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PONDERING POSSIBLE PSYCHOLOGICAL PANDEMONIUM

**Pondering Possible Psychological Pandemonium:
COVID-19's Impact on Undergraduate Students' Distress Levels**

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Abstract

The pandemic has altered everything in its path, including a broad impact on mental health, but not everyone has been affected equally. The COVID-19 pandemic presents an opportunity to examine if previously found differences in how non-Hispanic white and Latinx populations experience anxiety persist and/or were compounded. This study investigated distress levels of Latinx and non-Hispanic white undergraduate students at a public Hispanic Serving Institution both prior to and during the pandemic. A two-way ANOVA was run on a subset of an existing database to assess changes in distress levels between the two populations and timeframes. It was hypothesized that distress levels would significantly increase for both populations and that Latinx undergraduate students' increase would be significantly greater than that of the non-Hispanic white population. Results indicated that there had been no significant increase in distress/stress levels and that the levels of both populations did not significantly differ, with most students scoring in the moderate to high stress level ranges during both timeframes. Given COVID-19's impacts on mental health, the vulnerability of college students to mental stress, and previously demonstrated differences in how Latinx students experience distress, more research is needed to examine anxiety during the COVID-19 pandemic.

Pondering Possible Psychological Pandemonium:

COVID-19's Impact on Undergraduate Students' Distress Levels

Not only has COVID-19 put students' college retention—and therefore potential future opportunities that depend on said retention—at risk, but it has also placed more weight on their shoulders. College students were already under stress given their having to navigate their academic and social spheres while also working at least one job. The pandemic meant that many college students had to return home, which meant facing hostile or dangerous situations for some like those in the LGBTQ+ community, or faced housing insecurity (Lederer et al., 2021). Students also faced increased caregiving responsibilities at home and are working more jobs or lost their current jobs that provided them and their family with a degree of financial security, all while dealing with the fast and likely turbulent transition to online learning and the rise in discrimination that COVID-19 brought to certain communities (Lederer et al., 2021). All of these factors and countless more in combination to the unique ways that race/ethnicity interacted with them have doubtlessly negatively impacted college student's mental health. Taking this together, there is an urgent need for research delving into how college students and their mental health have fared and are currently coping with the pandemic—one place to start is by looking at their experience of anxiety.

There is an abundance of research on anxiety in general (American Psychiatric Association, 2014) as well as research on the impact of various factors on anxiety levels, such as country (Ritchie & Roser, 2018), race (Mental Health America, 2020), and age (National Institute of Mental Health, 2017). For example, existing research on anxiety in relation to socioeconomic position has suggested a limited correlation between lower socioeconomic position and anxiety (Muntaner et al., 2004) as well as a connection between high socioeconomic

position and high anxiety levels (Salami & Walker, 2014), thereby suggesting possible changes or contradictions. Historically, researchers have utilized white samples as the ‘norm’ or control group to which others are compared, especially in research on higher education given that these institutions have been primarily white (Roberts et al., 2020; US Census Bureau, 2018). This gap has left ample room for investigating specific minority student populations, which is particularly relevant given that more recent research has suggested high levels of stress in college student samples (The American Institute of Stress, 2019).

Anxiety research, and mental health research more broadly, has been presented with new possible avenues of investigation given the unfortunate situation that the globe is experiencing: the COVID-19 pandemic. However, since this pandemic is ongoing there is still much more to learn about COVID-19, its offshoots, and its time-related impacts, especially at the time of its onset. To address the gap in the literature this study aims to examine how COVID-19 has impacted the relative distress levels of non-Hispanic white and Latinx undergraduate students.

Distress

The American Psychiatric Association (APA) defines anxiety as encompassing feelings of excessive fear or anxiety as well as disturbances in behavior that are related to said emotions (American Psychiatric Association, 2014). The APA makes distinctions between the two—describing fear as an emotion that manifests as a response to an immediate actual or recognized threat and anxiety as the feeling produced by the anticipation of a future threat. The APA goes deeper into the distinction, acknowledging that while there is some overlap, fear is usually related to autonomic arousal increases that are needed for flight or fight responses, escape behaviors, and thoughts of current danger, while anxiety usually relates to avoidant or cautious behaviors and vigilance and muscle tension in preparation for future threats (American

Psychiatric Association, 2014). Therefore, this study will use the term *distress* when discussing levels of anxiety, in order to refer to the whole continuum on which anxiety may manifest.

Not only does distress span many feelings, but it also spans many people. Bandelow and Michaelis (2015) found that anxiety is the most prevalent mental disorder given its presence in a third of the population, is more prevalent in women, and is highest in middle age. They also found that, even though it affects so many people, many individuals with some form of anxiety either do not get treated or are misdiagnosed (Bandelow & Michaelis, 2015). Clearly, anxiety is experienced far and wide, and yet those who suffer from it do so in silence whilst continuing their lives to the best of their ability.

Distress and Undergraduate Students

It is well understood that anxiety is one of the most commonly experienced mental health issues faced by undergraduate students (The American Institute of Stress, 2019) and has continued to increase in severity and in the scope of people affected (The American Institute of Stress, 2019). Given the extent to which anxiety has been researched, countless studies have been conducted on how it affects certain populations including undergraduate students and groups that make up undergraduate populations (e.g., Beiter et al., 2015). Beiter et al. (2015) found that a university's counseling center had a 231% increase in yearly visits as well as a 173% increase in total yearly clients and found that transfer students, upperclassmen, and students living off-campus all had high anxiety levels, possessing 10 of their 19 possible concerns.

Researchers have been able to draw more specific conclusions regarding anxiety. One example is Pedersen and Jodin (2016) who found that moderate school spillover—when student life factors extend into other areas of life—was commonly reported by most students and was

connected to increased restlessness, nervousness, feelings of depression, hopelessness, and worthlessness, as well as less sleep per night and having more sexual partners. Another example is Koutsimani (2019) who found that anxiety and burnout were significantly associated, suggesting that those more prone to high levels of anxiety are likely to develop burnout as well. Various studies which used distinct methodologies produced different degrees of these results (Koutsimani, 2019). Studies like these delve into factors that relate closely to anxiety itself and in doing so, bolster the growing literature that exists on the disorder. It is because of the robust understanding of anxiety that is currently enjoyed that researchers can then turn to specific aspects that are related to it and thus focus on how certain groups of people are affected by it.

Race/Ethnicity of Undergraduate Students & Distress

Given the high amount of interest in examining how different populations are affected by anxiety, researchers have turned their attention to studying anxiety in terms of race. One such study, by Alvarez et al. (2019), indicated a nonuniform connection between low risk and foreign-born parents, where being exposed to United States culture increased risk for whites and Latinos (Alvarez et al., 2019). Given this research and others like it that investigate the ties between race/ethnicity and anxiety, researchers have also focused their attention on how specific races and ethnicities are impacted by anxiety. For instance, existing research presents interesting similarities (Alegria et al., 2008) and differences (Karno et al., 1989) in how non-Hispanic white and Latinx populations experience or report anxiety.

Non-Hispanic white Undergraduate Students & Distress

The interest in anxiety's connection to different individuals within the undergraduate student population highlights a need for greater understanding of how given races/ethnicities are affected by anxiety. Asnaani et al. (2010) found that white Americans were more likely to

experience anxiety disorders than individuals of other races and that Asian Americans were less likely to have anxiety disorders than Hispanic Americans and white Americans. These findings surrounding white populations are corroborated by previous research both prior to the pandemic (Terlizzi & Villarroel, 2020; Suarez et al., 2009; Alegría et al., 2008) and research which took COVID-19 into account (Liu et al., 2020).

Latinx Undergraduate Students & Distress

The growing acknowledgment and interest in diversity in research and throughout society has also increased interest in how specific undergraduate student minorities are affected by anxiety, thus producing research focusing on anxiety's impact on Latinx undergraduate students. One such study is Chen et al.'s (2019) which found that levels of self-reported diagnoses and symptoms for the past year were high regardless of race and that white undergraduate students generally reported higher levels of both self-reported diagnoses and symptoms. Moreover, they found that multiracial and Asian/Pacific Islander undergraduate students were more likely to report feelings of hopelessness, depression, anger, and suicidality and that, while lower levels of diagnoses were reported, Hispanic and Black undergraduate students had comparable rates of suicide in the past year to their white counterparts (Chen et al., 2019). The last finding highlights the possibility that, given comparable rates of suicidality, their Hispanic student participants may experience anxiety at higher levels than were previously thought and simply do not report it. The wording in previous research—which looked at anxiety, depression, and PTSD in light of the pandemic—also leaves this possibility open (Liu et al., 2020). That possibility thus precludes accurate diagnoses and demands more in-depth research focusing on Latinx undergraduate students.

COVID-19's Impact on Undergraduate Students' Distress Levels

The ongoing pandemic has significantly increased the need for research that examines undergraduate students' experience of anxiety and discerns how race/ethnicity fits into that relationship. COVID-19 has shaken the globe and therefore, unfortunately, severely and negatively impacted students' mental health (Hoyt et al., 2021). Changes in everyday life like prolonged quarantine and/or restrictions for gatherings and traveling (Benke et al., 2020), shortages in supplies (Omar et al., 2021), risk of exposure or infection, and more have undoubtedly taken a toll on people's mental health and, more specifically, increased anxiety levels. However, these impacts have not been equally dispersed over populations; Latinx individuals account for 33% of COVID-19 cases in the US despite accounting for only 18% of the country's population (Robeznieks, 2020). This shows that structural inequalities have resulted in Latinx communities being disproportionately impacted by COVID-19 (Robeznieks, 2020). It is due to COVID-19's large impact that researchers have scrambled to examine the virus' myriad effects (e.g., Hussein, 2020; Nelson, 2020; Son, 2020; Stieger, 2021). For instance, Nelson et al.'s (2020) results suggested a significant increase in depression and anxiety in their sample which they generalized to wider society, that age correlated to COVID-19 concern, and that anxiety was the strongest connection to COVID-19 concern (Nelson et al., 2020). Moreover, Stieger et al. (2021) found that spending time outdoors and higher emotional well-being were connected, experiencing loneliness and poorer emotional well-being were connected and that age did not interact with this connection, and greater screen-time and poorer emotional well-being were connected. While the screen-time factor could cover anything from exposure to COVID-19 coverage to work or leisure, Stieger et al.'s findings are factors that have increasingly impacted

people's lives—due to things like social distancing, quarantining, and changes in work/school arrangements—and have likely increased mental health issues like anxiety (Stieger et al. 2021).

In terms of students specifically, Hussein et al. (2020) found that while students did see positives to the education-related changes necessitated by the pandemic such as remote schooling—like effectiveness in terms of time and cost, increased participation, safety, and convenience—they were also painfully aware of negative impacts: large workloads, reduced focus/increased distractions, inadequate support from peers and instructors, and technology/internet issues (Hussein et al. 2020). Moreover, Son et al. (2020) found that the impact resulting from education largely moving online as a response to the pandemic—disrupted sleeping patterns, increased concerns about academic performance, distracting home environments, and decreased social interactions because of physical restrictions—increased student's distress levels as well.

Therefore, it is becoming increasingly evident that COVID-19 has seriously impacted undergraduate students' levels of stress given the various ways that it has upended regular life and exacerbated existing stressors (APA, 2020), through factors like COVID-19 exposure from the workplace (Dubay et al., 2020) and/or various restrictions (Benke et al., 2020) and factors like discrimination (APA, 2020), unemployment (Dubay et al., 2020), and housing issues (Chun et al., 2020), respectively. Given that those with chronic diseases are more at risk for COVID-19 (CDC, 2021), that the Latinx community is one of the ethnicities with the fastest rate of accumulation of chronic diseases (Quiñones et al., 2019), and that rates of chronic diseases within youth populations are increasing (Price et al., 2013), Latinx undergraduate students are thus heavily impacted by the current pandemic. This is before even considering social support, a supportive factor that mediates the relationship between stress and depression symptoms for both

Latinx and non-Hispanic white college students but that has been shown to mediate the relationship between stress and anxiety symptoms specifically for Latinx college students (Johnson-Esparza et al., 2021). This further highlights the potential risk that Latinx students now face, as COVID-19 has largely severed their support networks, and shows that conducting research to further understand how Latinx college students' distress levels were impacted by the pandemic is crucial to better understand how to help them (Johnson-Esparza et al., 2021). Beyond people, the ongoing pandemic has also impacted research in that it has affected participants' willingness to participate in traditional ways, thus introducing the need to transition to alternative methods of participation when conducting COVID-era research.

Present Study

The changes to research that resulted from the COVID-19 pandemic are best suited for the utilization of online surveys and databases when doing research, as this study did. For instance, the present study used a database that was created from data collected via surveys—a tool which, despite the challenges accompanying them, remains a good method to use when collecting data due to its strength and adaptability (Couper, 2017). Moreover, the aforementioned challenges can be mitigated by focusing on the survey's ability to motivate participants to continue filling it out and for it to be easy to understand rather than focusing on the survey's ability to be easily administered (Vicente & Reis, 2010). An example of this is the survey used to collect data for the database that the present used: the Perceived Stress Scale (PSS-10). Nielsen et al. (2019) indicated that perceived lack of control and stress can be measured approximately accurately for their sample, thereby supporting the validity of the measure (Nielsen et al., 2019).

As supported by existing research, this current study, where the distress levels of non-Hispanic white and Latinx undergraduate students will be studied, will utilize a database as its

source of data. However, to study the details about these two populations, the delineations of the populations themselves must first be understood. This study will refer to all those who identify as white but not as Latino/a/x or Hispanic as being non-Hispanic white. Following this, all those who identify as non-Hispanic white will not be grouped into the Latinx population. Instead, as per the definition provided by Salinas and Lozano—where Latinx is “an inclusive term that recognizes the intersectionality of sexuality, language, immigration, ethnicity, culture, and phenotype”—those who identify as either Hispanic or Latino/a/x will be grouped into the Latinx population, where the term Latinx will be used as an umbrella term (2019).

In light of the existing literature, it is hypothesized that results will show (H1) a general increase in distress levels for both populations and that (H2) Latinx undergraduate students’ distress levels increase will be greater than that of the non-Hispanic white population due to factors like diminished support networks and increased perceived risk for contamination. Moreover, it is hypothesized that (H3) the difference between the two groups will be larger during the pandemic. In other words, it is anticipated that during COVID-19, Latinx and non-Hispanic white undergraduate students will report significantly higher means on the Perceived Stress Scale-10 (PSS-10; Cohen & Williamson, 1988). Alongside this, it is also anticipated that Latinx undergraduate students will report significantly higher PSS-10 scores than non-Hispanic white students prior to and during the pandemic, although the difference between the two groups is hypothesized to be larger during the pandemic.

Methods

Participants

The data included in this study is a subset of a larger database from an ongoing study examining the political climate’s psychological impact. The information held within the database

was previously collected and continues to be collected in an Introduction to Psychology course at John Jay College of Criminal Justice. For this reason, participants' data for this study consisted of those students who enrolled in that undergraduate psychology course and took the aforementioned survey. Only undergraduate students in that psychology course who identify as either Latinx or non-Hispanic white and who took the survey during the aforementioned timeframes were included in this study.

This study's sample included de-identified data from 197 Latinx undergraduate students and 69 non-Hispanic white undergraduate students from John Jay. Only the data from those who completed a survey in the Fall 2019 or Spring 2020 semesters, during a two-month period prior to COVID-19 (October and November) and a two-month period during COVID-19 (March and April), were included. This is implemented so that data from before and during the pandemic can be investigated within these two populations. In order to avoid including children, who are a protected group and who cannot consent, the minimum age was 18. The sample predominantly identified as female ($n = 196$, 73.4%) and the average age was 19.28 ($SD = 3.1$).

Materials

Anxiety

Perceived Stress Scale (PSS-10) Levels of distress were assessed by focusing on data that came from the Perceived Stress Scale (PSS-10) which Nielsen et al. (2019) validated by showing that perceived lack of control and stress can be measured approximately accurately for their sample. It is a validated self-report measure with 10 items that ask about the frequency of experiencing specific thoughts and feelings during the last month with responses that range from "0 = Never" to "4 = Very Often." The PSS-10 is meant to measure the degree of perceived stress, the perception of stress, and how "unpredictable, uncontrollable, and overloaded"

participants perceived their life to be (Cohen & Williamson, 1988). It was designed for use in community populations that have at least a middle school education; this intention behind its creation, therefore, makes its use in this context—with college students—logical and appropriate. Its items and item alternatives are general and easily comprehensible, thereby decreasing participants' possible confusion.

Procedure

This study was conducted in accordance with John Jay College's internal review board. The database that was used was based on responses from a survey which participants took online and spent approximately 30 to 45 minutes completing. The database, and thus this study, used the student subject pool where students were able to self-select studies they would like to participate in from a number of possible studies or an opt-out essay. A two-way ANOVA was run on the subset of archival data that was selected from the existing database according to the aforementioned criteria. This was done in order to compare how levels of distress in undergraduate students were impacted by time—time meaning before and during the pandemic—after data that meets these inclusion criteria were identified.

Results

A 2-factor ANOVA was run, looking at participants' race and the semester they took the survey in in order to examine the main effect of race, semester, and their interaction. These were all shown to be insignificant, though the marginal means demonstrated an interesting but insignificant pattern: both populations' distress levels were high pre-COVID, but, during COVID, that of the Latinx population increased slightly while that of the non-Hispanic white population underwent a notable increase (see figure 1). Results indicated that all participants demonstrated consistent moderate levels of stress throughout the time periods, with means

ranging from 18.7 (SD = 6.98) through 20.7 (SD = 6.47). The majority of participants (n = 132, 83.6%) scored in the moderate or high range for stress, with virtually identical percentages for white and Latinx students at each time period. There was no significant interaction for ethnicity and semester, $F(1, 262) = .38, p = 0.38$. As a result, none of the hypotheses were supported as (H1) there was not a general increase in distress levels for both populations; (H2) Latinx undergraduate students' distress levels increase were not greater than those of the non-Hispanic white population's because, not only was there no increase, but the levels were virtually identical; and (H3) the difference between the two groups was not larger during the pandemic.

Figure 1

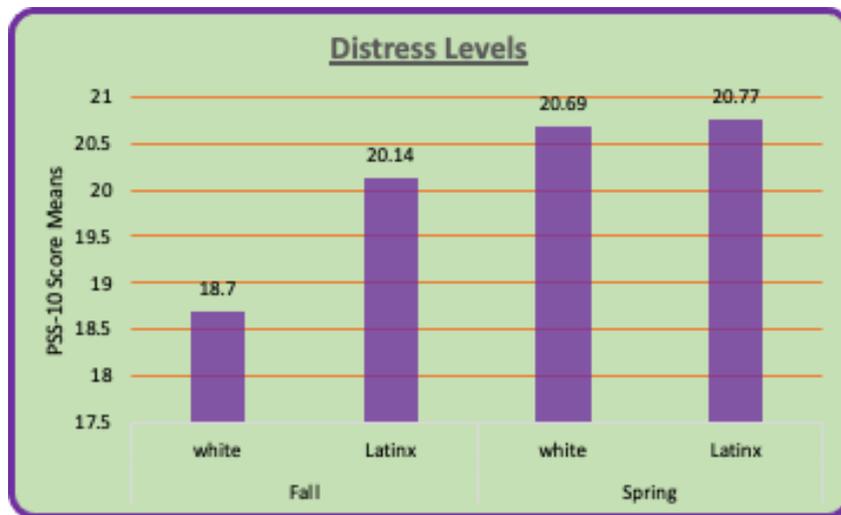


Table 1

Estimated Marginal Means Race x Semester			
		<i>M</i>	<i>SD</i>
White	Fall	18.698	0.947
	Spring	20.687	1.723
Latinx	Fall	20.143	0.673
	Spring	20.772	0.719

Table 2

Between-Subjects Factors

		Value Label	N
RACE	.00	White	69
	1.00	Latinx	197
Please indicate the current semester and year below. - Semester	1	Fall	158
	2	Spring	108

Discussion

It was anticipated that the results would suggest an increase in distress levels in both groups of undergraduate students given anxiety's already strong presence in this population (The American Institute of Stress, 2019), COVID-19's negative impacts on mental health (Hoyt et al., 2021), and other factors like school spillover and burnout (Pedersen & Jodin, 2016; Koutsimani, 2019). Moreover, it was also expected that data would show a larger increase in distress levels for Latinx undergraduate students, given factors like discrimination (APA, 2020), COVID-19 exposure from the workplace (Dubay et al., 2020), unemployment (Dubay et al., 2020), and housing issues (Chun et al., 2020) that impact this population which may affect the non-Hispanic white undergraduate student population differently. Further, it was anticipated that the data would also suggest that the restrictions against congregating with others (Benke et al., 2020) and shortages in supplies (Omar et al., 2021) might serve a significant role in escalating the distress that originated from the possibility of contagion within both populations. However, our findings did not support these hypotheses.

Both populations demonstrated consistent moderate levels of stress throughout the time periods with virtually identical percentages for both populations during each time period. These results do, however, highlight an important finding: college students consistently live and operate under moderate to high levels of stress. Given that this sample came from a location and

population that was particularly impacted by the pandemic in March 2020, the lack of a significant increase in stress levels was surprising. The results may suggest the need for a focus on consistent support for college students.

Additionally, though not significant, the interesting pattern shown in figure 1 presents the possibility of the Latinx population having better resilience than the non-Hispanic white population given that the latter's increase of distress during COVID-19 far exceeded that of the former, despite both starting out with high distress levels pre-COVID-19. A potential explanation might be found in the resilience theory, a widely defined notion of which Greene et al. (2003) highlighted two definitions in the existing literature: "the ability to overcome adversity, and be successful in spite of exposure to high risk" and the "ability to sustain competence under pressure and the capacity to recover from trauma." Tying in this theory suggests that since Latinx individuals are people of color and thus part of a marginalized group, they deal with stressors/adversity more frequently and at an earlier age than non-Hispanic whites, and so when they are faced with new stressors/adversity they are able to cope with them more effectively than their non-Hispanic white peers as a result of their being forced to learn how to do so from a young age. This resilience would then translate to the Latinx population's response to the stressors of the COVID-19 pandemic as suggested by their distress levels' slight increase.

A strength of this study is that it combines two populations (Latinx & non-Hispanic white undergraduate students). While each group has been previously studied, not enough research has focused on studying both groups simultaneously to identify differences and similarities in how they experience and cope with distress. Another strength is that this study investigates how COVID-19 impacted said populations, thereby supporting ongoing pandemic-related research (Hoyt et al., 2021; Nelson et al., 2020; Stieger et al., 2021; Hussein et al., 2020; Son et al., 2020).

One limitation was the small sample size which may have impacted the results. Future research should aim for upwards of 200 participants per group, at least, and perhaps even strive to conduct a longitudinal study in order to gain further insight into these groups. Another limitation of this study is that the methods may be vulnerable to bias-related issues given that the database this study relied on was reliant on a self-administered survey, a tool that is known to have potential vulnerabilities. Given this, the sample details themselves and the measure included in the study may also be open to those potential vulnerabilities. However, this limitation should be adequately mitigated given the study's use of and focus on data that comes from a validated measure (Cohen & Williamson, 1988).

This study adds to the literature regarding distress within Latinx student populations. It also diversifies the literature that examines non-Hispanic white populations by looking at a portion of said population that is possibly distinct from the collective population that is regarded as the 'norm'—given that a significant number of students at John Jay College come from low-income backgrounds, are first-generation college students, and are born outside the United States (John Jay College), factors that could differently impact their experience of mental health issues like distress (Alvarez et al., 2019). Additionally, this study furthers COVID-19 research by investigating how it impacted distress within certain groups (Latinx, non-Hispanic whites, and student populations). Therefore, this study provides insight that can help facilitate growth in treatment, equity of resources, self-understanding, the identification of areas where more support is needed, and future research by providing additional and specific information regarding the connections between these two populations and how they fared both prior to and during the pandemic. The possibility of identifiable markers within the online database's data somehow connecting back to participants via something like hacking poses a potential ethical issue—

however, given that the data is de-identified, this risk is sufficiently mitigated. Possible future research includes: investigating these factors at different institutions and at different ages, using different measures to examine these same variables, assessing whether there are gender differences and what that might suggest, and exploring further specific subgroups within the two populations.

Ultimately, the college students in this sample reported moderate to high distress even before the pandemic. This discovery likely indicates that this population is managing multiple responsibilities and dealing with a lot of stressors. Therefore, this research suggests that more interventions and resources are needed for students with such high distress, including counseling, mentorship, and other avenues of support that are readily accessible to them throughout their college experience.

Conclusion

Given the literature and methodology, it was logical to expect an increase in distress within the chosen populations. Thus, the anticipated results suggested potential differences in how COVID-19 impacted these two populations, which might have reflected differences between the two groups, in addition to reflecting how specific aspects of the pandemic affected distress levels. However, the results did not show significant increases and therefore did not support the proposed hypotheses. Instead, it was found that students are constantly operating under moderate levels of stress throughout the time periods, with the majority of participants scoring in the moderate or high range for stress. This reveals that though the pandemic has undoubtedly wreaked havoc on people's lives, with students being no less impacted by the changes that resulted from it, college students have already been working under significant levels

of stress for extended periods of time, signaling the need for further support and potential changes to how students are expected and/or forced to operate.

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