statement

The problem studied in this research with quantitative methodology and exploratory descriptive design is the depression and anxiety suffered by students enrolled in institutions of higher education (IHE) in Puerto Rico during the crisis of the COVID-19 pandemic, caused by the SARS-CoV-2 virus. COVID-19 resulted in the sudden closure of schools and universities around the world, affecting 1.57 billion students in 191 countries (United Nations on Education, Science and Culture [UNESCO], 2020a). The closures implemented as a measure to contain the pandemic led to the deployment of alternative solutions to ensure educational continuity through the implementation of online education. However, there were many obstacles, such as the lack of connectivity, technological equipment, the incompatibility of national curricula, and the lack of teacher training to face this new normal (Giannini & Albrectsen, 2020).

For their part, many students lacked the appropriate technological equipment to take their courses. Others had to share the digital devices and internet access used by their entire family or with a friend who would accept it. Furthermore, they faced the need to continue their learning activities in the various subjects they were enrolled in through assignments and virtual lectures taught by their professors in need of training to teach online courses (June, 2020). Some students even indicated that during the pandemic they lost confidence in their ability to learn (Giannini, 2022).

On the other hand, teachers left the traditional classroom they had been accustomed to for decades to become forced users of remote technological tools (Sánchez Mendiola et al., 2020). This led to what was known as *Coronateaching*, which is nothing more than the expression of

teachers' efforts to use the scarce technological resources available to teach their courses as if they were still in the classroom. They had to transform in-person classes into virtual classes, but without changing the curriculum or methodology (Escanero Marcén, 2019). This generated frustration and was overwhelming due to the need to adapt to an educational modality they had never experienced before without the corresponding training in the use of digital platforms.

Research Objective

The purpose of this research was to examine the academic, social, and emotional effects of the COVID-19 pandemic on students enrolled in institutions of higher education in Puerto Rico. These data will allow for a review of institutions of higher education's response policies and student support during emergencies similar to COVID-19, such as the impact of hurricanes and earthquakes. Furthermore, institutions of higher education will be able to review emergency plans that consider the academic, social, and emotional needs of enrolled students.

Research questions and research hypotheses

From the perspective of the student at Institutions of Higher Education:

1. How did the COVID-19 pandemic affect the study habits of university students in Puerto Rico?
 - a. H1o: The COVID-19 pandemic did not impact the study habits of university students in Puerto Rico.
 - b. H1a: The COVID-19 pandemic impacted the study habits of university students in Puerto Rico
2. How did social interaction change for university students in Puerto Rico during the COVID-19 pandemic?

- a. H2o: There were no changes in the social interaction of university students in Puerto Rico during the COVID-19 pandemic.
- b. H2a: There were changes in the social interaction of university students in Puerto Rico during the COVID-19 pandemic.

3. How has the COVID-19 pandemic impacted the mental health and emotional well-being of university students in Puerto Rico?

- a. H3o: The COVID-19 pandemic did not impact the mental health and emotional well-being of university students in Puerto Rico.
- b. H3a: The COVID-19 pandemic impacted the mental health and emotional well-being of university students in Puerto Rico.

Research contribution

This research will contribute to empirical knowledge about the effects of the COVID-19 pandemic on students at institutions of higher education. In addition, it will help leaders and administrators of higher education understand the experiences and limitations (if any) that students have had in the academic, emotional, and social areas during this time of emergency. Furthermore, it will enable education institutions to create emergency plans to support their students (academic, social, and emotional) during similar emergencies in the future, such as hurricanes and earthquakes.

Methodology

The methodology used for this research was quantitative and exploratory-descriptive in design. The participants were university students enrolled in IHEs in Puerto Rico from January 2020 to May 2022. Researchers used a snowball sampling technique using the social media

platforms *Instagram*, *Facebook*, and *LinkedIn* to recruit participants. Students or graduates who wished to participated in this research met the following requirements:

- 22 years of age or older.
- Studied at a Higher Education Institution in Puerto Rico during the years 2020 to 2022.
- Participated in the research freely and voluntarily.
- Able to read in the Spanish language.

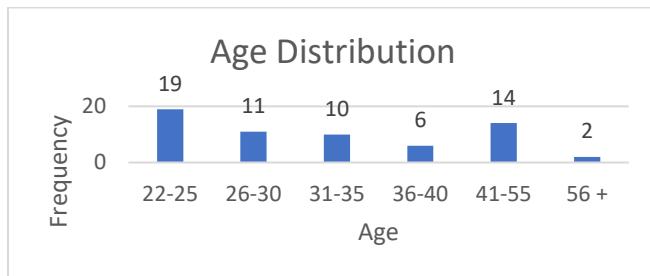
Description of the instrument

The source for collecting data for this study was the *COVID-19: Academic, Social, and Emotional Inventory* (C19-IASE) questionnaire developed by the authors Ginorio, Guzmán, and Oyola. This questionnaire consists of two parts. The first part consists of 39 closed-ended questions that collected the participants' experience from the academic, social, and emotional aspects during the pandemic. In this first part of the C19-IASE, a Likert scale was used, with five (5) response alternatives for participants to select the one that best suits their experience, (5) Strongly agree; (4) Agree; (3) Neutral; (2) Disagree; and (1) Strongly disagree. In the second part of the questionnaire, all demographic aspects were collected. The instrument was validated by a group of three professionals, expert in the topic and had a Cronbach alpha of .88 indicating excellent reliability.

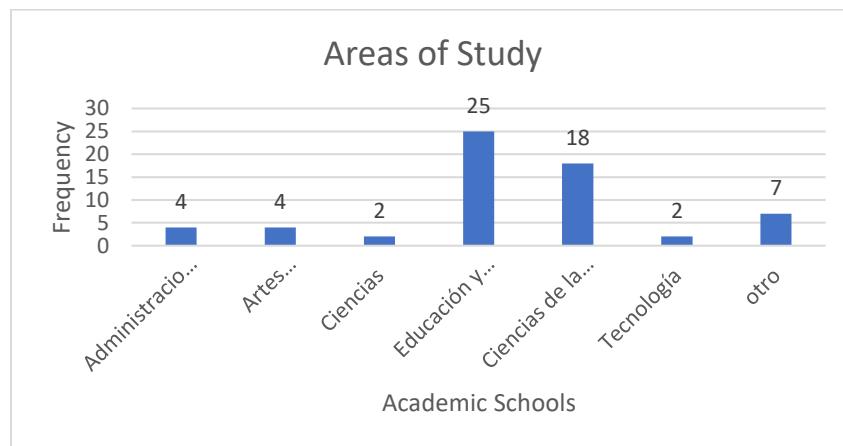
Results

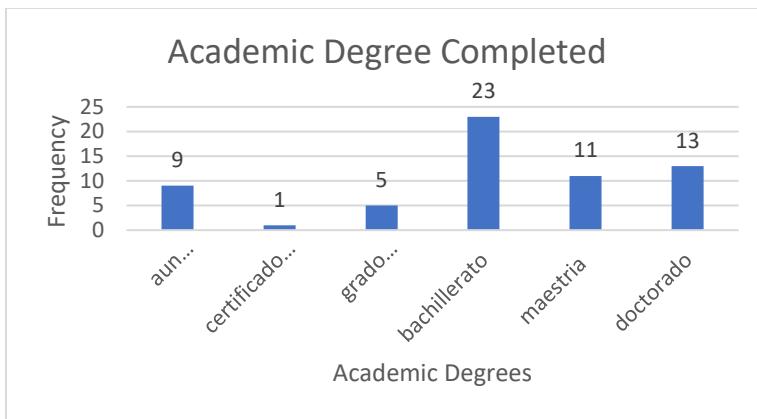
Participant demographics

A total of 62 participants completed the questionnaire, of which 54.8% (34 of 62) were female, 41.9% (26 of 62) were male, and two preferred not to be identified. The ages of the participants who responded were 30.6% between 22 and 25 years, and 22.6% between 41 and 55 years (see Figure 1).

Figure 1.*Distribution of Participants by Age Range*

Seventy-one percent of participants studied at institutions of higher education located in the eastern and northern areas of Puerto Rico, and 29% identified themselves as students in the western, southern, and central areas of Puerto Rico. Thirty-seven percent of participants reported they were currently studying at institutions of higher education, while 40% indicated they had completed their academic degree. Forty percent of participants were enrolled in education and social sciences, and 29% in health sciences (see Figure 2). At the same time, 75% of participants had completed a bachelor's, master's, or doctoral degree (see Figure 3).

Figure 2.*Participants' Areas of Study***Figure 3.***Degrees Completed by Participants*



Research Question 1

How did the COVID-19 pandemic affect the study habits of university students in Puerto Rico?

Academic performance during the COVID-19 pandemic was assessed using a 14-item questionnaire. Participants were asked about the difficulty they had in completing academic tasks during the pandemic, such as: difficulty concentrating, motivation to study, access to learning resources, completing assigned work, adapting to distance learning, studying routine at home, and difficulty finding a suitable space to study at home, among others. A summary of the results can be seen in Table 1:

Table 1

Results of Changes in Academic Performance during the Pandemic

Premises	Totally		Neutral		Disagree/Strongly	
	agree/Agree (frequency/%)		(frequency/%)		Disagree (frequency/%)	
	N=62		N=62		N=62	
	42	67.7%	14	22.6%	6	9.6%
I found it difficult to concentrate on my studies.						

Premises	Totally agree/Agree		Neutral		Disagree/Strongly Disagree	
	(frequency/%)		(frequency/%)		(frequency/%)	
	N=62		N=62		N=62	
	N	%	N	%	N	%
My motivation to continue my studies is decreasing.	32	51.6%	10	16.1%	20	32.3%
It was difficult to access the necessary learning resources (e.g. computer, internet).	31	50%	9	14.5%	22	35.4%
It was difficult to complete my assignments and work during distance learning.	30	48.4%	15	24.2%	17	27.4%
It was difficult to adapt to distance education.	41	48.4%	12.9	24.2%	17	21.4%
It was difficult to maintain a study routine at home.	37	59.6%	14	22.6%	11	17.7%
It was difficult to find a suitable space to study in my home.	30	48.4%	10	16.1%	22	35.5%
I struggled to stay motivated for online classes during the pandemic.	41	66.1%	10	16.1%	11	17.7%
I had to try harder to complete my assignments and work.	42	67.7%	10	16.1%	10	16.1%
It was difficult to access tutoring or consultations with my teachers.	29	46.8%	14	22.6%	19	30.6%

Premises	Totally		Neutral		Disagree/Strongly	
	agree/Agree (frequency/%)		(frequency/%)		Disagree (frequency/%)	
	N=62		N=62		N=62	
It was difficult to concentrate on my studies in my home environment.	40	64.5%	7	11.3%	15	24.2%
The quality of my education decreased with distance education.	33	53.2%	11	17.7%	18	20%
My academic performance was better during the pandemic.	16	25.8%	26	32.3%	20	32.3%
I felt academic support from my university.	24	38.7%	25	40.3%	13	21%

Academic aspect M=3.45 SD=.73

Research Question 2

How has social interaction changed for university students in Puerto Rico during the COVID-19 pandemic?

Social changes during the pandemic were assessed using 15 questionnaire items. The results are shown in Table 2.

Table 2*Results of Changes in Social Aspects during the Pandemic*

Premises	Totally agree/Agree (frequency/%)		Neutral (frequency/%)		Disagree/Strongly Disagree (frequency/%)	
	N=62		N=62		N=62	
I felt disconnected from my teachers during distance learning.	28	45.2%	18	29%	16	25.8%
My interaction with other students was limited.	47	75.5%	8	12.9%	7	11.3%
I felt isolated from my friends.	42	67.7%	11	17.7%	9	14.5%
I missed the everyday social interactions with my classmates.	52	83.9%	7	11.3%	3	4.8%
I had difficulty interacting with resources and services provided by my university.	42	67.7%	9	14.5%	11	17.7%
I felt disconnected from my college classmates and friends.	45	72.6%	8	12.9%	9	14.5%
It was difficult to participate in study groups with other students.	48	75.8%	9	9.7%	6	9.7%
I missed the student activities and organizations at my university.	39	62.9%	19	30.6%	4	6.5%

Premises	Totally agree/Agree (frequency/%)		Neutral (frequency/%)		Disagree/Strongly Disagree (frequency/%)	
	N=62		N=62		N=62	
	27	43.5%	24	38.7%	11	17.7%
Virtual tools allowed me to keep in touch with my university friends.						
My social circle shrank during the pandemic and distance learning period.	43	69.4%	13	9.7%	6	9.7%
Increase social interaction with friends and family outside of college.	14	22.6%	22	35.5%	26	41.9%
Social media and apps helped me feel socially connected.	36	58.1%	18	29%	8	12.9%
I felt comfortable interacting with classmates and teachers through virtual and remote means.	24	38.7%	21	33.9%	17	27.4%
The lack of in-person social interaction changed my college experience.	47	75.8%	8	12.9%	7	11.3%
The university offered social support.	12	19.4%	25	40.3%	25	40.3%

Social Aspect M=3.64 SD=.46

Research Question 3

How has the COVID-19 pandemic impacted the mental health and emotional well-being of university students in Puerto Rico?

Emotional changes during the pandemic were assessed using 10 items in the questionnaire. Participants' reported levels of stress, anxiety, frustration, anger, and other symptoms were evaluated. The results are shown in Table 3.

Table 3

Results of Changes in Emotional Aspects during the Pandemic

Premises	Totally agree/Agree (frequency/%)		Neutral (frequency/%)		Disagree/Strongly Disagree (frequency/%)	
	N=62		N=62		N=62	
I had insomnia problems.	29	46.8%	11	17.7%	22	35.5%
I had eating problems.	26	41.9%	8	12.9%	28	19.4%
I had difficulty concentrating in my classes.	37	59.7%	9	14.5%	16	25.8%
I suffered from stress.	40	64.5%	13	21%	9	14.5%
I suffered from anxiety.	38	61.3%	10	16.1%	14	22.6%
I neglected my personal appearance.	24	38.7%	15	24.2%	23	37.1%
I maintained a positive attitude in the face of the situations that caused the pandemic.	32	51.6%	26	41.9%	4	6.5%
I suffered frustration.	43	69.4%	8	12.9%	11	17.7%

Premises	Totally agree/Agree		Neutral		Disagree/Strongly Disagree	
	(frequency/%)		(frequency/%)		(frequency/%)	
	N=62		N=62		N=62	
I felt anger.	29	46.8%	16	25.8%	17	27.4%
I felt emotional support from my university.	12	19.4%	25	40.3%	25	40.3%

Emotional aspect M=3.38 SD=.79

Table 4 shows the averages for the academic, social, and emotional aspects as answered by participants (N=62). According to the table, 52% of participants indicated that the pandemic affected them academically, 58% socially, and 50% emotionally.

Table 4

Average of Participants' Responses to the Different Aspects Evaluated

Aspects	Totally agree and in agreement		Totally disagree and disagree	
		Neutral		disagree
Academic	52.6%	21.1%	24.3%	
Social	58.5%	23%	17.7%	
Emotional	50%	22.7%	24.6%	

Discussion and Conclusions

Academic impact:

More than half of the participants indicated that the COVID-19 pandemic affected them academically. The areas that were most affected were: concentration (67.7%), motivation (66.1%), more effort to complete assignments (67.7%), concentration problems due to the home environment (64.5%), and 53.5% agreed that the quality of education decreased due to being remote. At the same time, some of the participants indicated that they received little support from the university (38.7%) and that it was difficult to access tutoring at the university (46.8%). They also indicated that it was difficult with routines at home (59.8%), completing assignments (48.4%), and adapting to distance education (48.4%).

The results of the statistical analysis indicated that there were significant differences between undergraduate ($M=3.4$, $SD=.66$) and graduate students ($M=3.2$, $SD=.85$) in academic $t(60) = 0.0017$, $p < .05$ and no difference between male participants ($M=3.37$, $SD=.81$) and female participants ($M=3.5$, $SD=.81$) $p = 0.1124$. These findings were consistent with UNESCO's global report (2020), which highlighted widespread challenges in adapting to online education, particularly in regions with limited digital readiness. Similarly, Sanchez Mendiola et al. (2020) documented that Latin American HEIs faced substantial obstacles in training faculty for digital platforms and supporting students learning. Giannini (2022) further noted that students worldwide expressed a loss of confidence in their ability to learn during the pandemic, mirroring the experiences of Puerto Rican students in this study.

Social interaction

Fifty-eight percent of participants felt that their social interaction was negatively affected during the pandemic. Students described feeling disconnected from peers (72.6%) and professors (45.2%), isolated from friends (67.7%), and deprived of everyday classroom experiences (83.9%). The lack of in-person interaction changed the university experience (75.8%) of students, while only 38% reported feeling comfortable with remote communication.

These results align with Brown and Salmi's (2020) argument that the pandemic disrupted not only academic performance but also social development within higher education. Similarly, Elgueta Rosas (2020) identified institutional unpreparedness across Latin America, not only in student services, which is consistent with the 67.7% of students who responded similarly in this study.

There were significant differences between undergraduate students ($M=3.7$, $SD=.40$) and graduate students ($M=3.5$, $SD=.46$), $t(60) = 0.012$, $p<.05$ in the social aspect of their experience at the university during COVID-19 pandemic. Two thirds of the students felt isolated taking classes remotely. However, there were no difference between male ($M=3.7$, $SD=.42$) and female participants ($M=3.6$, $SD=.44$), $t(60) = 0.856$, $p<.85$.

Mental and Emotional Health

Half of the participants reported experiencing mental health issues during the COVID-19 pandemic. The most prevalent issues were frustration (69.4%), stress (64.5%), anxiety (61.3%), and concentration difficulties (59.7%). Additionally, 46.8% experienced anger, while 38.7% reported neglecting their personal appearance. Only 19% of participants reported receiving support for emotional problems during the pandemic.

These findings were consistent with WHO (2025), which emphasized that emergencies intensify mental health vulnerabilities. Seow (2020) similarly documented heightened psychological strain among students in Asia and Europe, suggesting that Puerto Rican students' experiences reflect a broader global trend. Only 19% of students in the present study indicated receiving emotional support from their institutions.

Recommendation for Future Practice

The COVID-19 pandemic exposed critical gaps in academic continuity planning within Puerto Rican HEIs. In future emergencies, HEIs in Puerto Rico should develop management plans that integrate three pillars: (1) **Academic continuity through faculty development**, by implementing structured Quality Matter (QM) (QA Resources, 2025) and Universal Design for Learning (UDL) (CAST, 2024; World Wide Web Consortium, 2019), training programs to ensure course alignment and accessibility, accompanied by early-alert analytics systems in the Learning Management Systems (LMS) that identify at-risk students for academic support; (2) **Social connectedness via student organizations and support programs**, by promoting Community of Inquiry (CoI) (Fiock, 2020) strategies that strengthen teaching, cognitive and social presence through virtual peer groups, mentorship cycles, and digital student hubs that foster engagement and belonging; and (3) **Mental health and emotional well-being through counseling and outreach programs**, by adopting stepped-care frameworks that integrate self-guided cognitive-behavioral therapy (CBT) modules, proactive screening using validated tools, and embedded referral pathways for timely access to professional mental health services (Mudin et al., 2024).

Embedding these evidence-based practices, among others, can translate institutional response plans into measurable outcomes that enhance learning quality, student engagement and overall retention in technology mediated environments. Our perception was that the IHE did

everything possible to help the students in need, however, 80% of the participants in this study did not receive the needed help.

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