



Influence of COVID-19 at UMBC: Analyzing Predictors for Undergraduate Students' Academic Success

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INTRODUCTION

- COVID-19 is a global pandemic which has impacted the quality of life and learning of Pre-K - 12 students (Ravens-Sieberer et al., 2021) and college students (Lederer et al., 2020) which, in turn, has had possible effects on their academic success
 - Due to COVID-19 being a global pandemic, educational institutions all over the world have been impacted by the switch to online learning and have been creating new methods to aid with this transition (Pokhrel & Chhetri, 2021).



INTRODUCTION

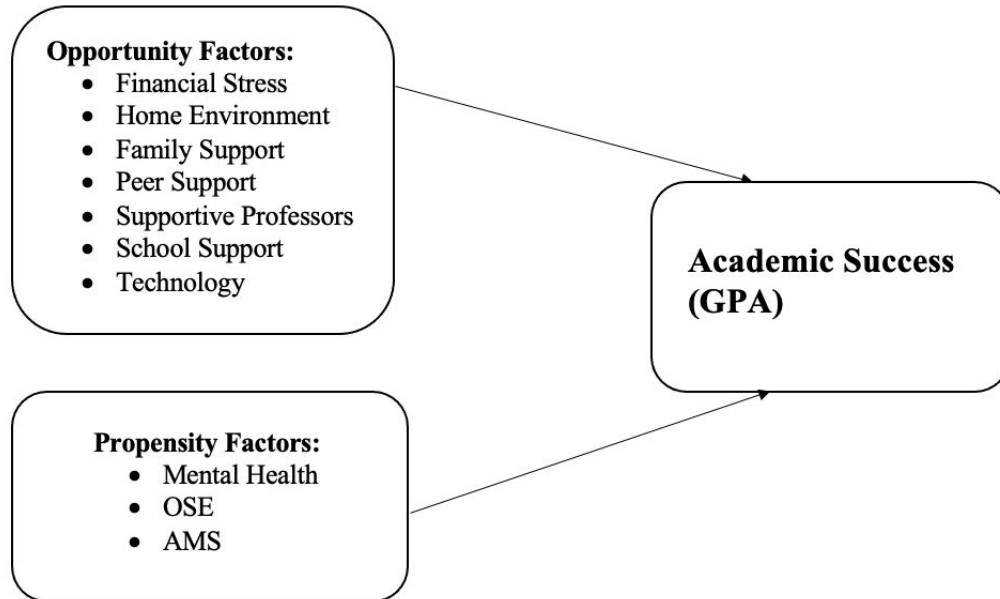
- This exploratory study investigated variables that **positively and negatively affected students' academic success** during the COVID-19 pandemic
 - Switching to a learning environment has affected the overall performance of college students. Factors that have caused hardships for students included difficulty with motivation, anxiety induced from having to use an online platform for their studies, and fear of contracting COVID-19 (Tasso et al., 2021).
- Predictive Factors in this Survey: Financial Stress, Home Environment, Family Support, Supportive Friends, Supportive Professors, School Support, Technology, Mental Health, Engagement, Motivation

INTRODUCTION

- While there are many groups that have difficulty adjusting to college, **First-Generation College Students (FGCS)** and **First Year Students** seem to be particularly impacted by the transition
 - How First-Generation College Students Adjust to College (Gibbons et al., 2019)
 - First-Generation College Students were recruited to talk about their adjustment to college and the factors that they felt were necessary in adjusting to college successfully
 - We adopted the analysis of support systems while adjusting to college from this study
 - Negotiating the Freshman Year: Challenges and Strategies Among First-Year College Students (Clark, 2005)
 - This study examined the difficulties First Year College Students endure and the coping mechanisms they utilize to combat their hardships as they transition to college
- This survey examined the effects of **First-Generation College Students (FGCS)** and **First Year Students**, specifically the disadvantages and advantages that both of these populations faced during their college experience

THEORETICAL FRAMEWORK: Opportunity and Propensity Model (Byrnes & Miller, 2007)

Figure 1. *Opportunity and Propensity Model*



- **Opportunity Factors:** Culturally defined factors that give an individual an opportunity to learn by exposing them to course material.
- **Propensity Factors:** Intrinsic factors that dictate an individual's ability to learn.

RESEARCH QUESTIONS

- What are positive and negative **predictive** factors for academic success (GPA) in the undergraduate student population at UMBC during the Fall 2020 semester?
- What are the **group based differences** in opportunity and propensity factors and GPA between First-Generation and Non First-Generation Students?
- What are the **group based differences** in opportunity and propensity factors and GPA between First Year and Non First Year Students?

METHOD: Participants

- **387 UMBC undergraduate students** enrolled in the Fall 2020 semester
 - Students were between 18 and 40 years old
 - 51% White, 20% Asian, 10% Black, 3% Latino or Hispanic, 4% Other, 12% Bi/multi-racial
 - 33% Male, 62% Female, 4% Non-binary gender identification, < 1% Other
 - 29% FGCS, 71% Non-First Generation College Students
 - 17% First Year Students, 83% Non-first year Students
- Students were recruited from various campus listservs and the Psychology participant pool (Sona)

METHOD: Measures

Table 1. *Predictors and GPA Sample Items*

Predictors and GPA (<i>n</i> of items)	Sample Item
GPA	What was your cumulative GPA as of the end of Fall 2020 semester?
Financial Stress (<i>n</i> = 3)	I am unsure if I will be able to afford UMBC's tuition if COVID-19 continues much longer.
Home Environment (<i>n</i> = 4)	I am comfortable studying for and attending online classes in my current residence during the COVID-19 pandemic.
Supportive Friends (<i>n</i> = 5)	My friends encourage me to do well in my online classes during the COVID-19 pandemic.
Supportive Family (<i>n</i> = 5)	My family encourages me to do well in my online classes during the COVID-19 pandemic.
Supportive Professors (<i>n</i> = 6)	My professors make time for their students when they need to help during COVID-19.
School Support (<i>n</i> = 5)	Since the onset of COVID-19, UMBC has helped make the transition to distance learning easier for me.
Technology (<i>n</i> = 5)	I have sufficient access to the technology I need to be a successful student in my online courses during the COVID-19 pandemic.
Mental Health (<i>n</i> = 4)	In general, COVID-19 caused me stress throughout the Fall 2020 semester.
OSE (<i>n</i> = 19)	Looking over class notes between getting online to make sure I understand the material.
AMS (<i>n</i> = 28)	I'm motivated because this will help me make a better choice regarding my career orientation.

Note. OSE = Online Student Engagement (Dixon, 2015); AMS = Academic Motivation Scale (Vallerand et al., 1992).

Cronbach Alpha: Range 0.64 – 0.90, with most of them greater than 0.70

- How were the measures scored?
 - We took the sum score of the responses for each measure

METHOD: Procedure

- We received IRB approval from UMBC for an exempt submission
- Students clicked on a link, which redirected them to our Qualtrics Survey
 - Skip logic was utilized, participants only responded to questions that were relevant to them and their previous responses
 - Participants responded to the survey items on the eight predictors of academic success, OSE, and AMS. Additionally, they responded to a series of demographic questions including race/ethnicity and gender identity
- Participants who completed the survey through Sona were possibly eligible to receive extra credit

RESULTS: What Factors Predicted GPA

- Race/ethnicity was not a significant predictor, so they were not included in subsequent analyses.

Table 2. *Significant Predictions of Students' GPA*

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i>
	<i>B</i>	<i>SE</i>	β		
Financial Stress	-0.03	0.01	-.23	-4.07	< .001***
Supportive Professors	-0.01	0.01	-.13	-1.98	.049**
School Support	0.01	0.01	.11	1.68	.095*
OSE	0.01	0.003	.25	4.33	< .001***

Note. * $p < .10$, ** $p < .05$, *** $p < .001$.

Only statistically significant predictors are shown.

Table 3. *Descriptive Statistics of First-Generation Students vs. Non-First-Generation Students for Each Predictor and GPA*

Predictors	<i>M (SD)</i>
GPA ^a	
First Gen Students (<i>n</i> =107)	3.35 (0.66)
Non-First Gen Students (<i>n</i> =259)	3.46 (0.56)
Financials **	
First Gen Students (<i>n</i> =110)	13.46 (4.47)
Non-First Gen Students (<i>n</i> =274)	10.22 (4.89)
Home Environment	
First Gen Students (<i>n</i> =110)	18.19 (5.35)
Non-First Gen Students (<i>n</i> =274)	19.22 (4.78)
Supportive Friends	
First Gen Students (<i>n</i> =110)	19.85 (4.86)
Non-First Gen Students (<i>n</i> =274)	20.03 (5.22)
Supportive Family	
First Gen Students (<i>n</i> =110)	24.72 (6.28)
Non-First Gen Students (<i>n</i> =274)	25.10 (6.10)

Note. * $p < .05$, ** $p < .001$.

^a A few participants did not enter in their GPA.

RESULTS:
First- Generation College Students (FGCS)
 ➤ FGCS had significantly higher scores on the Financial stress ($p < .001$) questionnaire than Non-FGCS

Table 3. Descriptive Statistics of First-Generation Students vs. Non-First-Generation Students for Each Predictor and GPA

Predictors	<i>M (SD)</i>
Supportive Professors	
First Gen Students (<i>n</i> =110)	28.45 (7.01)
Non-First Gen Students (<i>n</i> =274)	28.24 (6.64)
School Support	
First Gen Students (<i>n</i> =110)	21.35 (5.56)
Non-First Gen Students (<i>n</i> =274)	20.80 (6.03)
Technology *	
First Gen Students (<i>n</i> =110)	25.55 (4.67)
Non-First Gen Students (<i>n</i> =274)	26.66 (5.05)
Mental Health	
First Gen Students (<i>n</i> =110)	23.76 (6.51)
Non-First Gen Students (<i>n</i> =274)	23.29 (6.85)
Online Student Engagement (OSE)	
First Gen Students (<i>n</i> =110)	64.37 (13.24)
Non-First Gen Students (<i>n</i> =274)	63.12 (12.01)
Academic Motivation Scale (AMS) *	
First Gen Students (<i>n</i> =110)	129.40 (23.20)
Non-First Gen Students (<i>n</i> =274)	123.51 (24.11)

Note. * $p < .05$, ** $p < .001$.

RESULTS: First-Generation College Students (FGCS)

- FGCS scored significantly lower on the Technology ($p = .047$) questionnaire than Non-FGCS
- FGCS had significantly higher scores on the AMS ($p = .029$) questionnaire than Non-FGCS

Table 4. Descriptive Statistics of First Year Students vs. Non-First Year Students for Each Predictor and GPA

Predictors	<i>M (SD)</i>
GPA ^a	
First Year Students (<i>n</i> =61)	3.55 (0.59)
Non-First Year Students (<i>n</i> =305)	3.40 (0.59)
Financials **	
First Year Students (<i>n</i> =64)	9.78 (5.02)
Non-First Year Students (<i>n</i> =32)	11.48 (4.97)
Home Environment	
First Year Students (<i>n</i> =64)	20.67 (4.33)
Non-First Year Students (<i>n</i> =32)	18.57 (5.02)
Supportive Friends	
First Year Students (<i>n</i> =64)	20.13 (5.21)
Non-First Year Students (<i>n</i> =32)	19.95 (5.11)
Supportive Family	
First Year Students (<i>n</i> =64)	26.84 (5.61)
Non-First Year Students (<i>n</i> =32)	24.62 (6.19)

Note. * $p < .05$, ** $p < .001$.

^a A few participants did not enter in their GPA.

RESULTS:

First Year Students

- First Year Students scored significantly higher on Supportive Family ($p = .008$), and Home Environment ($p = .002$) questionnaires than Non-First Year Students
- First Year Students experienced less financial stress ($p = .013$) than Non-First Year Students

Table 4. Descriptive Statistics of First Year Students vs. Non-First Year Students for Each Predictor and GPA

Predictors	<i>M (SD)</i>
Supportive Professors	
First Year Students (<i>n</i> =64)	27.33 (6.27)
Non-First Year Students (<i>n</i> =32)	28.49 (6.82)
School Support	
First Year Students (<i>n</i> =64)	22.42 (5.44)
Non-First Year Students (<i>n</i> =32)	20.66 (5.95)
Technology *	
First Year Students (<i>n</i> =64)	27.52 (4.58)
Non-First Year Students (<i>n</i> =32)	26.11 (5.01)
Mental Health	
First Year Students (<i>n</i> =64)	21.67 (5.99)
Non-First Year Students (<i>n</i> =32)	23.78 (6.84)
Online Student Engagement (OSE)	
First Year Students (<i>n</i> =64)	62.39 (15.25)
Non-First Year Students (<i>n</i> =32)	63.70 (11.73)
Academic Motivation Scale (AMS) *	
First Year Students (<i>n</i> =64)	124.92 (23.53)
Non-First Year Students (<i>n</i> =32)	125.25 (23.90)

Note. * $p < .05$, ** $p < .001$.

RESULTS:

First Year Students

- First Year Students scored significantly higher on the School Support ($p = .029$), and Technology ($p = .038$) questionnaires than Non-First Year Students
- First Year Students scored significantly lower on the mental health questionnaire ($p = .022$) than Non-First Year Students

DISCUSSION: Factors that Predict GPA

- UMBC students who reported higher levels of school support and/or higher levels of engagement had significantly higher GPAs during the Fall of 2020 (see also Fuller et al., 2011)

- UMBC students with higher financial stress and/or supportive professors received significantly lower GPAs during the Fall of 2020
 - Student Loan Debt and Financial Stress: Implications for Academic Performance (Baker & Montalto, 2019)
 - Supports our findings for the negative implications of financial stress.

 - Possible result of students not feeling connected to professors in the online learning environment and students with a lower GPA may not want the additional attention from professors

DISCUSSION: First-Generation College Students

- No significant difference in GPA between First-Gen and Non First-Gen
- First-Generation Students report having more financial stress and issues with technology access, but having higher levels of motivation than Non-First Generation Students
 - Aid and College Success: The Effect of a Grant-Filled Financial Aid Package on the Academic Performance and Persistence of Traditionally Underrepresented Students in an Academic Support Program (Starke, 2019)
 - First-Generation Students are more likely to come from low socioeconomic backgrounds and rely on financial aid to fund their education than Non- First Generation Students
 - Differences in Self-Regulation for Online Learning Between First- and Second-Generation College Students (Williams & Hellman, 2004)
 - First-Generation Students are less likely to have access or high comfort levels with technology compared to second-generation students
 - Student Voice and Academic Choice: A Qualitative Exploration of Motivational Factors in First-Generation, Liberal Arts Students' Choice To Pursue Graduate Study (Andrews, 2015)
 - First Generation Students have high levels of motivation as they uphold societal responsibility and their own personal value of education

DISCUSSION: First Year Students

- No significant difference in GPA between First Year and Non First Year
- First Year Students have reported higher levels school, professor, family and peer support
 - Colleges Doing More to Help Freshmen Survive and Thrive (Marcus, 2020)
 - First Year Students are offered various support programs to assist with their transition from high school into college
 - Working With Students and Parents to Improve the Freshman Retention (Budney & Delaney, 2001)
 - Study found that having various transition programs and support groups increases the academic achievement of Freshmen
- First Year Students also reported having better mental health while having a positive home environment
 - Predictors of Mental Health and Academic Outcomes in First-Year University Students: Identifying Prevention and Early-Intervention Targets (Duffy et al., 2020)
 - Reports prevalent clinical mental health issues within the First Year Student population, negatively impacting the students' academic success
- Additionally, First Year Students reported lower levels of access to technology.
 - Possible result of unfamiliarity with Blackboard and other online learning sites.

IMPLICATIONS

- Schools can provide accessible support services and programs, such as free tutoring and flexible office hours that students can take advantage of, increasing the possibility of students receiving higher GPA
- Institutions can provide devices to enhance access to technology including laptops and wifi hotspots which could lead to improvement in student's comfort levels with the online learning environment
- Schools can continue to provide programs to support First Year Students transitioning from high school to college such as Jumpstart or First Year Seminar continue, and possibly impact student's academic success positively

LIMITATIONS

- Due to a time restraint, the data we collected should be viewed as preliminary because we are still collecting data and conducting further analyses
- Not a representative sample of UMBC student population as we used a convenience sample

FUTURE DIRECTIONS

- Further analysis on the qualitative response of the students
- Conduct further analysis on racial/ethnic breakdown



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