HIGH SCHOOL EDITION
Journal of Student Research
Volume 12 Issue 3 (2023)

Balancing Success and Struggle: Examining the Relationship between COVID-19 and Life Satisfaction of High Achieving University Students

Allison He

Bergen County Technical High School

ABSTRACT

The aim of this study was to determine how the COVID-19 pandemic lockdowns affected high achieving university students in the United States. The study used a sample of 10 high achieving university students from the United States, and used academic performance, physical activity, technology use, uncertainty, and stress as predictors of life satisfaction. These predictors, as well as perceived life satisfaction, were measured using a 10 point Likert scale and then participants were asked to elaborate on their personal experiences during the pandemic in a semi structured interview. T-values and pearson correlation coefficients were then calculated to determine correlations between measure values. Furthermore, the interviews were analyzed using thematic coding to identify common themes or patterns in the participants' experiences. It was found that there was a general decrease in life satisfaction during the pandemic and uncertainty and social isolation played the most significant roles in this negative trend.

Literature Review

SARS-COV-19, more commonly known as COVID-19, is a virus that originated in Wuhan, China in December 2019. On March 11, 2020, the World Health Organization declared COVID-19 as a pandemic (WHO, 2020). The last pandemic of such magnitude was the Spanish Influenza during WWI, which killed more than 21 million people (Woods, 2020). Due to the impact of the COVID-19 virus, many countries had to implement public shutdowns. These shutdowns affected the majority of the world population, one specific group of people being university students. Sahu (2020) found, 150 countries had closed schools nationwide, which impacted over 80% of the world's student population (Sahu, 2020). These reasons led me to my examination of how the COVID-19 pandemic affected the life satisfaction (LS) of university students. Life satisfaction is defined as an individual's cognitive assessment of their life and is considered the most consistent indicator of their overall well-being (Suldo et al., 2006). This research study specifically examines the effects of the shutdown of the United States on high achieving university students.

1.1. Academic Performance

The COVID-19 pandemic led to about 60 million students in the U.S. to transition to remote learning practices (Becker et al., 2020). As this was a new experience for all people involved, there needed to be a system developed so that schooling remained as "normal" as possible. Due to the lockdown restraints, students and teachers turned to modern technology to communicate and learn. Limniou et al. (2021) found that students were able to adopt new technologies for learning purposes efficiently. The pandemic had forced both university students and professors alike to change their daily habits and build on prior experience to create approaches and self-regulation strategies that could affect both teaching and learning. Although Limniou found that the majority of students adapted quickly to the new format of learning, the "transformative use of digital learning technologies (from on-campus to online)" was challenging for professors as they had to redesign their teaching approaches while taking into account how the different factors

of the pandemic could affect student learning (Limniou, 2021). Limniou's study suggests that the COVID-19 pandemic did not directly affect educational experience. However, according to Renzo Esteban, the mental health changes that COVID-19 contributed to, such as an increase in depression (Delz, 2023), had a positive correlation with academic emotional exhaustion. Emotional exhaustion is defined as a state of mental fatigue resulting from a lack of cognitive and emotional resources. The condition of emotional exhaustion is marked by symptoms such as sleeplessness, decreased motivation, and irritability (Esteban, 2022). Esteban emphasizes that academic exhaustion is the first step to academic burnout, therefore an increase in academic burnout was found due to the mental health issues aggravated by the COVID-19 lockdown. Satisfaction with academics was found to be indirectly associated with depression and emotional exhaustion (Esteban, 2022). Although Limniou found that the pandemic did not directly affect a student's learning experience significantly, the mental health changes that the COVID-19 pandemic brought upon students encouraged emotional and academic exhaustion, and therefore academic burnout, which could ultimately lead to a decrease in academic performance and satisfaction.

1.2. Physical Activity

31% of people 15 years or older are defined as physically inactive by the World Health Organization and around 3.2 million deaths occur per year due to a lifestyle consisting of low physical activity (Hall et al., 2020). According to previous literature, these already unhealthy modern lifestyles were further exacerbated by the COVID-19 pandemic. The muscle atrophy and symptoms caused by the disease prevented many people from receiving the proper recommended amount of physical activity as there are symptoms of COVID-19 that are long-lasting, far beyond when the virus is active in the body. The immobilization and physical inactivity due to hospitalization, disease, and social distancing can be detrimental to the ability of the organ systems to resist viral infection and can increase risk of damage to the immune, respiratory, cardiovascular, musculoskeletal systems and the brain. The long lasting symptoms of the virus led to a semi-permanent decrease in physical activity in those who received the virus and its longer term effects (Woods et al., 2020). Even those who were not directly afflicted with the disease were affected physically as the social distancing rules and government mandated quarantine, meant to prevent the spread of COVID-19, instead led to the decrease of physical activity. It was also found that the lockdown measures that impaired people's ability to leave their homes and take part in daily activities led to reduced physical activity levels and increased sedentary behavior (Hall et al., 2021). These lockdown measures decreased moderate to vigorous physical activity levels of UK students to an average of 28 minutes per week, way below the recommended number (Savage et al., 2020). The lockdowns in many countries caused by COVID-19 discouraged physical activity as people were no longer able to go to community centers to exercise, such as gyms. The people most affected were people who had long term effects from the virus, as it led to a physical inability to conduct physical activity, However, the lockdown restrictions posed in many countries, including the United States, led to a decrease in overall physical activity, intensifying the already existent modern issue of low physical activity.

1.3. Technology Use

Social media use has been on a sharp rise in the recent decade, and it plays a new role in this pandemic that was not seen in previous ones. Moretta et al. (2022) found that people turn to problematic use of social media during highly stressful circumstances, such as the COVID-19 pandemic, which is what Moretta et al. specifically examined. Social media use was found to be used as both negative and positive reinforcements for individuals, negative being used as coping and conformity tactics, while positive being used as enhancement tactics. Moretta emphasizes that this can lead to "smartphone addiction", which she compares to other addictions such as opioid addiction, as both are used to temporarily relieve an individual's negative emotional symptoms through negative reinforcement (Moretta, 2022). Similarly Brailovskaia (2021) found that the negative associations of the pandemic increased the level of addictive social media use. She also compared addictive social media use to other maladaptive coping strategies such as alcohol use disorders, which she emphasizes can lead to furthered serious mental disorders (Brailovskaia & Margraf, 2021). Both Moretta and Brailovskaia explain that the unhealthy use of social media is often used as a short term coping mechanism to feel as if one is in control during a period of unpredictable time. Increased social media use was found not to be used only to reduce stress, but also loneliness. University students are dependent on their relationships and

social contact with others to uphold their well-being as well as their academic performance (Kokkinos et al. 2022). The reduction of social relationships and interaction led to students turning to social media use to cope with the loss of their in-person social interaction, however, the increased use was associated with more emotional loneliness (Bonsaksen et al., 2021). Although the coping mechanism of internet addiction may work to resolve stress and loneliness in the short term, the use of virtual media was found to manifest larger stress and other mental health issues in the long term (Garfin et al., 2020, Zhao, 2020).

1.4. Uncertainty

In the context of this study and other similar literature, uncertainty is often characterized by the intolerance of uncertainty as well as stress associated with this intolerance. Fear and anxiety were found to rise during the pandemic due to the uncertainty linked to it. The fear, anxiety, and uncertainty, linked with the increased time spent at home, led to a deterioration of daily routines, especially noted in adolescents. The loss of daily routines led to many adolescents turning towards addictive behaviors as coping mechanisms, mainly citing internet and virtual media use. (Evli & Şimşek, 2022). The adoption of coping mechanisms may be linked to the tendency for an individual to be more self-compassionate during times of uncertainty. Previous studies have discovered that there is a positive relationship between uncertainty and self-compassion as the relationship between self-compassion and well-being was seen to be sequentially mediated by intolerance of uncertainty and fear of COVID-19 (Deniz, 2021). As adolescents find their daily routine non-applicable to their new standard life, they find comfort in something that is more predictable: social media use.

1.5. Gap

This research study is needed to examine how COVID-19 affected university students specifically. In many previous studies, adolescents and adults were discussed, however, few discussed how the COVID-19 pandemic affected university students specifically. It is important to investigate the unique challenges that university students faced during the pandemic, such as the abrupt transition to online learning and limited social interaction, which may have differentially impacted their well-being and academic outcomes. Additionally, high achieving students are specifically studied in this study as they have the risk of additional academic pressures put on them, which may have been exacerbated by the COVID-19 pandemic. A negative correlation between academic achievement and psychological well-being has been found in previous studies, which implies that students who reported experiencing more stress related to school had higher academic performance than those who experienced less stress. (Klapp et al., 2023). The negative correlation indicates that those who are higher achieving also experience more academic pressures, which may in turn negatively affect their life satisfaction. Therefore, this study looks to address the gap of examining specifically high achieving university students. Through a mixed method study using semi-structured interviews to survey participants, it is hypothesized that the changes in academic performance, physical activity, technology use, uncertainty, and stress caused by the COVID-19 pandemic all had a significant negative effect on the life satisfaction of high achieving university students. The null hypothesis would be that changes in these measures caused by the COVID-19 pandemic did not significantly contribute to changes in the life satisfaction of high achieving university students. This review of literature led to the inquiry that this research is examining: How did the COVID-19 pandemic and lockdown affect the life satisfaction of high achieving university students in the United States from March of 2020 to April of 2022?

Method

Procedure and Participants

This study consists of 10 high-achieving university students. In the context of this study, a high achieving student is defined as a student who attends one of the top 30 national universities according to US News's 2022 rankings. This demographic of students were specifically selected due to the possibility of additional academic pressures during the

COVID-19 pandemic. The duration of the COVID-19 pandemic used in this study was March of 2020 to April of 2022. All students were interviewed in a semi-structured interview in which they were asked to rate their satisfaction with the select domains of life satisfaction (academic performance, physical activity, technology use, uncertainty, stress levels) on a 10 point modified Likert scale before, during, and after the COVID-19 pandemic (all data was collected at the same time, however; participants were asked for an estimate on their experiences "before" and "during" the COVID-19 pandemic, while "after" was their current status). Then they were asked to describe their perceived life satisfaction as a whole, also on a 10-point modified Likert Scale. A rating of 1 was used to be the lowest satisfaction, whereas a rating of 10 was used as a perfect satisfaction. For example, a rating of an 8 for perceived stress would mean that the participant was satisfied with their stress levels, or experiencing low stress, whereas a rating of a 2 would mean that the participant was extremely unsatisfied with their stress levels and were very stressed. Finally, participants were asked questions based on their previous responses (ex. Do you think that your low rating on your Academic Performance during the pandemic affected your rating of technology use?) and general questions about their experience during the pandemic (ex. What do you think was the biggest personal disrupter of the pandemic?). A semi-structured interview was chosen as the particular method because of the versatility the questions could have. The unstructured questions give a deeper insight into the personal experience of each student, and give reasoning behind their answers in the structured questions. By using this method, the data retrieved will be more in-depth, and the implications will be more concise. All participants were provided with a description of the study and informed on risks and benefits prior to giving consent. Prior to the interview, informed written consent was received. All the respondents of the consent form were 18 years or older.

Measures

The measures that will be asked for during every interview are: satisfaction about academic performance, satisfaction about physical activity, satisfaction about technology use, uncertainty, perceived stress, and perceived life satisfaction.

Statistical Analysis

After the data was collected, the pandemic present rating was subtracted from the pre-pandemic rating. In this study, this was defined as a before-during (BD) value. For example, a rating of an 8 for satisfaction with stress before the pandemic and a rating of a 6 for stress during the pandemic would yield a final value of 2 for perceived stress BD. Similarly, the pandemic present rating was subtracted from the post-pandemic rating to get after-during (AD) values. Multiple forms of statistical analysis were performed on this modified data. T-tests were conducted on each measure's BD and AD value to determine whether or not the pandemic made a significant difference in the overall satisfaction of the measure. Pearson correlation coefficients were then calculated and used to determine the strength of the correlation between the BD values of each domain compared to the BD values perceived stress and LS, and the same were done for the AD values. Then the Pearson Correlation Coefficients were determined for the domain BD values against the perceived stress and LS AD values and vice versa. Pearson Correlation Coefficients were then determined for each measure to compare against each measure in their respective timeframes. Finally, scatterplots and linear graphs were created to visually depict the correlation between stress, LS, and the domains. All statistical analyses were conducted using Google Sheets and www.socscistatistics.com.

Unstructured Questions

Unstructured questions were sorted based on their trends or themes. For example, a prevalent theme observed in many answers was "social isolation". These answers were then observed for any significant trends not noticed in the statistical data, as well as observed for possible explanations to quantitative data.

Results

Demographic Data

In total, 10 university students were interviewed. The universities that the interviewees attended consisted of 1 participant attending Brown University, 2 participants attending UC Berkeley, 1 participant attending Cornell University, 5 participants attending Rice University, and 1 participant attending Princeton University. 3 out of 10 participants identified as male and 7 out of 10 identified as female.

Ratings

The following provide the raw ratings given by each participant for each time period. The following "'measure' bd" is the pandemic present rating subtracted from the pre-pandemic rating. Similarly, "'measure' ad" is the pandemic present rating subtracted from the post-pandemic rating.

Academic Performance

Table 1.1

participant	academic before	academic during	academic after	academic bd	academic ad
1	7	7	6	0	1
2	8	6	8	2	-2
3	9	4	9	5	-5
4	10	10	8	0	2
5	3	9	9	-6	0
6	9	1	6	8	-5
7	4	4	7	0	-3
8	8	2	8	6	-6
9	9	8	9	1	-1
10	8	7	7	1	0

Physical Activity

Table 1.2

participant	physical before	physical during	physical after	physical bd	physical ad
1	4	2	4	2	-2
2	6	3	4	3	-1
3	7	6	8	1	-2
4	10	10	6	0	4
5	8	3	3	5	0
6	4	6	5	-2	1
7	5	4	8	1	-4
8	6	2	9	4	-7
9	5	8	6	-3	2
10	4	6	4	-2	2

Technology Use

Table 1.3

participant	technology before	technology during	technology after	technology bd	technology ad
1	4	2	3	2	-1
2	8	4	9	4	-5
3	3	3	3	0	0
4	2	3	3	-1	0
5	8	4	4	4	0
6	6	1	3	5	-2
7	5	4	4	1	0
8	5	4	6	1	-2
9	8	3	8	5	-5
10	6	3	4	3	-1

Uncertainty

Table 1.4

participant	uncertainty before	uncertainty during	uncertainty after	difference bd	difference ad
1	7	4	2	3	2
2	8	9	4	-1	5
3	9	9	4	0	5
4	4	4	4	0	0
5	2	7	7	-5	0
6	8	4	2	4	2
7	8	9	8	-1	1
8	6	4	3	2	1
9	5	2	7	3	-5
10	6	4	8	2	-4

Perceived Stress

Table 1.5

participant	stress before	stress during	stress after	stress bd	stress ad
1	8	6	4	2	2
2	9	4	7	5	-3
3	5	7	3	-2	4
4	3	5	3	-2	2
5	2	6	6	-4	0
6	7	3	2	4	1
7	5	4	3	1	1
8	8	6	5	2	1
9	7	3	8	4	-5
10	6	4	7	2	-3

Perceived Life Satisfaction

Table 1.6

ls before	ls during	ls after	ls bd	ls ad	ls before
4	4	6	0	-2	4
8	3	7	5	-4	8
7	4	6	3	-2	7
8	6	7	2	-1	8
4	7	6	-3	1	4
4	1	6	3	-5	4
7	6	8	1	-2	7
9	4	7	5	-3	9
8	3	9	5	-6	8
7	3	7	4	-4	7

T-Test

Table 2 gives paired t-values and p-values for the mean differences between each measure's time frame (BD, AD). The significant p-values for technology and life satisfaction show that there was a significant change in these areas from before to during to after the pandemic. There was a significant decrease in satisfaction with technology use from BD the pandemic (M = 2.4, SD = 2.1) compared to AD the pandemic (M = -1.6, SD = 2.0), t(9) = -3.4, p = 0.007, signifying a drop in satisfaction with technology use during the pandemic then a rise again after, which can be seen in Table 1.3. Similarly, there was also a significant decrease in life satisfaction from BD the pandemic (M = 2.5, SD = 2.6) compared to AD the pandemic (M = -2.8, SD = 2.0), t(9) = -3.8, p = 0.004. Again, this signifies a drop in overall perceived life satisfaction during the pandemic from before the pandemic then a rise again after the pandemic, which can be seen in Table 1.6. Although the rest of the measures did not show statistically significant differentiation, it is important to note that this does not necessarily mean there was no difference in each measure during the pandemic. It is possible that the trends were not strong or that individual experiences varied. Therefore, it is still valuable to consider the individual responses and experiences of the participants, even if there were no significant differences detected in the overall trends of the measures.

Table 2.

	t-values	p-values
academic:	-1.814165	0.10305
physical:	-0.955425	0.36432
technology:	-3.43559	0.00744
uncertainty:	0	1
stress:	-0.744845	0.47536
life satisfaction:	-3.788938	0.00429

A p-value<0.05 is considered statistically significant.

Pearson Correlation Coefficients

Perceived Stress and Perceived Life Satisfaction

Table 3 shows the Pearson Correlation Coefficients that were determined for each measure compared to perceived stress and perceived life satisfaction during the same time periods. The majority of the coefficients did not bear significant results, with only 4 out of 16 of the coefficients in the previous table bearing a p-value<0.05. Academic Performance and LS BD was found to have a moderately positive correlation, r(8) = .69, p = .035. Physical activity was the only domain that did not have a strong correlation with either perceived stress or LS. Technology levels had strong positive correlations with both stress and LS AD, r(8) = .75, p = .012 and r(8) = .76, p = .011. respectively. Uncertainty and stress BD was found to have a slight, but still significant positive correlation, r(8) = .67, p = .035.

Table 3.

	Academic Performance	Physical Activity	Technology Levels	Uncertainty
Stress (BD)	0.5112	-0.4007	0.5325	0.6664
Stress (AD)	-0.2448	-0.3327	0.7540	0.6096
LS (BD)	0.6947	-0.4389	0.0809	0.5861
LS (AD)	0.3104	-0.1278	0.7563	0.2762

The closer the Pearson Correlation coefficient value is to 1, the stronger the correlation between values.
(BD) is defined as before-during the pandemic, (AD) is defined as after-during the pandemic.

Similarly to Table 3, Table 4 examines the correlational relationship between domains and perceived stress and LS using Pearson Coefficients. However, instead of analyzing them on the same time period, the correlations are instead looked at on the opposing timeframes. 5/16 of these correlations yielded a p-value<0.05. Academic Performance had very weak correlations with perceived stress and LS on both time frames, yielding no p-value<0.05. Physical BD and LS AD had a moderate positive correlation, $r(8) = .69$, $p = .027$. Technology levels (TL) seemed to correlate more on different timeframes compared to the same timeframe, with 3/4 strong negative correlations. Stress BD and TL AD had the strongest negative correlation, $r(8) = -.80$, $p = .006$. Stress AD and TL BD had a strong negative correlation, $r(8) = -.70$, $p = .025$. LS BD and TL AD also had a moderate negative correlation, $r(8) = .66$, $p = .039$. The only significant correlation with uncertainty was between uncertainty BD and LS AD, where a strong negative correlation was observed, $r(8) = .76$, $p = .010$.

Table 4.

	Academic Performance	Physical Activity	Technology Levels	Uncertainty
Stress (BD) Domain (AD)	-0.2458	-0.0763	-0.7988	-0.0732
Stress (AD) Domain (BD)	0.2034	0.3412	-0.6958	-0.1045
LS (BD) Domain (AD)	-0.4104	-0.0464	-0.6576	-0.0852
Life Satisfaction (AD) Domain (BD)	-0.6162	0.6923	-0.5080	-0.7618

The closer the Pearson Correlation coefficient value is to 1, the stronger the correlation between values.
(BD) is defined as before-during the pandemic, (AD) is defined as after-during the pandemic.

Measure against Measure

Table 5 depicts the Pearson correlation coefficients for BD values for Academic Performance, Physical Activity, Technology Levels, Uncertainty, Stress, and Life Satisfaction.

Table 5.

	Academic Performance	Physical Activity	Technology Levels	Uncertainty	Stress	Life Satisfaction
Academic Performance	1					

Physical Activity	-0.3306	1				
Technology Levels	-0.0375	-0.2265	1			
Uncertainty	0.6919	-0.6558	0.1415	1		
Stress	0.5112	-0.4007	0.5325	0.6664	1	
Life Satisfaction	0.6947	-0.4389	0.0809	0.5861	0.6917	1

The closer the Pearson Correlation coefficient value is to 1, the stronger the correlation between values.

Similarly, Table 6 shows the correlation between each measure, just instead with AD values.

Table 6.

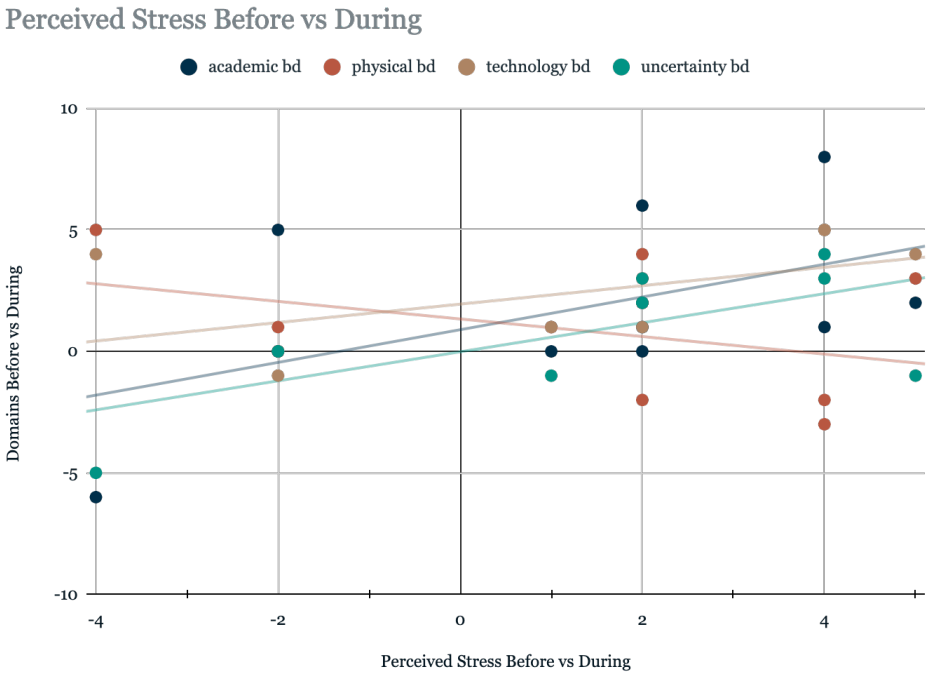
	Academic Performance	Physical Activity	Technology Levels	Uncertainty	Stress	Life Satisfaction
Academic Performance	1					
Physical Activity	0.6421	1				
Technology Levels	0.1150	-0.0738	1			
Uncertainty	-0.4142	-0.4322	0.1252	1		
Stress	-0.2448	-0.3327	0.7540	0.6096	1	
Life Satisfaction	0.3104	-0.1278	0.7563	0.2762	0.5848	1

The closer the Pearson Correlation coefficient value is to 1, the stronger the correlation between values.

Linear Correlation

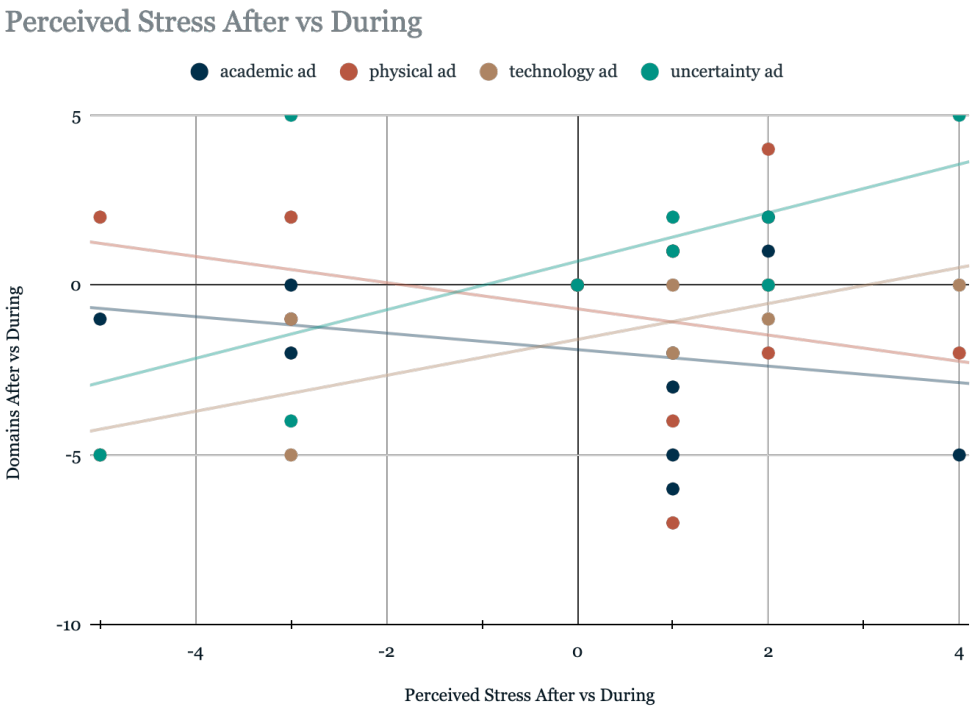
The following graphs depict the linear relationship between each domain and perceived stress and LS in their respectivetimeframes.

Graph 1.

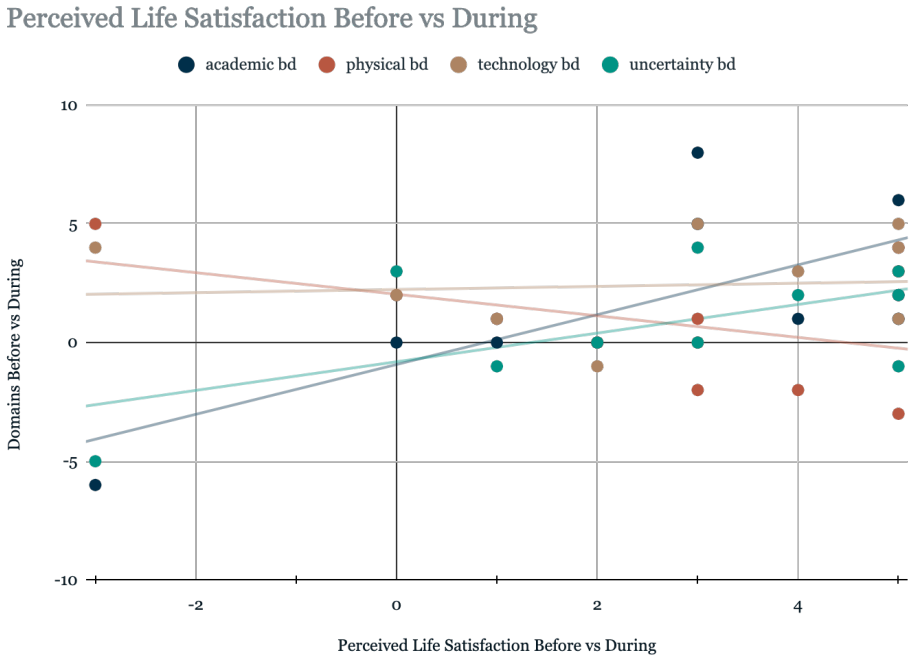


.

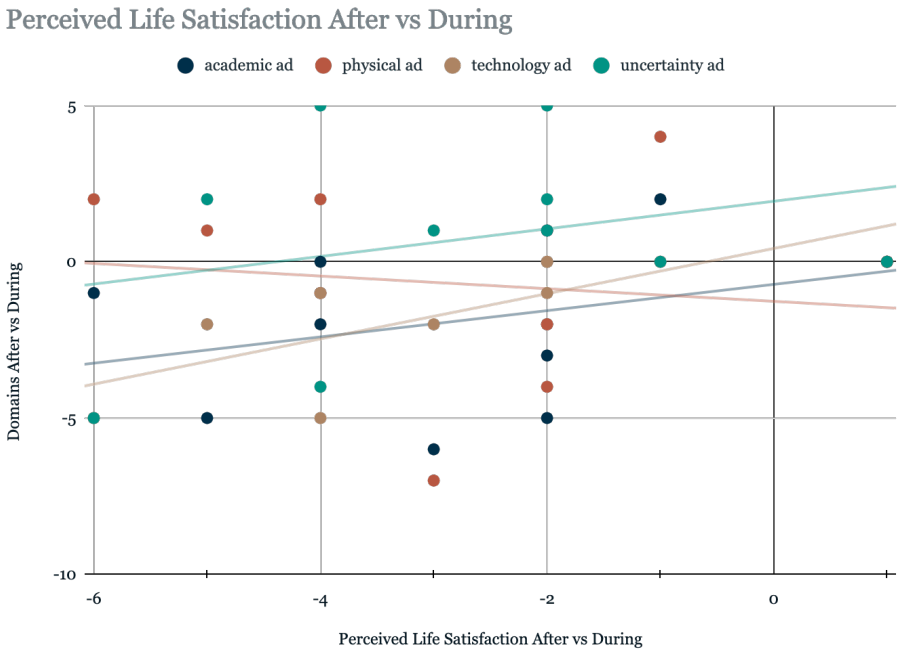
Graph 2.



Graph 3.



Graph 4.



Unstructured Questions

Overwhelmingly, the largest theme discovered was "social isolation", with 8 out of 10 participants citing social isolation to be the biggest factor that changed their life satisfaction. 4 out of 10 participants said that living at home compared to living on campus had also affected their life satisfaction, mainly describing it as a loss of independence and community. 4 out of 10 participants also stated that the changes caused by the pandemic led to a loss of motivation, as they felt there was less of an obligation to do well, whereas 1 participant found that they had a higher obligation to do better academically as they had nothing else to do. 2 out of 10 participants stated that their increase in technology use actually benefited their life satisfaction, as it gave a sense of normalcy and helped them communicate with friends, family, and peers, while 1 participant cited their increase in technology use levels as deteriorating mental health and the inability to reach usual community and avenues for coping healthily, and instead using technology as a maladaptive coping strategy. 2 out of 10 participants stated that they felt a sudden shock when the academic accommodations they had received were rescinded and therefore had an increase in stress and a decrease in LS.

Conclusion and Discussion

Discussion

Quantitative Data

Overall, the null hypothesis was not rejected, as most p-values<0.05. However, there were a few instances where the original hypothesis was not rejected. For example, academic satisfaction has a strong correlation with LS BD, which supports the statement that high achieving university students do have additional academic pressures on them, as Table 1.1 shows a general trend of a decrease in academic performance while there was a general trend of a decrease in LS as well during the pandemic shown in Table 1.6 (Klapp et al. 23). Furthermore, there was a strong positive correlation

between both stress and LS AD with technology use (Brailovskaia & Margraf, 2021). Finally, uncertainty was positively correlated with stress BD (Deniz, 2021, Evli & Şimşek, 2022). However, due to the low amount of responses, it is difficult to determine whether or not it is correct or not to state that the rest of the domains did not contribute to life satisfaction. Instead of looking at the quantitative data collected from statistical tests, it may be more useful to analyze raw data given by students. For example, in Table 1.6, it is evident that there is a general decrease in LS during the pandemic, however it rose again after. This trend is supported in Table 2, with a significant p-value for LS.

Qualitative Data

This research found that the qualitative data received from the participants was more valuable than the quantitative data, as it gave the participants the opportunity to speak freely about their personal experiences during the pandemic. The quantitative questions were to give a baseline that all participants were to follow, however, the qualitative data varied from participant to participant. Although participants were given the chance to talk freely about their experiences, an overwhelming majority stated that a lack of social interaction was the major reason for their decrease in life satisfaction (Kokkinos et al., 2022). For Participant 2, even when asked a question specifically about how academics affected their life satisfaction, they still cited social isolation as the major contributing factor to the decreasing life satisfaction. Participant 9 cited their large decreases in ratings for stress and life satisfaction towards mainly social isolation, stating "the lack of social activity during the pandemic was the primary cause for lower life satisfaction levels", and when asked about their biggest disruptor during their life during the pandemic, they stated "lack of social interaction from school being online". When asked, they agreed that their increase in technology use was due to the lack of social interaction (Bonsaksen et al., 2021). Not only did the lockdown increase social isolation from peers, but led to a significant lifestyle change in many university students' lives living back at home. Participant 4 stated that their life had not had any significant changes except for "going from living at college to living back at home with my whole family most of the day, and that was pretty stressful". Finally, a majority of the participants found that their motivation to continue at their current academic level had decreased due to a lower obligation. For example, Participant 2 stated that as they seemed to be "entirely living on screens", it took away from their motivation to anything. They stated that they "were not really caring about the material as much and engaging with it as [they] did before and after". They went on to state that the increased technology use they experienced had temporarily given motivation to pursue more physical activities, however, in the long run, took away time and motivation from physical activity (Hall et al., 2021).

Implications

This research has apparent real world implications, as the world is currently still recovering from the most recent pandemic. However, it is important to note that this research is applicable to any future pandemics as well. This research can benefit not only current high achieving university students, but any current student, parent, or school administrator. Universities should take this information into account when conducting future pandemic procedures, in order to preserve ideal life satisfactions of students. It is evident that most of the quantitative data collected was insignificant, therefore showing that many of the life satisfaction domains used should not be addressed in further solutions created possibly by college campuses. However, it may be extremely important to address the lack of social interaction that was experienced by students during the pandemic. The most significantly cited cause for a lower score in student stress and life satisfaction was reported lower social ability. In future situations, such as a new pandemic, it is important for students and universities to develop a positive method to connect with their peers and friends. Instead of turning to social media use, which was noted as a maladaptive coping strategy, students and universities should communicate with each other to create a more ideal virtual social environment.

It is also important for universities to take into account not only providing academic and mental health accommodations for students during the pandemic, but also transferring back to normal from the pandemic. Universities

should look for ways to increase academic motivation during large changes such as a pandemic through more engaging teaching methods, so students do not lose motivation to continue at their current academic level.

Parents should take into consideration the large lifestyle changes that students go through when moving back home from campus for an extended period of time. Students are used to their own independence and a sense of community that many feel that they lost during this pandemic. In future situations, parents should be more aware of the large lifestyle changes that students are going through at the time, and to try to help students slowly conform into a new lifestyle if called for.

Limitations and Further Research

Limitations

Although this study did have a sort of specificity due to the nature of the interviews, this also led to a smaller sample size due to time restraints. Having only 10 participants led to the implication of more general statistical numbers. There were not enough data points for the Pearson Correlation Coefficient to be completely accurate, or to establish whether or not there was a linear correlation. Throughout the research process, it was found that the statistical values were often too generalized and could potentially not be entirely accurate and representative of the population this study was attempting to represent.

Additionally, the participants had estimated their satisfactions before and during their pandemic, which may lead to skewed results, depending on the memory of each participant.

Furthermore, this study did not look as deeply into the social aspects that the pandemic affected. Although most participants cited “social isolation” as a large contributor to a changing life satisfaction, there was no quantitative data depicting this.

Another limitation of this study that was attempted to be addressed was the inability to determine whether or not the changes in the measures were due to the pandemic or external factors. Through the unstructured section of the interviews, there was an attempt to clarify what specifically about the pandemic affected life satisfaction, however, the quantitative data received was unable to be separated from outside factors.

Finally, the interviews did not inquire about personal demographics other than university and gender. Personal demographics may give more background on the general life satisfaction of participants. The last two limitations were only discovered after analyzing the gathered data.

Further Research

For further researchers looking to conduct research in this area, it is recommended to have a large amount of data points (30+) for accurate analysis. Anything less will not be fully representative of a population, or may not generate accurate statistical figures.

Future research should also look more into the social aspects of the COVID-19 pandemic, as well as how the pandemic could have affected more physical health aspects, such as sleep duration. It would also benefit this field of research if more qualitative data were to be examined, as in this study the quantitative data did not yield significant results, however, direct conversations with the participants provided insight on their personal experience and opinions on why their life satisfaction could have changed.

Finally, socioeconomic status, race, and sexuality should also be asked for in future related research as these demographics may play a role in the general life satisfaction of the participants.

References

Alhamed, A. A. (2023). The link among academic stress, sleep disturbances, depressive symptoms, academic performance, and the moderating role of resourcefulness in health professions students during COVID-19 pandemic. *Journal of Professional Nursing*, *46*, 83–91. https://doi.org/10.1016/j.profnurs.2023.02.010

Arima, M., Takamiya, Y., Furuta, A., Siriratsivawong, K., Tsuchiya, S., & Izumi, M. (2020). Factors associated with the mental health status of medical students during the COVID-19 pandemic: a cross-sectional study in Japan. *BMJ Open*, *10*(12), e043728. https://doi.org/10.1136/bmjopen-2020-043728

Becker, S. P., Breaux, R. P., Cusick, C. N., Dvorsky, M. R., Marsh, N. P., Sciberras, E., & Langberg, J. M. (2020). Remote Learning During COVID-19: Examining School Practices, Service Continuation, and Difficulties for Adolescents With and Without Attention-Deficit/Hyperactivity Disorder. *Journal of Adolescent Health*, *67*(6), 769–777. https://doi.org/10.1016/j.jadohealth.2020.09.002

Bonsaksen, T., Ruffolo, M. C., Leung, J., Price, D., Thygesen, H., Schoultz, M., & Geirdal, A. Ø. (2021). Loneliness and Its Association With Social Media Use During the COVID-19 Outbreak. *Social Media and Society*, *7*(3), 205630512110338. https://doi.org/10.1177/20563051211033821

Brailovskaia, J., & Margraf, J. (2021). The relationship between burden caused by coronavirus (Covid-19), addictive social media use, sense of control and anxiety. *Computers in Human Behavior*, *119*, 106720. https://doi.org/10.1016/j.chb.2021.106720

Cao, W., Fang, Z., Hou, G., Han, M. K., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research-neuroimaging*, *287*, 112934. https://doi.org/10.1016/j.psychres.2020.112934

Delz, L. a. K., Gaynor, K., O'Connor, R., Schmieder, L., & Somers, E. (2023). A confirmatory factor analysis of a cognitive model of COVID-19 related anxiety and depression. *Acta Psychologica*, *234*, 103861. https://doi.org/10.1016/j.actpsy.2023.103861

Deniz, M. E. (2021). Self-compassion, intolerance of uncertainty, fear of COVID-19, and well-being: A serial mediation investigation. *Personality and Individual Differences*, *177*, 110824. https://doi.org/10.1016/j.paid.2021.110824

Esteban, R. F. C., Mamani-Benito, O., Morales-García, W. C., Caycho-Rodríguez, T., & Mamani, P. G. R. (2022). Academic self-efficacy, self-esteem, satisfaction with studies, and virtual media use as depression and emotional exhaustion predictors among college students during COVID-19. *Heliyon*, *8*(11), e11085. https://doi.org/10.1016/j.heliyon.2022.e11085

Evli, M., & Şimşek, N. (2022). The effect of COVID-19 uncertainty on internet addiction, happiness and life satisfaction in adolescents. *Archives of Psychiatric Nursing*, *41*, 20–26. https://doi.org/10.1016/j.apnu.2022.07.008

Garfin, D. R., Silver, R. C., & Holman, E. A. (2020). The novel coronavirus (COVID-2019) outbreak: Amplification of public health consequences by media exposure. *Health Psychology*, *39*(5), 355–357. https://doi.org/10.1037/hea0000875

Green, Z. A., & Yıldırım, M. (2022). Personal growth initiative moderates the mediating effect of COVID-19 preventive behaviors between fear of COVID-19 and satisfaction with life. *Heliyon*, *8*(6), e09729. https://doi.org/10.1016/j.heliyon.2022.e09729

Hall, G., Laddu, D., Phillips, S. A., Lavie, C. J., & Arena, R. (2021). A tale of two pandemics: How will COVID-19 and global trends in physical inactivity and sedentary behavior affect one another? *Progress in Cardiovascular Diseases*, *64*, 108–110. https://doi.org/10.1016/j.pcad.2020.04.005

Husky, M. M., Kovess-Masfety, V., & Swendsen, J. (2020). Stress and anxiety among university students in France during Covid-19 mandatory confinement. *Comprehensive Psychiatry*, *102*, 152191. https://doi.org/10.1016/j.comppsych.2020.152191

Klapp, T., Klapp, A., & Gustafsson, J. (2023). Relations between students' well-being and academic achievement: evidence from Swedish compulsory school. *European Journal of Psychology of Education*. https://doi.org/10.1007/s10212-023-00690-9

Kokkinos, C. M., Tsouloupas, C. N., & Voulgaridou, I. (2022). The effects of perceived psychological, educational, and financial impact of COVID-19 pandemic on Greek university students' satisfaction with life through Mental Health. *Journal of Affective Disorders*, *300*, 289–295. https://doi.org/10.1016/j.jad.2021.12.114

Limniou, M., Varga-Atkins, T., Hands, C., & Elshamaa, M. (2021). Learning, Student Digital Capabilities and Academic Performance over the COVID-19 Pandemic. *Education Sciences*, *11*(7), 361. https://doi.org/10.3390/educsci11070361

Moretta, T., Buodo, G., Santucci, V. G., Chen, S., & Potenza, M. N. (2023). Problematic social media use is statistically predicted by using social media for coping motives and by positive reinforcement processes in individuals with high COVID-19-related stress levels. *Journal of Psychiatric Research*, *158*, 104–113. https://doi.org/10.1016/j.jpsychires.2022.12.036

Savage, M. W., James, R. M., Magistro, D., Donaldson, J. S., Healy, L. C., Nevill, M. E., & Hennis, P. J. (2020). Mental health and movement behaviour during the COVID-19 pandemic in UK university students: Prospective cohort study. *Mental Health and Physical Activity*, *19*, 100357. https://doi.org/10.1016/j.mhpa.2020.100357

Suldo, S. M., Riley, K. O., & Shaffer, E. J. (2006a). Academic Correlates of Children and Adolescents' Life Satisfaction. *School Psychology International*, *27*(5), 567–582. https://doi.org/10.1177/0143034306073411

Suldo, S. M., Riley, K. O., & Shaffer, E. J. (2006b). Academic Correlates of Children and Adolescents' Life Satisfaction. *School Psychology International*, *27*(5), 567–582. https://doi.org/10.1177/0143034306073411

Woods, J. A., Hutchinson, N. T., Powers, S. K., Roberts, W. C., Gomez-Cabrera, M. C., Radak, Z., Berkes, I., Boros, A., Boldogh, I., Leeuwenburgh, C., Coelho-Júnior, H. J., Marzetti, E., Cheng, Y., Liu, J., Durstine, J. L., Sun, J., & Ji, L. L. (2020). The COVID-19 pandemic and physical activity. *Sports Medicine and Health Science*, *2*(2), 55–64. https://doi.org/10.1016/j.smhs.2020.05.006

World Health Organization: WHO. (2020, April 27). Archived: WHO Timeline - COVID-19. *World Health Organization*. https://www.who.int/news-room/detail/27-04-2020-who-timeline---covid-19

Zhao, N., & Zhou, G. (2020). Social Media Use and Mental Health during the COVID-19 Pandemic: Moderator Role of Disaster Stressor and Mediator Role of Negative Affect. *Applied Psychology: Health and Well-being*, *12*(4), 1019–1038. https://doi.org/10.1111/aphw.12226