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The COVID Classroom: An Examination of the Effect of Distance Learning on College Students Impacted by COVID-19

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by

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DISSERTATION

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ABSTRACT

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As a result of the tumultuous events in 2020 related to the COVID-19 pandemic, the academic world was forced to adapt and relocate for the safety of students, faculty, and staff. These changes had a lasting impact on those directly involved and predicted many aspects of daily life. The purpose of this study was to examine the impact of life disruptions caused by distance learning, COVID-19 impact, and connectedness on the mental health and academic achievement of college-level students. Furthermore, to investigate the significance of resilience, self-compassion, and self-efficacy as predictive factors to stress, anxiety, and overall academic achievement. Additionally, this study examined themes across three domains (Impact of COVID-19, Positive, and Negative outcomes of remote learning) to better understand students' perspectives of life during the pandemic. The study found that life disturbances (distance learning, COVID-19 impact, and connectedness) significantly predicted mental health and academic outcomes. The impact of COVID-19 positively predicted perceived stress. Additionally, connectedness negatively predicted perceived stress and positively predicted student engagement. Similarly, psychosocial factors (resilience, self-

compassion, and self-efficacy) had direct effects on the impact of COVID-19 on mental health and academic outcomes. Overall, resilience negatively predicted anxiety and perceived stress. Similarly self-compassion negatively predicted anxiety and perceived stress, but positively predicted student engagement. Lastly, self-efficacy positively predicted student engagement. However, none of these factors significantly predicted GPA. Interestingly, a significant interaction indicated that more COVID-19 impact predicted more student engagement at the lowest level of self-compassion. Conversely, at the highest level of self-compassion, more COVID-19 impact predicted less student engagement. Overall, connectedness, resilience, and self-compassion were crucial factors on engagement and the management of students' overall mental health. In general, these findings reaffirmed the significance of psychosocial factors on the wellbeing of college students during one of the most turbulent times in recent history.

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Dedication

I dedicate this to dissertation to my family. To my mother, Emma Salas, thank you for all the advice, support, and love you have given me throughout every step of this journey. You were my first teacher, and always show me that I have a lot left to learn. To my grandmother, Juanita Trono, thank you for the support and love you have given me from childhood to now. I appreciate everything that you have done for me.

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Table of Contents

CHAPTER 1

Introduction

The tumultuous 2020 year was filled with multiple events that strained all individuals whether globally, nationally, or locally. 2020 was a year marred by social isolation, civil unrest, and the transition to remote work. While these turbulent times were difficult for all individuals, the college student population was expected to adapt to these changes as they geared up to face a world that was drastically different than the one they spent years preparing to enter. As previous research has indicated, college students were placed under a great deal of stress which can be attributed to frequent and continuous disruptions in daily life (Misra & Castillo, 2004; Renk & Smith, 2007; Saleh, Camart, & Romo, 2017). In general, these factors placed students at an unfair advantage prior to the events of 2020. The effect of COVID-19 and the shift to virtual learning left a long-lasting impact on this population with numerous negative consequences that were examined through this study. The purpose of this study was to examine the impact of life disruptions caused by distance learning, COVID-19 impact, and connectedness on the mental health and academic achievement of college-level students. Specifically, to investigate the significance of resilience, self-compassion, and self-efficacy in relation to stress and anxiety and overall academic success. Although there has been some previous research in self-compassion and resilience in relation to trauma, there was a gap when evaluating these constructs with academic achievement and mental health outcomes (Shebuski, 2020). There was an additional gap that was a product of the mid-term online educational shift for the students and universities effected by COVID-19. Given the unstable and uncertain future of the virus, it was

imperative to examine the effects of forced distance learning to determine potential repercussions on college students.

The worldwide pandemic caused by the novel Coronavirus (COVID-19) has negatively impacted all facets of daily life. According to the Centers for Disease Control and Prevention (2022), over one million deaths have been attributed to the virus, which marked 2020 as one of the deadliest years in United States history (Associated Press, 2020). For perspective, more Americans have died because of COVID-19 than were killed during the Vietnam War (Alpert & Nguyen-Feng, 2020). Over time, the effects of COVID-19 and subsequent variants spread far beyond the initial health concerns. The ongoing disturbances caused by the virus resulted in national and global stressors which have substantially affected the social environment. Despite the development of the vaccine (over 652 million doses administered) and a better understanding of COVID-19, the virus is still prevalent three years into the pandemic with 1.7 million new cases in the last 28 days in the United States (Johns Hopkins University of Medicine, 2023). Given the diversity of global approaches to the virus, the uncertainty surrounding COVID-19 continues to predict multiple facets of daily life. Furthermore, the pandemic changed the social global landscape through the implementation of social distancing protocols which banned large gatherings and strict lockdown policies which included multiple stay-at-home orders (Lund, Forber-Pratt, Wilson, & Mona, 2020; Al Omari et al., 2020). Encompassed in these social changes, educational institutions shifted their curriculum from “in-person” lectures to online education, or remote learning, which greatly impacted students’ experiences.

The shift to e-learning impacted students and instructors worldwide. Educational institutions were often viewed as a buffer to daily stressors of students and teachers by providing a social connection to other students and colleagues (Niess, 2015; Garbrah, Kankkunen, & Valmaki, 2020; Valor, Antonetti, & Merino, 2020; Maykut, 2020). These routine activities and scholarly resources were a way of coping for many students and instructors with mental health issues, as well as those without mental health issues (Fazel, Patel, Thomas, Tol, & Tol, 2014; Kaess et al., 2019; Theodosiou, 2020). With the disruption of the COVID-19 pandemic, many students and teachers alike felt they have lost their "anchor" in higher education (Luetz, Dowden, & Norsworthy, 2018; Griffiths & Tajeddin, 2020). Further, students indicated that the transition to online education decreased their connectedness with their peers and lowered their motivation to participate and complete coursework (Boardman, Vargas, Cotler, & Burshteyn, 2021).

Overall, the implementation of distance learning exposed the unpreparedness of both faculty and students, which resulted in additional stress and anxiety. In fact, prior to the COVID-19 outbreak, only one-third of colleges or universities in the United States conducted some type of online course while the other two-thirds remained as strictly campus-based lectures (Gallagher & Palmer, 2020). In contrast, following the COVID-19 outbreak over 90% of universities across the United States, Europe, Russia, and Argentina, shifted to some form of distance e-learning (Marinoni, Van't Land, & Jensen, 2020; Alemany-Arrebola, Rojas-Ruiz, Granda-Vera, & Mingorance-Estrada, 2020). In total, this equated to 1-5 million students that were forced to leave their institute of higher education as a direct result of the pandemic (Viner et al., 2020). Overall, higher educational institutions reported a two and half percent decrease in undergraduate

enrollment thus affecting potential revenue and financial security (Douglas-Gabriel, 2020). Previous research has indicated that universities that invested in online education were able to weather the pandemic and continuously evolve in their strategy (Moore et al., 2021). The chaotic shift to online education could be categorized as emergency remote teaching (ERT). Overall, ERT is a temporary shift of instructional delivery to an alternate method of delivery due to a crisis. This online format replaces courses that would have been taught face-to-face or as blended courses. Generally, ERT is not aimed to create a robust educational ecosystem, but to provide a quick solution amid an emergency (Hodges et al., 2020). Given the uncertainty of the COVID-19 virus, and subsequent variants, students worldwide were thrust into distance learning and were expected to learn online in the immediate future. As higher education reached this crossroads, it was paramount that the impact of life disruptions caused by distance learning, COVID-19 impact, and connectedness on the mental health and academic achievement of college-level students were examined. Moreover, we investigated the role of protective factors (i.e., resilience, self-compassion, and self-efficacy) as buffers to the negative effects of life disruptions on mental health and academic outcomes.

COVID-19

The monumental shift in learning style not only affected the institutions' bottom line, but it also impacted students' overall well-being. These COVID-19 related shifts generated many uncertainties among college students. During this time, students experienced numerous stressors that impacted them differently. Some students were distressed by school closures and the absence of a clear pathway forward to finish their degrees and enter the workforce. Due to the COVID-19 pandemic, it was estimated that

13% of university students delayed graduation, 40% lost their jobs, and 29% were prepared to earn less upon entering the workforce (Aucejo, French, Araya, & Zafar, 2020). Others struggled with the social distancing protocols and the separation from friends and family. Additionally, students were subjected to household struggles related to either job loss or abuse in the home (Gross, 2020; Singh & Adhikari, 2020). Along with the disruption of their daily routines, many students were faced with the fear and uncertainty of contracting the virus, which made staying healthy another chief concern (Cao et al., 2020; Oosterhaff, Palmer, Wilson, & Shook, 2020). Prior literature indicated that poor COVID-19 knowledge, perceived seriousness of COVID-19, and perceived risk of infection were all substantial factors that contributed to students' fear of contracting COVID-19 (Alsolais et al., 2021). However, a primary source of anxiety was triggered by not attending in-person lectures as well as the difficulties associated with online learning. In fact, over 75% of college students reported they would like to go back to face-to-face interactions (Kelly, 2020). Online learning was not ideal for most students as it was inconsistent with their learning style and it lacked the support and engagement that students needed (Gross, 2020). As a result, the difficulties associated with distance learning and isolation contributed to students' increased anxiety symptoms (Fruehwirth, Biswas, & Perreira, 2021).

Overall, the development of mental health issues in college students rapidly increased since the beginning of the COVID-19 lockdown (Zhang, Jiang, Yuan, & Tao, 2020; Huang & Zhao, 2020). Numerous studies indicated an increase in anxiety, depression, mood swings, and PTSD in college students that have stemmed from exposure to the pandemic (Cao et al., 2020; Zhou et al., 2020; Guo et al., 2016).

Specifically, the development and frequency of anxiety and depression among this population. Prior research indicated that students' anxiety increased from the onset of the pandemic and worsened through the first remission period. Interestingly, senior students were most likely to develop COVID-19 related concerns and were at higher risk of developing mental health problems (Li et al., 2021). The seniors were hit with a traumatic roadblock as they were getting close to graduation. Sparked by the reported surge in mental health issues, researchers have examined the prevalence of anxiety and depression during the lockdown as well as the mediating role of depression and anxiety in the relationship between illness perception and mental health (Aqeel, Shuja, Abbas, Rehna, & Ziapour, 2020). Aligned with previous findings, researchers have indicated that illness perception was positively associated with anxiety and depression (Wang et al., 2020; Shuja, Aqeel, Jaffar, & Ahmed, 2020; Roy et al, 2020). Furthermore, anxiety and depression fully mediated the relationship between illness perception and mental health. Despite the increased prevalence for both disorders, researchers have postulated that university students were more likely to experience anxiety symptoms than depression disorder.

Evidence for the rise of stress and anxiety in college students during the COVID-19 pandemic has been examined through several lenses, which have assessed a diverse population of college students. Previous research has indicated that exposure to traumatic events of this magnitude was more likely to result in the development of stress, anxiety, or depression in college students (Schulte-Korne, 2016; Rith-Najarian, Boustani, & Chorpita, 2019; Nadeem, Ali, Akhtar, Maqbool, & Zaidi, 2012). In a study conducted by Abdulghani and colleagues (2020), researchers examined the impact of

the COVID-19 pandemic with perceived stress and coping in an undergraduate medical student population. Results of the study indicated the COVID-19 pandemic induced stress and changes in students' educational attitudes and strategies. Specifically, stress was most prevalent in female students and highest during the third medical year. Furthermore, students had higher perceived stress if they did not prefer online learning or did not believe that there was a benefit to the extended study time provided by COVID-19.

Similarly, researchers examined the vulnerability of mental health issues among college students through the duration of the pandemic. Overall, the prevalence of perceived stress and reported anxiety increased in university students as the pandemic progressed over time (Aslan, Ochnik, & Cinar, 2020). Further, perceived stress was positively related with a negative perception of COVID-19 impact. Specifically, this was most prevalent in the areas of education, economy, and interpersonal relationships.

Furthermore, the development of stress and anxiety did not appear limited to the college student age group. Previous research has indicated that anxiety and stress-related disorders are highly prevalent in childhood through early adolescence (Hudson, Murayama, Meteyard, Morris, & Dood, 2019). In addition to being highly prevalent, anxiety disorders have the earliest reported onset when compared to other mental health disorders, and when left untreated, can persist into adulthood which can result in personal and societal deficiencies (Erskine et al., 2014; Merikangas et al., 2010). For example, depression, anxiety, and stress were more prevalent in female youth, in individuals who had been in contact with a friend/family member with a mental illness, and in youth who were subjected to a 14-day quarantine (Al Omari et al., 2020).

Interestingly, researchers indicated a relationship between the development and progression of depression, anxiety, and stress with internet usage. As a result of the pandemic, internet usage increased. Interestingly, adolescents and adults have reportedly doubled their internet usage since the beginning of the pandemic (Al Omari et al., 2020; Siste et al., 2020). In most instances, the internet was their primary source for remaining updated on the spread of the virus. Additionally, youth who accessed the internet more frequently after the COVID-19 pandemic were more likely to report higher levels of depression, anxiety, and stress (Al Omari et al., 2020).

Academic Achievement

Prior to the COVID-19 pandemic, e-learning was viewed as a possible alternative to traditional education. However, there were several issues that could positively or negatively affect student learning. In many instances, a student's personal beliefs toward e-learning were a determinant of their potential success (Martin, Stamper, & Flowers, 2020). Aligned with previous findings, researchers explored the perspectives of students that were enrolled in online learning courses (Song, Singleton, Hill, & Koh, 2004). Specifically, students' perceptions of useful and challenging components to online learning were examined. Students expressed that online learning was useful based on convenience and flexibility of their courses. Most students expressed that it was easier to access course material from home and participate in course discussions at their leisure (Poole, 2000; Murphy & Collins, 1997; Song et al., 2004). In contrast, students perceived several weaknesses of online learning. Many reported that the lack of community, difficulty understanding the instructional goals, and technical problems were major challenges to their online learning experiences (Song et al., 2004).

Participants that cited lack of community as a barrier indicated that they felt the formation of a community in the course could have been developed if the instructor facilitated the idea. However, the biggest challenge encountered by students was their concern over technical problems. Many scholars expressed that the numerous technological problems took away from the course and became the students' sole focus. In general, these findings have been consistent across multiple studies that indicated lower levels of satisfaction with online learning when compared to on-campus courses (Johnson, Aragon, Shaik, & Palma-Rivas, 2000; Salisbury, Pearson, Miller, & Marrett, 2002; Furlonger & Gencic, 2014). Given the importance of academic performance in students, researchers have recommended universities invest in online education in anticipation of potential emergencies (Hussein, Daoud, Alrabaiah, & Badawi, 2020).

Overall, the COVID-19 pandemic drastically shaped the educational landscape by forcing universities across the globe to shift their practices from the traditional lecture hall to online learning platforms during times of isolation (Mheidly, Fares, & Fares, 2020; Mingorance et al., 2019). Although the concept of online education was not novel, there have been ongoing debates by educators and researchers on the feasibility and limitations of distance education specifically in the method of delivery and assessment of students in an online environment (Williams, Cameron, & Morgan, 2012). Gillett-Swan (2017) identified several fundamental problems of online education to learners and educators alike. First, online education cannot be treated as a "one size fits all" approach as many educators that were not familiar with the online format have tended to do. Many educators have converted all material from their face-to-face context to

their online format and not taken into consideration the differences in learning for students. Instead, educators needed to personalize the learning experience for their students and differentiate curriculum based on student need (Gillet-Swan, 2017). Additionally, researchers identified technology as a potential barrier that hampered students' success. In most instances, technology was not utilized effectively within its context. Researchers postulated that technology needed to be adapted to the type of curriculum that was taught (Orlando & Attard, 2015). Moreover, most educators took for granted the connection between student engagement, learning enhancement, and technological incorporation (Kirkwood & Price, 2014). In addition to the drawbacks of technology, researchers indicated the utilization of online technology resulted in an isolated student learner. Despite the best effort of faculty, many staff have reported feeling apprehensive toward online education and not equipped to teach as they were still learning the platform. The result of this reported faculty apprehension led to the development of negative student affect toward their online platform (Jaques & Salmon, 2007; Little-Wiles & Naimi, 2011; Rucker & Downey, 2016; Schmidt et al., 2016; Thorsteinsson, 2013). Most students were left in an isolated state as their level of competency using different forms of technology varied. This isolation was evident in collaborative learning tasks through group work, group presentations, and group assessments (Davidson, 2015; Graham & Misanchuk, 2004; Jaques & Salmon, 2007). Generally, many of the issues in online education experienced by students were manifested as personal issues. Specifically, students were likely to experience anxiety associated with using technology; the perceived inability or difficulty with peer interactions; feeling out of their self-described "comfort zone"; and a perceived inequity

in assessment. Inequalities in assessment were the result of technical issues, complexity, the sequence of activities, and the attempts to learn in a new environment (Boyles, 2011; Fahy, 2004; Jaques & Salmon, 2007).

Another issue to consider as related to academic performance was the learning environment university students were expected to maintain during the shift to remote learning. In many instances, students were expected to learn in an environment that was vastly different from the traditional classroom. In general, a sufficient working environment has aided in student performance where a poor working environment has been detrimental to overall wellbeing (Dui & Neumann, 2009). As a result, researchers have emphasized the importance of the at-home working environment of students during the pandemic (Realyvasquez-Vargas et al., 2020).

The development and spread of the virus predicted the well-being of students caught between in-person lectures and online learning. In most cases, this was apparent by the development of loneliness, stress, depression, and anxiety among college students during the confinement period (Michigan Medicine, 2020). Previous research has indicated an indirect relationship to academic performance and a direct relationship to perceived academic self-efficacy (Gutierrez-Garcia & Landeros-Velazquez, 2018). Therefore, students with a higher level of stress tended to exhibit lower levels of self-efficacy. Within this dimension, anxiety was negatively associated to academic self-efficacy and positively related to state anxiety (Gutierrez-Garcia & Landeros-Velazquez, 2018; Onyeizugbo, 2010). Students' perceived academic self-efficacy within the academic environment was positively related to performance in university students (Colom, 2012; Ahmadi, 2020). Similarly, stress and strain were

identified as significant factors that negatively predicted GPA and likelihood to remain in school (Beccaria, Rogers, Burton, & Beccaria, 2016). Thus, higher levels of positive emotionality were associated with higher levels of academic success (De la Fuente et al., 2019). Furthermore, researchers have postulated that excessive stress would not only result in poor academic performance or dropout but could lead to increased incidence of mistakes as well as improper behavior such as cheating, fraud, or negligence (Soliman, 2014; Kwaah & Essilfie, 2017).

In general, a student's perceived academic self-efficacy plays a pivotal role in their potential successes. Previous research has indicated that perceived self-efficacy impacts students' aspirations, levels of interest in academic pursuit, academic accomplishments, and how well students prepare themselves for their careers (Bandura, 1995; Abd-Elmotaleb & Saha, 2013). Given the disturbances created by COVID-19, researchers examined the relationship between perceived academic self-efficacy in the confinement period and the level of trait anxiety and state anxiety during the COVID-19 pandemic (Alemany-Arrebola, Rojas-Ruiz, Granda-Vera, & Mingorance-Estrada, 2020). In line with previous findings, researchers identified an inversely proportional relationship between anxiety and self-efficacy. Overall, male students demonstrated higher levels of perceived self-efficacy, while female students had higher scores of trait anxiety and state anxiety. Furthermore, female students tended to express more negative emotions and perceived themselves with less academic self-efficacy when compared to their male counterparts. As a result, these findings reinforced the significance of these psychological constructs to overall academic success in college students.

Connectedness

As a result of the COVID-19 pandemic and the subsequent implementation of distance education, an issue that needed to be addressed was student connectedness during their classroom experiences. Connectedness referred to an individual's perception of belonging and was achieved when an individual experienced social relationships and integration (Lee & Robbins, 1995; Kuwabara, Watanabe, Ohguro, Itoh, & Maeda, 2002). Traditionally, the classroom connectedness construct primarily has centered around the development of a supportive and cooperative classroom environment between students and instructors (Sollitto, Johnson, & Myers, 2013). Furthermore, online student connectedness has referred to human interactions in computer-mediated learning environments. Overall, these environments allowed individuals to participate comfortably in group communication while simultaneously forming social relationships with the group (Galambos, Abelson, & Black, 1986; Zimmerman & Nimon, 2017). According to researchers, students needed to feel supported and connected to their instructors and other students to be successful (Sidelinger & Booth-Butterfield, 2010). Generally, feeling connected was associated with an increase in a student's health and wellbeing, academic achievement, and graduate prospects (Arslan, 2021; Wilson, 2018; Bridgstock, Jackson, Lloyd, & Tofa, 2019). Since the shift to distance education, students have described feelings of psychological distance, loneliness, isolation, and disconnection from their peers and educational institutions (Arslan, 2021). Furthermore, students have reported increased mental health problems, heightened anxiety toward academic performance, and reduced

academic self-efficacy (Aucejo, French, Araya, & Zafar, 2020; Elmer, Mepham, & Stadtfeld, 2020; Sahu, 2020).

In relation to the COVID-19 pandemic, connectedness was an important factor to consider as students were isolated from the university and their peers. Previous research has indicated the importance of student connectedness to their university as a potential predictor of their overall success (Kachaturoff, Caboral-Stevens, Gee, & Lan, 2020). Student connectedness was associated with less anxiety and better academic performance. In contrast, a lack of connectedness was a mechanism of action in the link between mental health and academic performance (Di Malta, Bond, Conroy, Smith, & Moller, 2022). Overall, the shift to remote education greatly impacted the sociability of college students in their interactions with peers, but also affected their mental health. Further research has demonstrated the impact of increased student anxiety and emphasized the value of training and professional development of staff to foster greater connectedness with students (Ensmann, Whiteside, Gomez-Vasquez, & Sturgill, 2021). Therefore, to add variability to the online education variable and adequately capture the participants' distance learning experiences, we measured reduced connectedness as an additional component of their life disturbances.

Resilience

Overall, resilience has been a construct that is commonly described as a personality trait or state of behavior. According to the American Psychological Association (2019), resilience was the process of adaptation in the midst of severe adversity, trauma, tragedy, or any significant source of stress. Moreover, resilience was believed to be an individual's ability to bounce back from any difficult experience or their

ability to protect themselves from an outside threat (Taormina, 2015; Min, Lee, Lee, Lee, & Chae, 2012; Gooding, Hurst, Johnson, & Tarrier, 2012). Additionally, it has been hypothesized that continued exposure to stressors and adversity may strengthen resilience (Crane, Searle, Kangas, Nwiran, 2018; Mayordomo, Viguer, Sales, Satorres, & Meléndez, 2016). However, resilience has been the subject of controversy among researchers for decades (Fletcher & Sarkar, 2013; Windle, 2010) specifically in the classification of resilience and its conceptualization. The early roots of resilience were grounded in two bodies of literature, the psychological aspects of coping and the physiological aspects of stress (Tusaie & Dyer, 2004). Although traditionally these two concepts have been separated by academics, they have laid the foundation for the concept of resilience. From a physiological perspective, research began with studying homeostasis and progressively moved to brain plasticity, psychoneuroimmunology, and finally resilience. In contrast, the psychological perspective began with unconscious defense mechanisms and progressed through protective and risk factors then to resilience (Tusaie & Dyer, 2004; See Figure 1).

In general, resilience has been classified into three different categories. Commonly, these classifications of resilience were as a trait, process, or outcome (Hu, Zhang, & Wang, 2014; Fletcher & Sarkar, 2013; Thompson, Fiorillo, Rothbaum, Ressler, & Michopoulous, 2018). When classified as a trait, resilience was viewed as a personality trait that assists individuals to cope with adversity and attain positive adjustment and development (Hu, Zhang, & Wang, 2014). Within this interpretation, researchers have suggested that resilience inoculates the individual against any form of adversity or trauma and acts as a protective factor (Connor & Davidson, 2003; Rutter,

1985; Waysman, Schwarzwald, & Solomon, 2001). This belief led to the development of ego resilience to describe a set of characteristic traits that have allowed the individual to better adapt within their environment (Waugh, Thompson, & Gotlib, 2011). These characteristics included general resourcefulness, strength of character, and the individual's flexibility of functioning based on the environmental demand (Block & Block, 1980). According to Block and colleagues (1980), individuals with higher ego resilience demonstrated higher levels of energy, an increased sense of optimism, curiosity, and the ability to detach and conceptualize problems. Additionally, hardiness has been a construct commonly associated with resilience when it was viewed as a trait. Hardy individuals were believed to possess general abilities that have influenced their personality during periods of adversity (Kobasa, 1979; King, King, Fairbanks, Keane, Adams, 1998). These personality traits were commitment, control, and challenge (Kobasa, Maddi, & Kahn, 1982). First, hardy individuals believed that they could control or influence the events of their life. Second, they felt committed to the activities in their lives. Last, hardy individuals possessed the openness to view change as a challenge.

In contrast, as a process approach, resilience was seen as a concept that can develop over time based on the individual's interaction with their environment (Egeland, Carlson, & Sroufe, 1993; Mayordomo-Rodríguez, García-Massó, Sales-Galán, Meléndez-Moral, & Serra-Añó, 2015). Within this process of resilience, it was recognized that protective factors of the individual may vary contextually and temporally. For example, even though an individual has reacted positively to adversity at one point in their life, it does not mean that they will react the same way to the same stressors at a different point in life (Davydov, Stewart, Ritchie, & Chaudieu, 2010). In general,

researchers that have supported resilience as a process have argued that it is not a static state of existence and should not be classified as a stable personality trait (Fletcher & Sarkar, 2013; Schwartz, 2018). Therefore, researchers have proposed that resilience is not necessarily an innate capability or trait but rather an ability that can be harnessed given the appropriate situation (Schwartz, 2018; Walsh, 2003; Zubair, Kamal, & Artemeva, 2018).

Lastly, as an outcome-based approach, resilience has been viewed as a function or behavioral outcome that leads to the development of competency following adverse events (Hu et al., 2014; Thompson et al., 2018) Similar to process-oriented approaches, an outcome centered approach was rooted in the belief that resilience was a flexible concept that could have varied based on the individual's environment and any disruptions to their homeostatic nature. After a disruption, the individual needed to adjust to the stressor and begin the reintegration process. As a result, researchers have hypothesized different outcomes to any disruption of homeostasis and the subsequent reintegration outcomes. These outcomes included resilient reintegration, homeostatic reintegration, reintegration with loss, and dysfunctional reintegration. Resilient reintegration has occurred when a disruption has led to the development of new protective factors and a higher level of homeostasis. A homeostatic reintegration has occurred when the individual has remained in their comfort zone and did their best to "survive" the stressor. In contrast, a reintegration with loss has occurred when the disruption has caused an individual to lose their protective factors and develop a lower level of homeostasis. Finally, dysfunctional reintegration has occurred when the

disruption has caused the individual to resort to substance abuse or any other destructive behavior (Richardson, 2002; Richardson, Neiger, Jensen, & Kumpfer, 1990),

In relation to conceptualization, resilience has been an inferential and contextual construct that requires two different judgements. The first judgement examined any previous threats to the individual. For an individual to be considered resilient, there needed to be a noteworthy threat in their development (Masten, 2001; Luthar, Cicchetti, & Becker, 2000). According to Masten (2001), a threat was considered significant if it had the possibility to lead to a negative life outcome. For example, testing positive for COVID-19 or losing a loved one that contracted the virus. The second judgment examined how the adaptation or developmental outcome was assessed. Although there was not a set measurement of this outcome, this related back to how the researcher defined resilience and in what context the construct has been used (Masten, 2018).

Despite the disagreement in classification, most researchers concluded that resilience is a multidimensional construct of the individual (Johnson, Willis, & Evans, 2019) that needs to remain flexible in nature as it is not a fixed characteristic despite describing a component of personality (Robertson & Cooper, 2013). Overall, it was this flexibility that was believed to contribute to emotional and psychological well-being (Kashdan & Rottenberg, 2010). As a result, researchers have constructed a practical four component model to properly describe resilience. These components included adaptability, confidence, purposefulness, and social support (Haglund, Nestadt, Cooper, Southwick, & Charney, 2007). According to Haglund and colleagues (2007), adaptability described flexibility in changing situations; confidence referred to the individual’s

feelings of competence and effectiveness; purposefulness was defined has having a clear sense of purpose; and social support entailed positive relationships with others.

The development of resilience has been especially important to understand in the college undergraduate population. Overall, college has been a tumultuous experience in an individual's life due to frequent and continuous disruptions in daily activities. During this transitionary period, students have been expected to be more independent, while balancing academic demands and interpersonal relationships (De Almeida Santos et al., 2018). As a result, a majority of students have reported concerns regarding their mental health. According to Fain (2016), over 50% of college students reported a recent or current mental health disorder. Among these students, 36% suffered from depression and 29% suffered from anxiety. Symptoms of depression among college students have been associated with maladaptive behaviors (i.e., binge drinking, unhealthy relationship behaviors, and poor academic performance) and are believed to be affected by an individual's resilience (Hartley, 2012; Lewandowski, Mattingly, & Pedreiro, 2014; Magrys & Olmstead, 2015). As a result, Houston and colleagues (2016) examined the role of resilience and coping among undergraduate college students. Researchers randomly assigned college students to participate in a Resilience and Coping Intervention (RCI) for one semester or a control group. The RCI was designed to help participants identify thoughts, feelings, and coping strategies in relation to traumatic events or everyday stressors (Allen et al., 2015; Houston et al, 2016). Results of the study indicated that RCI was an effective resilience intervention among the college student population. Participants in the intervention reported a significant increase in resilience from pre- to post-test assessment. Due to the prevalence of mental health disorders in college

students, this was a significant finding that helped to alleviate depressive symptoms and facilitated an increase in academic achievement.

Building upon previous exploration, several studies have begun to examine several models to conceptually describe resilience. Among these conceptualizations, the thriving model was developed to describe resilience as thriving (O'Leary, 1998). The ideology of thriving was derived from the scientific study of vulnerability and coping paradigms (Ledesma, 2014). Thriving was based on an individual's positive transformation resulting from the experience of adversity (Nishikawa, 2006). In accordance with the thriving model, researchers have postulated that when individuals were confronted with difficulty, they may have succumbed or they may have responded to one of three set ways (O'Leary, 1998; O'Leary & Ickovics, 1995). Specifically, individuals may have survived the incident, recovered from the incident, or thrived because of enduring the hardship (See Figure 2). As a result, survivors may have continued to function, but at an impaired state. The ideology of recovery suggested that individuals in an impaired state would eventually return to their previous level functioning. However, this change required time and was not an immediate transformation. In contrast, thriving resulted in a transformation that included a cognitive shift in response to a challenge. Although they may have varied, transformations included the reconstruction of an individual's perceived life meaning. Additional transformations resulted in an individual's renewal of faith, trust, hope, and connection. Finally, an individual's redefinition of self, self in relation to others, and sense of community were commonly transformed following an adverse event. Thriving signified an individual's ability to grow and flourish despite adversity. Generally following a crisis

or trauma, adaptation occurred which stemmed from an individual's attempt to survive and heal amid suffering (Saakvitne, Tennen, & Affleck, 1998). Although the conceptual model was originally developed to describe thriving in the context of women's lives, researchers did not believe their model to be gender specific or inclusive (O'Leary & Ickovics, 1995).

In relation to the COVID-19 pandemic, resilience has been examined as a construct that has impacted the mental health and wellbeing of college students. Given the detrimental impact of COVID-19 and subsequent life disturbances, the effect of resilience has been closely investigated as a potential buffer to these factors. Overall, there was a significant increase in the prevalence of severe anxiety, high stress, and depression since the onset of the pandemic. As a result, researchers have concluded that increased resilience was the strongest predictor for decreased depression, anxiety, and stress (Watt, Hagedorn, & Olfert, 2021). Overall, resilience has been identified as a protective factor to reduce acute psychological responses (Ye et al., 2020). Given the importance of resilience, researchers have advocated for an increased focus on student mental health and the need to develop strategies to enhance resilience in college students (Vinkers et al., 2020).

Self-Compassion

Overall, self-compassion has been defined as the propensity to treat oneself with kindness during the experience of difficult thoughts or emotions during times of failure (Neff, 2003). Rather than ruthlessly criticize personal shortcomings or inadequacies, self-compassion emphasized self-love and understanding when in the presence of failure or disappointment (Neff, 2020). Essentially, self-compassion involved directing

the same kind of care, compassion, and kindness toward oneself that one conveyed toward loved ones (Allen & Leary, 2010). In accordance with Neff's Model (See Figure 3), self-compassion was a three-pronged approach to describe an individual's treatment of themselves, and the internal conflict that could arise at each point. Specifically, the model examined: self-kindness vs. self-judgement; common humanity vs. isolation; and mindfulness vs. over-identification (Neff, 2003). Self-compassionate individuals tended to recognize that life difficulties were an inevitability, so they were more likely to be gentle with themselves in difficult times instead of angry or aggressive. This ideology aligned with the self-kindness component of Neff's Model (2020). In relation to common humanity, self-compassion accepts that suffering and inadequacy were universal experiences, rather than ones that were unique to an individual. Finally, mindfulness is the non-judgmental state of mind in which an individual observed thoughts and feelings rather than trying to suppress or deny them. Mindfulness required that an individual was not over-identified with thoughts or feelings to eliminate the possibility of being consumed by negative reactivity (Neff, 2020). Although self-compassion could be viewed as a three-pronged model, the current study examined it as an entire construct rather than a three-component model.

Due to the traumatic nature of the COVID-19 pandemic, there has been a growing body of literature focused on the relationship between self-compassion and trait resilience. Specifically, these psychological constructs may have served as a buffer against the development of distress following exposure to a traumatic event (Shebuski, Bowie, & Ashby, 2020; Zellar, 2015). In conjunction with self-compassion, researchers have theorized that trait resilience encompassed multiple personality facets that may

have facilitated adaptive responses following the exposure to a traumatic event (Connor & Davis, 2003). Specifically, individuals with high levels of trait resilience demonstrated the ability to maintain an internal sense of control despite an uncontrollable event and tolerate the negative emotionality associated with trauma exposure. Further, trait resilience was indicated as a predictor of PTSD symptom severity and suggested a negative relationship between these constructs (Bensimon, 2011; Pietrzak et al., 2009). Overall, lower levels of PTSD were found in individuals with higher reported trait resilience when compared to individuals with low trait resilience (Elliot et al., 2015). In fact, the direct effect of trauma on PTSD symptoms was found to vary based on an individual's self-reported trait resilience (Lee, Ahn, Jeong, Chae, & Choi, 2014). Previous examinations of this construct have indicated a significant relationship between self-compassion and trait resilience. Specifically, as levels of trait resilience increased, so did levels of self-compassion. In relation to gender, researchers determined male participants expressed higher levels of self-compassion over female participants (Shebuski, Bowie, & Ashby, 2020). Previous researchers have attributed this phenomenon to an underlying difference in gender that dictated women take care of others before themselves (Yarnell et al., 2015). Interestingly, self-compassion has been a significant moderator of the relationship between trauma exposure and symptoms of psychological distress in a model that trait resilience proved to not be a significant moderator in any relationships (Shebuski, Bowie, & Ashby, 2020).

Like resilience, self-compassion has been identified as a protective factor against life disturbances that resulted from COVID-19. Overall, higher levels of self-compassion have been shown to predict lower symptoms of anxiety and depression (Liang, Huang,

Qu, Bu, & Chi, 2022; Gutierrez-Hernandez, 2021). Furthermore, researchers have postulated that self-compassion has enhanced students' resilience and alleviated self-coldness (over-identifying with distress) throughout the pandemic (Lau, Chan, & Ng, 2020; Brenner et al., 2018). Additionally, self-compassion has been shown to increase life-satisfaction in self-quarantined students (Li, Wang, Cai, Sun, & Liu, 2021).

Overview and Hypotheses

Given the uncertainty surrounding the COVID-19 virus and subsequent public response, it was imperative to examine resilience and self-compassion among college students and determine their needs to ensure their academic success and positive mental health behaviors. The purpose of this study was to examine the impact of life disruptions caused by distance learning, COVID-19 impact, and connectedness on the mental health and academic achievement of college-level students. Specifically, the significance of resilience, self-compassion, and self-efficacy in relation to stress, anxiety, and overall academic success. (See Figure 4). Therefore, the current study addressed the following aims (see Figure 5 & Figure 6).

1. We investigated the ability of life disturbances to predict mental health and academic outcomes. Specifically, we examined hypotheses related to whether enrollment in online courses as a result of COVID-19 or greater COVID-19 impact predicted poorer mental health (i.e., greater anxiety, higher perceived stress, and lower connectedness) and poorer academic performance (i.e., less student engagement and lower GPA).
2. Specifically, we examined whether psychosocial factors moderated the relationships examined in the first aim. Specifically, we hypothesized that when

students scored in the higher ranges on resilience, self-compassion, or self-efficacy, the relationships would be weakened, or become nonexistent, between more life disturbances (more enrollment in online courses as a result of COVID-19, greater COVID-19 impact, or lower connectedness) and poorer mental health (i.e., greater anxiety or higher perceived stress) and poorer academic outcomes (i.e., lower semester GPA or less student engagement).

CHAPTER 2

Methods

Participants

Participants in the current study were recruited from the Human Subject Pool from the University of Texas at Arlington (SONA). Although the study received IRB approval to recruit from Prolific, it was not necessary because a sufficient sample size was obtained from the Human Subject Pool. To be adequately compensated for their participation, students received .50 course credit for completing the 30-minute survey.

Before testing any hypotheses, a preliminary power analysis was conducted to determine the number of participants needed to power the study adequately. The estimated effect sizes were based on previous findings within the literature of similar studies (Wilks, 2008). Based on these findings, it was determined that a medium effect size would be sufficient. As a result, a power analysis for a linear multiple regression, fixed model was conducted in G*Power to determine a sufficient sample size using an alpha of α = .05, a power of β = .80, a small effect size (F^2 = .10), six predictors (i.e., COVID-19 impact, number of enrolled courses during the pandemic, connectedness, resilience, self-compassion, and self-efficacy), and 11 covariates (i.e., age, gender, ethnicity, country of study, classification in college, field of study, GPA, credit hours, method of course access, internet quality, and the interaction). Based on these standards, an adequate sample size would be 212 participants. A total of 300 students were consented to participate in study. After controlling for attention checks and missing cases, 254 students were included which sufficiently powered the study. Overall, our

sample was mostly female, young adults, who identified as Freshman in the Fall of 2021 (see Table 1).

Procedures

Interested participants were provided with an IRB-approved informed consent form that outlined the study's goals, benefits, and potential risks. Along with a brief demographic survey, participants were asked to complete an online questionnaire through QuestionPro that measured their resilience, self-compassion, and mental health. All completed questionnaires, completed assessments, and participant data were stored on a UTA password-protected server.

Measures

Sociodemographic Measures

To collect participants' demographic data, the beginning of the survey included a section that asked participants to provide sociodemographic information (See Appendix A). Specifically, participants were asked to provide their age, gender, ethnicity, college classification, major field of study, GPA before the pandemic, GPA after the pandemic, method of accessing technology, and the total number of hours of online courses taken as well as the number of hours taken during the pandemic. Aside from age, the field of study, cumulative GPA, and number of online hours taken during the pandemic and during their lifetime, all questions were multiple choice. In contrast, these items allowed participants to write in a free alphabetical or numeric response that best described their experience. However, questions pertaining to gender, ethnicity, and access to technology included a write-in "other" option that allowed participants to specify their responses. Participants recruited through the Human Subject Pool were asked to

provide consent (in the informed consent document) which allowed us to request the following data from the University of Texas at Arlington's University Analytics group: gender, GPA (cumulative, pre-2020, and semester), race, student classification, and number of credit hours completed. We requested these data after the semester in which the participant completed the study. Data from University Analytics were considered the default values for these variables. If there were missing data or the participants did not consent to release their University Analytics data, then missing values were replaced with participant self-report values unless that also was missing.

Life Disturbances

COVID-19

The impact of COVID-19 was measured through the Coronavirus Impact Scale (See Appendix B; Stoddard & Kaufmann, 2020). Overall, the newly developed scale was comprised of 12 items that rated how COVID-19 has changed various aspects of an individual's life. Among these items included income, daily routine, individual stress, family and close friend related stress, food access, health care access, and social support. Eleven items were rated on a four-point Likert scale as participants were asked to rate items as no change (0), mild (1), moderate (2), and severe (3); and one item was a free-response style question. The Coronavirus Impact Scale was internally reliable in this study with a Cronbach's alpha value of .79.

Distance Education

In addition to the impact of COVID-19, participants were asked to provide the number of online credit hours they were enrolled in during the pandemic and their total number of enrolled online hours. The purpose of this disclosure was to confirm their

enrollment, and their individual workload. Additionally, participants were asked to complete a 15-item inventory to measure their attitudes and experiences in response to distance learning (QuestionPro, 2020), and two open-ended questions that measured participants' perceived positive and negative outcomes of remote learning.

Connectedness

Participants were asked to complete the Online Student Connectedness Survey (OSCS). The OSCS was a 25-item inventory was developed to measure the connectedness between students participating in online degree and certification programs (See Appendix C; Bolliger & Inan, 2012). The inventory was comprised of four subscales: community, comfort, facilitation, and interaction and collaboration. All items on the survey were on a five-point Likert scale ranging from (1) strongly disagree to (5) strongly agree. The OSCS has been proven to be an internally reliable measure with an observed Cronbach's alpha value of .95 in the current study.

Psychosocial Outcomes

Self-Efficacy

In relation to the current study, examining participants' online self-efficacy was imperative. Online self-efficacy was based on the individual's perceptions of his or her ability to successfully complete tasks required of online learners. The Online Learning Value and Self-Efficacy Scale (OLVSES) was developed to measure respondents' perceived task value and self-efficacy in relation to self-paced, online learning (See Appendix D; Artino & Mccoach, 2008). Additionally, the OLVSES was focused on paced, cohort-based online courses. The OLVSES was comprised of 11 items, and two subscales which included task value and self-efficacy. In relation to measurement, the

OLVSES has been adapted to a seven-point scale and continued to be internally reliable with a Cronbach's alpha value of .88 in the current study.

Self-Compassion

To assess self-compassion, participants were given the Self-Compassion Scale-Short Form (See Appendix E; Raes, Pommier, Neff, & Van Gucht, 2011). The Self-Compassion Scale-Short form has been tested and validated for test-retest reliability and discriminant validity. In fact, researchers have indicated that has a near perfect correlation with the long scale when examining total scores (Raes et al., 2011). This test was designed to measure self-compassion based on six variables over three constructs. The Self-Compassion Scale was a five-point Likert Scale that comprised of 12-items which measure: the self-kindness vs. self-judgment construct; the common humanity vs. isolation construct; and mindfulness vs. over-identified construct. Although self-compassion has been viewed as a three-pronged model, the current study examined it as an entire construct rather than a three-component model. The Self-Compassion Scale-Short From was proven to be an internally reliable scale with Cronbach's alpha value of .66 in the current study.

Resilience

Regarding resilience, participants answered items from the Brief Resilience Scale (BRS). This self-reported questionnaire was developed to measure an individual's ability to bounce back or recover from stress (See Appendix F; Smith et al., 2008). The BRS consisted of six items that assessed if it was possible to recover from stress and whether it was related to resilience resources or health outcomes. Researchers included an equal number of positive and negatively worded items to reduce the effects

of social desirability and positive response bias. Participants rated each item as strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). Internal consistency indicated that the scale was internally reliable with an observed Cronbach alpha value of .81 in the current study.

Mental Health Outcomes

Anxiety

To assess anxiety, participants were asked to complete a short version of the Spielberger State-Trait Inventory (STAI-S). The STAI-S was a five-item inventory that specifically measures state anxiety (See Appendix G; Zsido, Teleki, Csokasi, Rozsa, & Bandi, 2019). State anxiety focused on how an individual felt at the moment rather than a general feeling. All items on the questionnaire were on a four-point Likert scale with participants responding as not at all (1), somewhat (2), moderately so (3), and very much so (4). The STAI-S was internally reliable with an observed Cronbach's alpha value of .76 in the current study.

Stress

In addition to anxiety, participants' stress was measured by the 4-item Perceived Stress Scale (PSS-4). The PSS was developed as a measure of the degree to which situations in an individual's life are appraised as stressful (See Appendix H; Cohen, Kamarck, & Mermelstein, 1983). Furthermore, the PSS was designed to examine how unpredictable, uncontrollable, and overloaded respondents find their lives. All items on the survey were on a five-point Likert scale with participants responding as never (0), almost never (1), sometimes (2), fairly often (3), and very often (4). Although a shortened version of the originally developed 10-item survey, the PSS-4 demonstrated

an acceptable internal reliability as the observed Cronbach's alpha value was .71 in the current study.

Academic Outcomes

GPA

Both subjective and objective indicators of GPA were assessed. In the demographic questionnaire, participants were asked to provide their overall college GPA, their expected GPA for the semester, their GPA prior to the COVID-19 pandemic, and their high school GPA. For participants recruited from the University of Texas at Arlington, objective GPA data were obtained from University Analytics with the consent of the participants for overall GPA, high school GPA, and current GPA for the semester in which they were enrolled in the study.

Online Student Engagement

Furthermore, participants were asked to complete the Online Student Engagement Scale (OSE), developed to measure the degree to which students are engaged in their online courses (See Appendix I; Dixson, 2015). The OSE has been validated as a consistently sound psychometric measure (Catalano, 2018). The self-reported inventory consisted of 19 items on a five-point Likert scale to measure students' skill, emotion, participation, and performance in their online course. The OSE demonstrated acceptable internal reliability as the observed Cronbach's alpha value was α = .90.

Attention Checks

In addition to the survey items, two attention checks were embedded in the questionnaire and administered to all participants (See Appendix J). The first attention

check item directed participants to select one specific answer that was provided in the question space. A second attention check item directed participants to choose an answer choice that rhymed with a provided word. These attention checks were included because it has been found that about 12% of college students completing lengthy surveys for compensation can be careless in their responses. Aligned with this previous research, two attention checks were used as the current survey's total question total was between 50 to 100 recommendation (Meade & Craig, 2012).

Covariates

In addition to the included variables, several covariates were analyzed in the current model. First, participants were asked to disclose their age, gender and classification in college. Generally, age and gender tended to be strong predictors of the moderators and psychosocial and academic outcomes utilized in the model. Previous literature has indicated that older male students tended to be associated with higher resilience and self-compassion, while there appeared to be a similar association with gender and anxiety (Cohen, Baziliansky, & Beny, 2014; Hwang, Kim, Yang & Yang, 2016; Bluth & Blanton, 2014; Bayram & Bilgel, 2008). Furthermore, participants were asked to indicate their ethnicity and country of study. Recent studies have indicated that ethnic identity can serve as a potential protecting factor against COVID-19 anxiety among minorities (Long, Quan, & Zheng, 2021). Additionally, participants were asked to describe the quality of their internet access at home, their method of accessing technology, number of online credit hours taken and their overall GPA. Prior GPA was examined as a potential covariate and alternate models were explored in which GPA prior to the pandemic to end of the semester of study was used as a change score.

However, the enormity of missing data (*N* = 68; 26.77%) precluded the use of prior GPA as a covariate and the calculation of a GPA change score. Previous research has indicated that technology use has had a positive effect on self-directed learning and student engagement, and an indirect effect on academic performance (Rashid & Asghar, 2016). Further, when the technological platform was accessed more frequently, there was a promising trend in potential performance (Kizilcec & Chen, 2020). To capture these relationships, participants were asked to indicate their method of internet access during the pandemic and to describe the quality of the internet connection.

Data Analysis

Multiple linear regression analyses were conducted to test the primary hypotheses of Aim 1 from the current study. Specifically, whether greater life disturbance (COVID-19 impact, greater number of online courses, and lower connectedness) predicted poorer mental health (i.e., greater anxiety, higher perceived stress, and lower connectedness) and poorer academic performance (i.e., less student engagement and lower GPA). All assumptions were met and there was no multicollinearity for the regression models.

Moderated regression analyses were conducted to test the primary hypotheses of Aim 2 from the current study. Specifically, the impact of COVID-19 was altered based on students' psychosocial factors (i.e., resilience, self-compassion, and self-efficacy). Each outcome was tested in a separate model in which covariates were entered in the first step, life disturbances were entered in the second step, psychosocial factors were entered in the third step, and all two-way moderation interaction terms (life disturbance variable X psychosocial factor) were entered in the fourth step. All variables in the

model were centered. It was expected that greater resilience, self-compassion, and self-efficacy would buffer negative outcomes (i.e., lower perceived stress and anxiety and higher GPA and student engagement) among students with greater life disturbances. Conversely, having the lowest reported resilience, self-compassion, and self-efficacy along with greater life disturbance were expected to strongly predict poorer outcomes (i.e., higher perceived stress and anxiety and lower GPA and student engagement). Furthermore, the PROCESS macro was utilized to run the models and the Johnson-Neyman plots were used for probing any significant interactions (Hayes, 2017). PROCESS is an observed variable, ordinary least squares (OLS), and logistic regression path analysis modeling tool. Further, all assumptions were met and there was no multicollinearity for the regression models.

As previously indicated, eleven covariates were included in the original model. However, not all covariates were utilized in the current analysis. Within the current analysis age, gender, classification in college, credit hours taken, and quality of internet access were retained as examined covariates. These covariates added context and provided further detail of our sample that would make results more generalizable to a wider population. To increase the power of the analyses, covariates with small sample sizes or missing data were omitted from the study. This included accessing course materials, country of study, major, and prior GPA. Most students accessed their online course material through a laptop (*N* = 237, 93.3%), which limited the sample size. The country of study was overwhelmingly skewed toward the United States (*N* = 247, 97.2%), which also limited the sample size. Additionally, most participants indicated nursing (*N* = 153, 60.2%) as their selected major, resulting in small, uneven sample

sizes for the remaining majors. The enormous amount of missing data (*N* = 68; 26.77%) precluded using prior GPA as a covariate and calculating a GPA change score. Finally, while participants reported diverse racial and ethnic backgrounds, inclusion of the four dummy code variables necessary to capture the participants' responses, would have resulted in regression models that were underpowered. Given that there were no observed racial or ethnic differences in our predictors or outcome variables, the decision was made to not examine racial/ethnic differences in this dissertation, but to devote secondary data analyses to these research questions after completion of this dissertation.

CHAPTER 3

Results

Sample Descriptive Statistics

A total of 300 undergraduate students participated in the study through the Human Subject Pool. After removing cases where students did not pass attention checks (*n* = 18), took the survey multiple times (*n* = 23), or did not complete a considerable amount of the survey (*n* = 5), a total sample size of *N* = 254 was used for the analyses. Table 1 displays the frequencies and counts of some of the categorical data of the sample (age, gender, race/ethnicity, classification in college, major field of study, and average time spent on distance education). Table 2 displays the descriptive statistics for the continuous data of the sample (current overall college GPA, GPA prior to 2020, number of online courses taken during the COVID-19 pandemic, number of online courses taken over academic career, and number of online and face-to-face college courses taken over academic career).

Table 3 displays the correlation matrix for life disturbances, psychosocial factors, mental health outcomes, academic outcomes, and covariates used in this study. The participants were predominately female, young adults, who had just entered college in 2021 as Freshmen. Most participants indicated that their experience with online education occurred during the COVID-19 pandemic. The sample was relatively diverse regarding racial make up and major area of study. Based on GPA, most participants indicated their academic level of achievement in the 3.0-3.9 range.

The distributions of all variables were examined prior to data analysis. Due to little variability and an extremely positively skewed distribution of age, age was recoded into a dichotomous variable grouping participants who were 17-22 years of age (*n* = 217) and participants who were older than 22 years of age (*n* = 31) with 6 cases missing. This coding allowed comparison of traditional and non-traditional aged students. Additionally, a square transformation was used to correct negative skewness for the variables of internet quality and semester GPA, and a log transformation was used to correct positive skewness for number of online courses enrolled in during the pandemic.

Aim One

Hypothesis 1: Life Disturbances Predicting Anxiety

A hierarchical multiple regression analysis was used to test if greater life disturbances predicted greater anxiety while controlling for covariates, $F(10, 227) = 2.720$, $p = .004$, $R = .327$. Results of the first step (Model 1; containing only covariates) of the hierarchical multiple regression predicting anxiety were significant (see Table 4). Specifically, being a sophomore was found to predict anxiety positively. The second step of the model (Model 2), which added in the life disturbances predictors (impact of COVID-19, number of enrolled courses, and connectedness) was significant. It accounted for an additional 3.3% of the variance. However, the impact of COVID-19, the number of enrolled courses, and connectedness were not significant predictors. As a result, Hypothesis 1 was not supported.

Hypothesis 2: Life Disturbances Predicting Perceived Stress

A hierarchical multiple regression analysis was used to test if greater COVID-19 impact, more online courses as a result of COVID-19, or lower connectedness predicted higher perceived stress while controlling for covariates, $F(10, 227) = 4.288$, $p < .001$, $R = .399$. Results of the first step (Model 1; containing only covariates) of the hierarchical multiple regression predicting perceived stress was significant (See Table 5). Specifically, the covariate of internet quality negatively predicted perceived stress. The addition of the life disturbance predictors to the model (Model 2) revealed that the impact of COVID-19 positively predicted perceived stress whereas connectedness was a negative predictor. Like anxiety, the number of enrolled courses was not a significant predictor of perceived stress. Overall, these results partially supported Hypothesis 2.

Hypothesis 3: Life Disturbances Predicting GPA

Like mental health outcomes, a hierarchical multiple regression analysis was used to test if greater life disturbances predicted lower GPA while controlling for covariates, $F(10, 92) = 2.062$, $p = .036$, $R = .428$ In the first model, the covariate for college classification (sophomore) negatively predicted GPA (See Table 6). Contrary to expectations, the second model that added the predictor variables of COVID-19 impact, number of courses, and connectedness was not significant in predicting GPA, which did not support Hypothesis 3.

Hypothesis 4: Life Disturbances Predicting Student Engagement

In the final analysis of Aim 1, hierarchical multiple regression was used to test if greater life disturbances significantly predicted lower student engagement while controlling for covariates, $F(10, 227) = 82.41$, $p < .001$, $R = .516$. Overall, the covariates were not significant predictors of student engagement. As expected, connectedness

positively predicted student engagement (see Table 7). Contrary to expectations, number of courses and COVID-19 impact did not predict student engagement, which was in partial support of Hypothesis 4.

Qualitative Analyses-Free Response Items

In the second portion of the first aim, this study examined qualitative data obtained from free-response items on the questionnaire. For Hypothesis 2, it was expected that distinct themes related to feelings or outcomes associated with the COVID-19 pandemic and attitudes related to remote education would emerge. Specifically, students would have reported poorer physical health outcomes, anxiety, stress, and decreased sociability.

Thematic analysis was utilized to examine the qualitative data obtained from the questionnaire through an inductive approach (Braun & Clarke, 2006). This approach emphasized that the themes identified were strongly linked to the data and bore some similarity to grounded theory (Patton, 1990). Transcription was not required because the participants entered all responses into the digital survey. Two undergraduate researchers read through participants' responses to the survey's open-ended questions. To maintain the integrity of the study, these researchers worked independently and only compared findings after their initial analyses were completed. After consensus on the initial coding, their responses were categorized and coded into broad groups. In the third phase, we searched through the coded data to identify hypothesized and new themes.

Previously hypothesized themes included poor physical health, anxiety, stress, and decreased sociability. New themes related to the impact of COVID-19 included

change in spirituality, new life responsibilities, and family conflict. In relation to the positive impact of remote learning, a new theme emerged: the financial benefit of remote education. Conversely, new themes related to the negative impact of remote learning included workload, poor sleep schedule, and poor work ethic.

Within the fourth phase of the thematic analysis, themes were reviewed to ensure they fit the data. To be included in the analysis, themes needed to meet the set criteria. Specifically, each theme was coherent within its own group and distinct from other themes. The fifth phase was characterized by defining and naming the themes included in the analysis. Specifically, we refined the specifics of each theme, as well as generated clear definitions and names. In relation to the impact of COVID-19, the themes, missing out on an important life experience, feeling lonely, and lack of social activities, were paired as sub-themes of decreased sociability to describe a clearer lack of social experience. Furthermore, the themes, financial change, new responsibilities, work change, and lack of access to goods and services, were paired as sub-themes of daily activities to accurately describe the difference in participants' daily lives. Lastly the theme death of loved ones was paired as a sub-theme of poor physical health to describe a complete spectrum of health and death. In relation to the benefit of remote learning, the theme improved focus was paired as a sub-theme of improved learning and academic outcomes to describe the effect on improved academic outcomes. Additionally, the theme more time was paired as a sub-theme of time management and organization to describe the benefit of additional time to participants' academic life. Lastly, the theme financial benefit was paired as a sub-theme of commute to campus to illustrate the multiple facets that reducing the commute benefited participants. In relation

to the negative outcome of remote learning, poor focus, poor work ethic, low motivation, and environmental distractions were paired as sub-themes of lack of engagement to illustrate the disconnect and obstacles felt by participants in their academic responsibilities. The theme poor sleeping schedule was paired as a sub-theme of difficulty to reaffirm the multiple facets of adjustment students in the pandemic were expected to make.

Overall, themes for the analysis were grouped according to the item participants answered on the questionnaire. Specifically, these groups included impact of COVID-19 (see Table 8), positive outcomes related to remote learning (see Table 9), and negative outcomes related to remote learning (see Table 10). In the impact of COVID-19 group, the themes answered from most to least endorsed were decreased sociability, poor mental health, fear of virus and health consciousness, academic impact, personal development, daily activities, poor physical health, uncertain future, and family tension. Similarly, themes identified for the positive impact of remote learning were flexibility and independence, time management and organization, improved comfort, commute to campus, COVID-19 safety, financial benefit, and improved mental health. Lastly, themes related to the negative impact of remote learning were lack of engagement, low quality of learning, environmental distractions, time management, technological difficulties, and workload of courses. Within the study, themes that were endorsed fewer than four times were not included in the thematic analysis.

Themes Related to the Impact of COVID-19

Theme 1: Decreased Sociability. In relation to the impact of COVID-19, the most prominent theme among participants was their decrease in social contact and

interaction with others. One participant acknowledged that *"I'm not really sociable anymore. I hold back from socializing and tend to push others away, which was never the case before…"*. Some participants found that communicating with their classmates had become difficult due to the extended isolation. *"The pandemic has made it harder to communicate with others. Ever (since) starting college, I realize that it is more difficult for me and maybe others to be social and make friends since we're so used to being online for school."* Additionally, some participants indicated that they struggled with missing out on common social activities. *"I missed being able to go out and not have to think twice of everything I was doing. I missed going to church every Sunday, I even missed going to school. Not being able to see your friends and teachers does make a huge impact (on) your social life."* Furthermore, the inability to interact with others appeared to be an effect that lingered after strict quarantines were lifted. *"I mostly stay at home all day when I am not at school. I also became less sociable with others and now tend to keep to myself more often."* Participants' limited social interaction extended to family members that were restricted by travel or age. *"Since I am from Brazil, my whole family lives there and would always come visit, but with the pandemic I have not seen them in two years as they were not allowed to travel (to the United States)."* In addition to the loss of social interaction, some participants indicated they felt deprived of important life events. *"Another way (COVID-19) has impacted my life has been to not be able to experience many things every teenager got to experience before jumping right into college."* Similarly, some participants felt they had missed out on the extracurricular activities they had participated in prior to the pandemic lockdowns. *"…not being able to*

practice that much, not being able to play (in) tennis tournaments" and *"I stopped playing water polo which was a very important part of my high school life."*

Theme 2: Poor Mental Health. Many participants reported that their mental health suffered because of the COVID-19 pandemic. *"My overall mental health spiraled down for the entire year. It was hard not being able to see my friends in person. I lost almost all connections to my friends for an entire year and it was difficult. It was depressing just getting up from bed and starting work"* and *"Nowadays, I get extremely anxious when in a large group setting. Talking to new people on campus is harder as well. Being alone at home is not good mentally because I am the type to distract myself through hanging out with friends, but being alone makes me think more about my issues and led me to overthink a lot of aspects in my life."* One participant felt the monotony of the pandemic contributed to their decrease in mental health. *"It just got to me mentally. I felt more alone at home. Feeling like I was (living) in the same day over and over again."* Additionally, several participants indicated depressive thoughts or actions that were present during their quarantine. *"I felt isolated and depressed"* and *"I started therapy due to my anxiety."*

Theme 3: Fear of virus and health consciousness. Due to the easily transmissible nature of COVID-19, participants developed a fear of being around others in a public setting and contracting the virus. *"It has made me feel unsafe around other people and my own wellbeing"* and *"(COVID-19) made me feel more scared to go to stores."* Similarly, one participant indicated that spending time in social situations was difficult in the pandemic. *"It has made it harder for me to enjoy spending time with other (people) due to being scared of getting sick."* Furthermore, more participants indicated that the

virus made them more aware of their personal health practices. *"I now wash and sanitize my hands and surfaces I am in frequent contact with much more"* and *"It has improved all our hygiene and (learned) to be more careful."* The concern of virus transmission extended beyond the individual. *"(COVID-19) has made me more cautious when it comes to the safety of myself and others"* and *"It impacted how I saw the outside world and made me feel very isolated with (the) lockdown in fear that I would spread the virus to my family."* In addition to immediate health concerns, the fear of the virus altered travel plans as noted by "… c*hoosing a vacation (location) with a high vaccination rate."*

Theme 4: Academic Impact. The additional stress of the pandemic took a toll on participants' academic outcomes and ability to complete assigned work. *"The Coronavirus pandemic has impacted my academic life greatly. I struggle with concentrating on my remote work. It has affected my family's health and my own"* and *"My GPA has extremely decrease(d)."* In addition to the expected difficulty with GPA, the pandemic affected participants' ability to enroll or apply to school. *"(COVID-19) shut down some businesses and groups that were going to give me scholarships, I ended up not being able to pay my first semester and had to take a gap semester…"* and *"My SAT examination got cancelled due to COVID-19 at the last moment, and I had to apply without (an) SAT score."*

Theme Five: Personal Development. Despite the numerous negative impacts of the pandemic, some participants used the lockdown and quarantine periods for self-development and improvement. *"During the pandemic I got a job, car, license, and I started working out."* Many participants indicated that they used this period to develop

new hobbies and set aside time for self-reflection. *"It taught me how to self-motivate, to spend time with family, and how to solve more problems."* Although the transition to remote education was difficult, some learners found that time beneficial. *"… I have learned to better my work ethic from doing school online."* Lastly, one participant indicated greater appreciation for life after the pandemic. *"This pandemic has shown me that anything can happen in a matter of seconds. It has helped me realize that I have to enjoy every moment I have with people, you never know when you will lose them."*

Theme Six: Daily Activities. Along with the threat of illness, the pandemic altered many facets of participants' daily lives. This included their everyday lifestyle, employment and finances, and the influx of new responsibilities. As the pandemic swept across the nation, participants were adjusting to more time at home during mandated lockdowns. Specifically, one participant noted *"(COVID-19) made me get used to staying home all day and having less physical responsibility."* However, significant changes still lingered after the lockdowns were lifted and places of business reopened to the public. *"Definitely moved everything from in-person to online. Now instead of going to Target on a whim, I search for the items I need beforehand and try not to waste time in the store."* In addition to daily adaptations, many participants' sources of income were impacted by COVID-19. *"I had to start learning ways to make passive income because my mother is a high-risk person and can't really go back (to) full time work."* Furthermore, participants who work in the medical field described the changes to the work environment. *"…and also due to workloads (that) are very heavy right now, and short-staffed due to people leaving to do travel nursing."* In addition to the changes with employment, many participants indicated they were tasked with new responsibilities in

their personal lives. *“There are more responsibilities I need to fulfill, like taking care of my siblings.”* Similarly, another participant indicated the perceived roles they were expected to fill at home. *“I had to take a bigger role in caring for my siblings during the pandemic. In a sense, I had to become their teachers, counselor, and parent.”*

Theme Seven: Poor Physical Health. As a result of the pandemic, the physical health of participants and their loved ones were greatly impacted by the virus or stress related to virus. One participant indicated *“My father suffered from a heart attack due to stress from losing his job. His job got rid of his position and laid everyone off with said position. (He) was unable to get a new job, forcing my mom out of retirement to seek employment and causing strife in my household.”* Similarly, another participant commented that the health of their parents deteriorated through the pandemic. *“My father, who (did not have) good health insurance coverage, required oxygen outside of the hospital when he got out and cannot work. My mother, having other health issues, is getting worse palpitations due to stress and is not treated due to the lack of insurance…”* In addition to the decline in physical health, many participants revealed they experienced the death of a loved one during the pandemic. *“(My) grandpa passed away and some family members have also passed away due to COVID.”* For participants who lost a loved one as a result of COVID-19 the pandemic was more difficult to endure. *“I lost a few family members (to COVID-19), including my grandma who was very dear to me. This made the pandemic harder and a lot more personal”* and *“One great-grandmother passed (away) from coronavirus so every time I hear someone in my family got diagnosed with coronavirus, it brings fear to me because I’m always afraid they won’t make it.”*

Theme Eight: Uncertain Future. Due to the frequent changes and disruptions to daily life in the pandemic, participants voiced their concerns about an uncertain future. *"(COVID-19) has caused much anxiety and stress to put my life on pause and (on) the things I enjoy while being uncertain of the future"*. Furthermore, one participant indicated a concern for future public health-related issues. *"Just a general worry (and) anxiety about the handling of future public health crises."*

Theme Nine: Family Tension. In addition to the turmoil of the pandemic, participants experienced tensions from their families and loved ones. *"The coronavirus has caused a lot of rifts between friends and family over regulations, masks, vaccines, etc. It has showed many people's true colors and changed my perspective on who they were before."* As a growing source of strife, the regulations centered around the COVID-19 pandemic provided participants insight to the beliefs of their family and loved ones. *"The coronavirus gave sight to a pre-existing political divide in my family. My conservative, anti-mask, anti-vaccine relatives spread COVID-19 to a great number of members, causing grief and lots of pain that is still being healed."*

Themes Related to the Positive Outcomes of Remote Learning

Theme 10: Flexibility and Independence. Overwhelmingly, most participants indicated the most advantageous aspect of remote learning was the ability to complete work on their schedule, and the independence of being away from a traditional classroom. Although most participants indicated some variation of *"Being able to go at my own pace"* or *"Doing things on my own time"*, some participants went into greater detail of this novel benefit. *"I have more free time to myself, and I am able to do schoolwork that fits around my schedule."* In fact, most participants indicated that the

ability to complete their course work around their other schedules has been beneficial. *"The great thing about distance learning is the ability to participate in class when it is accommodating to my family"* and *"Being able to work on school at anytime during the day or night, as well as choosing days of the week to work on tasks."* While completing coursework at their own pace, one participant indicated a better understanding of the material. *"(A positive outcome was) going on my own pace, more flexibility, and able to grasp more concepts"* and *"I had more academic freedom and time. I was able to work at my own pace."* Overall, participants' ability to work at their own pace has been beneficial to their learning experience. One participant commented *"I have been able to do things at my own pace without feeling like I'm behind or missing something."* In addition to the flexibility of remote learning and setting their own pace, one participant indicated the environment played a pivotal role in their success. "*Remote learning was comfortable in terms of being able to learn in space that's more familiar. It also feels like there is more time to turn in assignments instead of having to turn them in at the end of the class period."*

Theme 11: Time Management and Organization. In general, participants indicated that the transition to remote learning required them to improve their time management skills and organization. During this transitionary time period, participants indicated they were able to learn how to better organize their course work and prioritize their time. *"I was able to train myself to be more self-disciplined when it came to my studies and was able to work on (managing) my time effectively"* and *"I have learned better ways to organize my workload."* Furthermore, remote learning required participants to become more self-controlled. *"Learning remote pushed me to understand*

time management better, also work on self-discipline." In addition to improved self-management, participants indicated the benefit of more time with remote learning. Specifically, participants' most common perceived benefit was *"Saving time."* Overall, the influx of more time was a result of unstructured meeting schedules. *"There is more time to get work done not on a schedule because none of my classes this semester meet at a particular time…"*

Theme 12: Improved Comfort. Overall, the transition to remote learning enabled participants to learn from the comfort of their own home. One participant stated that the most positive aspect of remote learning was *"getting more time with family, learning in a new way, and staying home."* Furthermore, most participants reported that they were at ease without the pressures of attending a traditional lecture. *"(I) don't have to stress about arriving on time to class, (I'm) more comfortable"* and *"I had more freedom to do other things such as studying, reading, and sleeping."* Building on this relaxed ideology, participants indicated they felt more rested with remote learning*. "(I'm) getting more sleep because I don't have to wake up as early to go to class"* and *"I don't have to wake up early and for some (classes) I can choose what time I learn."*

Theme 13: Commute to Campus. Many participants expressed that a benefit of remote learning was the effect on their commute to school. *"I don't have to commute and can start working on homework right away and get to have more free time later."* In fact, most students were pleased to spend less time commuting to campus which allowed them to focus on their coursework. *"Managing my time and allocating it to studying has been easier since time commuting was cut"* and *"I can learn during my own time and not waste time with commuting and being in a classroom learning things*

that could be learned faster at home." In conjunction with reduced travel times, most students indicated their satisfaction with on-campus parking and traffic. Two participants indicated that they were relieved *"not to worry about getting a parking ticket"* or *"not having to drive and look for parking."* Lastly, there was financial benefit to staying home. *"A lot of traveling time and gas money was saved"* and *"As a commuter, it helps me save gas."*

Theme 14: COVID-19 Safety. As a result of the shift to remote learning, participants were able to continue their education without a direct threat of contracting the virus. One participant expressed *"I was able to graduate, less likely to get COVID"* and *"I do not have to worry about getting COVID-19."* In fact, the threat of COVID-19 was not present until the gradual shift back to campus. *"My family didn't get exposed to COVID-19 until we started attending in person."*

Theme 15: Improved Mental Health. Participants indicated that remote learning away from campus gave them time to improve their mental health. *"I was very self-conscious in school, so the amount of (time) we spent in quarantine really allowed me to love myself without comparing myself to others"* and *"I was able to manage my time. I was not as stressed, so my mental health had gotten better."* Although not all participants enjoyed the new learning platform, they were content to be away from the physical classroom. *"For introverts, the alone space is beneficial. I get anxious when I have to go to my one face-to-face class. Although I do not like remote learning that much, it is more comfortable for me. I wish that class was remote."*

Themes Related to the Negative Outcomes of Remote Learning

Theme 16: Lack of Engagement. Overwhelmingly, the most prominent theme related to the negatives of remote learning was the lack of engagement. Along with the decrease in participant engagement, this theme included low motivation, low productivity, environmental distractions, and poor focus. Many participants admitted that their decreased engagement was a result of their learning environment and their ability to communicate with professors and peers. *"(My) internet keeps going out constantly and you can't really ask teachers questions as easily as before. You have to work harder for an answer that you could normally get by raising your hand"* and *"There are a lot of distractions at home. It's much harder to talk to classmates and make connections among your peers. Being in the same environment where you work and relax can be a little confusing at times. It makes it much harder to get the motivation to start working."* Although some participants indicated working from home was beneficial, others did not like the added distractions of home. *"With being in the comfort of my room/home, it's easier to get distracted or procrastinate and much harder to get one-on-one questions answered."* One participant indicated that they did not learn well without the input of instructors in lecture. *"Mostly not being able to be spoken to and taught like I would in a (traditional) class. A majority of remote learning is just getting slides and presentations, but with not a lot of input or personal touch to help me or others benefit. A majority of my peers are confused and having to wait for emails to be answered can waste time."* Other participants indicated the presentation of lectures was detrimental to their learning experience. *"I tend not to comprehend the material well since I am more of a visual (learner). I cannot ask the teachers right then and there. The material does not retain to my brain"* and *"Hard to pay attention and retain knowledge."* Similarly, other participants

indicated they struggled to learn without professor communication. *"You don't get that in-class experience. It is harder to reach your teacher online"* and *"I don't pick up information as well as communicating/asking questions is really difficult."*

Theme 17: Low Quality of Learning. Another prevalent theme among participants was their perceived ability to learn in class and the effect on their academic outcome. Overall, most students indicated that they didn't feel like they were learning or retain any presented course material. *"I don't feel like I'm actually retaining information when I'm watching an online video or zoom call."* Furthermore, some students felt they were responsible for teaching themselves the material or only completing assignments for credit. *"I feel as though I learn less online and am only doing the assignments to get an A"* and *"(it is difficult) Having to teach myself harder subjects. It is much harder to grasp a concept that is difficult when using remote learning."* One student indicated that the instructor's teaching method affected their academic outcome. *"Some instructors do not provide live or recorded lectures. I've done better with the instructors who have live or recorded lectures"*.

Theme 18: Time Management. Participants indicated that poor time management resulted in poor academic outcomes. *"I procrastinated a lot and did not take it seriously"* and *"I was likely to procrastinate when learning remotely."* One participant commented that extra time was detrimental to their learning experience. *"I feel like some negatives would be being lazy, not attending online meetings, and putting off the work for later."* Furthermore, one participant indicated that their overdue assignments negatively predicted their course average. *"(I had) more overdue assignments, slipping grades."*

Theme 19: Technological Difficulties. As a result of the educational transition, participants indicated that they experienced technical issues that hampered their learning experience. *"My internet keeps going out constantly…"* and *"The connectivity and access to proper connection was challenging."* In fact, unreliable internet service predicted student participation. *"Sometimes poor internet access would lead us to not turning in assignments on time"* and *I have had internet connection issues, which may disconnect me from class meetings."*

Theme 20: Workload of Courses. Another perceived barrier to remote learning was the amount of work participants received outside of class. *"Sometimes professors will post lectures that go over the designated 'class time'. Which means I have to do that on my 'own' time"* and *"The amount of work (given) by each teacher can be overwhelming."* Additionally, one student indicated they overwhelmed by the learning materials. *"I learn less and struggle often, I feel like everything is just thrown at me and I can't make sense of the material."* Due to the online platform, participants believed they were assigned more work. *"(I am) being given way more work being online than we had when being in-person."*

Aim Two

Hypothesis 5: Life Disturbances Moderated by Psychosocial Factors on Anxiety

A moderated multiple regression analysis was used to test if the effects of life disturbances were altered by students' psychosocial factors to predict lower anxiety while controlling for covariates, $F(22, 211) = 48.93$, $p = .863$, $R = .581$. Specifically, it was expected that greater resilience, self-compassion, and self-efficacy would buffer the effects of COVID-19 impact, number of courses, and connectedness and result in lower

anxiety. Results of the first step (see Table 11), revealed that sophomore classification in college predicted lower anxiety. In the second step of the analysis, number of courses, COVID-19 impact, and connectedness were entered into the model, and the impact of COVID-19 positively predicted anxiety. As expected in the third step of the analysis, higher resilience and higher self-compassion negatively predicted lower anxiety. Additionally, higher self-efficacy positively predicted greater anxiety. In the final step of the moderated regression, the interaction variables were added into the model, but, contrary to expectations, they did not predict anxiety. Therefore, Hypothesis 5 was not supported by the model.

Hypothesis 6: Life Disturbances Moderated by Psychosocial Factors on Perceived Stress

A moderated multiple regression analysis was used to test if the effects of life disturbances were altered by students' psychosocial factors to predict lower perceived stress while controlling for covariates, $F(22, 211) = 6.269$, $p < .001$, $R = .629$. Specifically, it was expected that greater resilience, self-compassion, and self-efficacy would buffer the impact of life disturbances and result in lower perceived stress. In the first step, higher quality of internet service predicted lower perceived stress (see Table 12). As expected, COVID-19 impact positively predicted perceived stress where connectedness was a negative predictor of stress. In the third step of the moderated regression, the moderator variables of resilience, self-compassion, and self-efficacy were added into the model. As expected, higher resilience and higher self-compassion predicted lower perceived stress. Contrary to expectations, the interaction variables in

the final step of the moderated regression did not contribute to the prediction of perceived stress. As a result, Hypothesis 6 was not supported by the model.

Hypothesis 7: Life Disturbances Moderated by Psychosocial Factors on GPA

A moderated multiple regression analysis was used to test if the effects of life disturbances were altered by students' psychosocial factors to predict higher GPA while controlling for covariates, $F(22, 79) = 1.116$, $p = .349$, $R = .487$. Specifically, it was expected that greater resilience, self-compassion, and self-efficacy would buffer the impact of life disturbances and result in higher GPA. Of the covariates in the first step of the moderated multiple regression predicting GPA (see Table 13), the covariate of college classification (Sophomore) negatively predicted GPA. In the second step of the analysis, number of courses, COVID-19 impact, and connectedness were entered into the model but did not contribute to the prediction of variability in GPA. In the third step of the moderated regression, the moderator variables of resilience, self-compassion, and self-efficacy were added into the model but did not account for additional variance. Likewise, inclusion of the interaction variables in the final step did not contribute to the variance in GPA. Therefore, no support for this hypothesis was found.

Hypothesis 8: Life Disturbances Moderated by Psychosocial Factors on Student Engagement

In the final model of Aim 2, a moderated multiple regression analysis was used to test if the effects of life disturbances were altered by students' psychosocial factors to predict higher student engagement while controlling for covariates, $F(22, 211) = 5.071$, $p < .001$, $R = .588$. Specifically, it was expected that greater resilience, self-compassion, and self-efficacy would buffer the impact of life disturbances and result in higher student

engagement. Results of the first step (Model 1; containing only covariates) of the moderated multiple regression did not predict student engagement (see Table 14). As expected, higher levels of connectedness positively predicted higher student engagement. In the third step of the moderated regression, the moderator variables of resilience, self-compassion, and self-efficacy were added into the model. As expected, more self-compassion and greater self-efficacy predicted higher student engagement. In contrast, resilience was not a significant predictor of student engagement. Although the final model was not significant, the results indicated that there was a unique interaction between self-compassion and COVID-19 impact. As a result, this interaction was further probed with the PROCESS macro to run the model and the Johnson-Neyman plot (see Figure 7). This interaction indicated that at the lowest levels of self-compassion, more COVID-19 impact predicted more student engagement. Further, at the highest levels of self-compassion, more COVID-19 impact predicted less student engagement. Overall, these findings did not support the previously proposed hypotheses.

Chapter 4

Discussion

The current study was divided into two separate aims that examined the impact of life disturbances and psychosocial factors on mental health outcomes and academic outcomes in a population of students at a large university in Texas. The study's aims were partially supported, and interpretation of the results focuses on the quantitative and qualitative findings as related to the proposed hypotheses.

Overall, the purpose of Aim 1 was to examine the impact of life disturbances (COVID-19 impact, number of enrollment courses, and reduced connectedness) on mental health (anxiety and perceived stress) and academic outcomes (GPA and student engagement) in university students. An analysis of the data indicated that life disturbances predicted perceived stress and student engagement but did not predict anxiety or GPA. Overall, greater life disturbances were more likely to predict poorer mental health outcomes and less student engagement in the university student population. In general, these findings only partially supported the proposed hypotheses as we believed that greater life disturbances would have predicted all poorer mental health and academic outcomes.

In the second portion of Aim 1 a qualitative analysis was utilized to categorize participants' attitudes toward the impact of COVID-19, positive outcomes of remote learning, and negative outcomes of remote learning. Overall, these analyses produced 20 themes that granted insight into participants' experiences and challenges during the pandemic and their transition to remote education. Based on the analysis, the impact of COVID-19 produced nine distinct themes that reaffirmed the findings in the first portion

of Aim 1. Overwhelmingly, the most common theme among participants was their lack of sociability during the pandemic and subsequent shut down. Participants acknowledged that the pandemic made going out, socializing, and communicating with others difficult. Further, participants indicated that pandemic led to a decrease in their mental health and a general fear of contracting COVID-19. In relation to the positive outcomes of remote learning, six prominent themes were categorized based on students' responses. Overall, participants' responses were not in support of the hypotheses in Aim 1. Rather than missing the connected classroom environment, participants indicated they enjoyed working independently and apart from the university. Lastly, the negative outcomes of remote learning yielded five themes that partially supported the proposed hypotheses in Aim. Contrary to responses in the positive outcome portion, The highest endorsed theme was the lack of engagement with peers and faculty during the pandemic. Further, students indicated their expected workload was too difficult and may have harmed their overall academic performance.

The purpose of Aim 2 was to examine if the effects of life disturbances on mental health and academic outcomes were altered based on university students' psychosocial factors (resilience, self-compassion, and self-efficacy). An analysis of the data indicated that psychosocial factors had unique effects on anxiety, perceived stress, and student engagement but did not predict GPA. Interestingly, self-compassion had the strongest relationship with mental health and academic outcomes. Overall, greater self-compassion was more likely to predict less anxiety, less perceived stress, and greater student engagement. Further, higher resilience was associated with less anxiety among university students. Additionally, the interaction between self-compassion and the

impact of COVID-19 indicated that at the lowest levels of self-compassion, more COVID-19 impact predicted more student engagement whereas at the highest levels of self-compassion, more COVID-19 impact predicted less student engagement. Like Aim 1, these findings were only in partial support of the proposed hypotheses as we asserted that psychosocial factors would buffer the impact of life disturbances on all mental health and academic outcomes.

Quantitative Analyses

Aim 1

To better understand the results of the study, it is pivotal to provide possible explanations for the findings as related to the proposed hypotheses in the study. Although our outcomes of perceived stress were consistent with the literature, the lack of significance related to anxiety was unexpected. Previous research has indicated a positive relationship between COVID-19 impact and perceived stress. In general, the impact of COVID-19 was proven to be a significant predictor of higher perceived stress in the sampled population (Torales et al., 2020). Further, researchers postulated that the adversity university students experienced because of the pandemic resulted in their increased stress over time (AlAteeq, Aljhani, & AlEesa, 2020; Di Fronso et al., 2020). Additionally, students' quality of internet access negatively predicted perceived stress during the pandemic. Previous research has indicated that poor internet quality was a serious barrier among students and faculty that effected the capacity to learn efficiently (Lassoued, Alhendawi, & Bashitalshaaer, 2020; Stelitano et al., 2020). Further, this barrier attributed to students' negative mental health outcomes (Sorgo, Crnkovic, Gabrovec, Cesar, & Selak, 2022) Like previous research, our findings indicated that

connectedness was associated with lower levels of perceived stress (Nitschke et al., 2020). In general, these social connections were pivotal to decrease poor mental health outcomes (Nitschke et al., 2020). Further, research has indicated that sense of connectedness established before the lockdown predicted stress and wellbeing (Landmann & Rohmann, 2021).

Lastly, the effect of academic workload was not a significant predictor of perceived stress or anxiety in the student population. Despite our lack of findings, previous research has indicated that an increase in student workload had a detrimental effect on student perceived stress (Yang, Chen, & Chen, 2021). A possible explanation of this result was in the perceived difficulty and time commitment of courses during the shift to remote education. As most students indicated that courses were not as robust or time consuming as face-to-face courses, it could have inferred that their workload did not predict stress. Therefore, the increase in free time and less academic stress may not have played a significant role in workload's impact on perceived stress. Due to these factors, researchers have recommended that universities and institutions of higher education focus on these factors when addressing the mental health of their students.

In contrast, the lack of meaningful findings related to anxiety were unexpected. However, this could have been attributed to the time frame in which measures were completed by our participants compared to previous research. Other studies that examined anxiety among college students were conducted at the beginning of the pandemic when there were many unknown factors about the virus and the potentially long-lasting impacts to daily life (Wang et al., 2020; Faisal et al., 2022). An additional

factor to take into consideration was the severity of the lockdowns that students were subjected to endure. Generally, the strictness of the lockdown varied exponentially based on region or country. The areas that students reported greater anxiety were more likely to have stricter guidelines and limited social interaction when compared to the quarantine and lockdown in North Texas (Husky, Kovess-Masfety, & Swendsen, 2020; Fruewirth, Biswas, & Perreira; 2021).

Like mental health outcomes, our expectations for academic outcomes were only partially supported by the results of the study. Although our findings related to student engagement were consistent with previous research, the proposed effect on student GPA was surprising. Overall, the transition to online education was a driving factor in the decline of student engagement. Although not addressed in the current study, similar research has indicated that students were less likely to participate in class discussions and reported a decline in attitudes toward their education (Wester, Walsh, Arrango-Caro, Callis-Duehl, 2021). In contrast, our expectation of GPA was not met in the current study. One explanation for these results could be in the heterogeneous student behaviors during the pandemic. Similar studies have indicated that students' attention to their academic responsibilities varied greatly during the lockdown. Some students increased their study time by more than four hours a week while others decreased their study time by more than five hours each week (Aucejo, French, Araya, & Zafar, 2020). Therefore, these behaviors could potentially cancel out the relationship with the predictors. An additional point of consideration could be the behavior of professors during the early transition to online education. Research has indicated that professors' attitudes toward online education may have potentially predicted their teaching

behavior. Specifically, in their ability to engage students and achieve the desired academic results (Pena et al., 2021). As a result, some faculty may have had positive attitudes and were able to engage with their students, while other faculty members did not. As a result, these varied experiences may have weakened any effects on GPA.

Aim 2

As previously noted, the second aim of this study added psychosocial factors as potential buffers of life disturbances on mental health and academic outcomes. Results of the study indicated that resilience and self-compassion had noteworthy unique effects on the mental health and academic outcomes. Overall, higher resilience predicted lower anxiety and lower perceived stress. Like the results of the current study, previous research has indicated that resilience is a fundamental protective factor to reduce stress and lockdown fatigue among college students that have been impacted by COVID-19 (Ye et al., 2020; Labrague & Ballad, 2021). Further, researchers have recommended that resilience is a factor that needs to be urgently focused on and enhanced to increase mental wellbeing in university students (Vinkers et al., 2020). Next, higher self-compassion was related to lower anxiety, lower perceived stress, and greater student engagement. Overall, self-compassion has been proven to be an essential psychological resource to aid college students coping with adversity (Paucsik et al., 2022). In fact, self-compassion has predicted the trajectory of depression and anxiety symptoms in college students (Liang., 2022). Similarly, self-efficacy was significant predictor of mental health and academic outcomes in this study. Overall, self-efficacy has been shown to be a significant predictor for anxiety in college students. (Alemany-Arrebola, Rojas-Ruiz, Granda-Vera, & Mingorance-Estrada, 2020; Hong et al., 2021).

This relationship has indicated that greater self-efficacy predicted less anxiety and perceived stress (Zeng, Qiu, Alizadeh, & Liu, 2021). Similarly, self-efficacy was proven to have a positive effect on academic outcomes (Aldhahi et al., 2022; Owusu-Agyeman, Andoh, & Lanidune,2021). Given that self-efficacy is specific to an individual behavior, and the current study examined self-efficacy of online learning it may be possible that if we measured self-efficacy of academic outcomes, it could have yielded more unique findings. Lastly, the interaction between self-compassion and COVID-19 indicated that at the lowest levels of self-compassion, more COVID-19 impact predicted more student engagement whereas at the highest levels of self-compassion, more COVID-19 impact predicted less student engagement. Overall, this was unexpected given that previous research has indicated that student engagement declined during the COVID-19 pandemic (Wester et al., 2021). However, a possible explanation for the effect was post traumatic growth among college students. Previous research has indicated that individuals that were willing to discuss their fear (of the pandemic) with others increased their social competence and enhanced their relationships with others (Waters et al., 2021; Frueh, Turner, Beidel, & Cahill, 2001; Kashdan, Julian, Merritt, & Uswatte, 2006).

Qualitative Analyses

In addition to the quantitative data measured in this study, we also utilized free response items to gather participants' attitudes toward the impact of COVID-19, positive outcomes of remote learning, and negative outcomes of remote learning. Overall, these analyses produced 20 themes that granted insight into participants' experiences and challenges during the pandemic and their transition to remote education. In relation to the impact of COVID-19, participants experienced different challenges during the

quarantine and time in isolation. Although participants' perceptions varied, most students felt that they were significantly impacted by COVID-19 whether individually or through a loved one. Interestingly, many participants utilized the time in the pandemic for personal development or felt debilitated for the duration of the early pandemic. Students that expressed greater personal development aligned with the framework of post-traumatic growth (Walton, 2020).

Overall, the positive outcomes of remote learning appeared to revolve around the extra time and independence students were given during the pandemic. Most participants expressed satisfaction with fewer time restrictions due to remote courses, decreased commute time, and more time to be with family and loved ones. Overall, most students expressed that the increased flexibility was a benefit to their learning and wellbeing (Yekefallah, Namdar, Panahi, & Dehghankar, 2021). Furthermore, students were appreciative of the safety precautions employed by the university for their overall health and wellbeing. These findings reiterated the mental health outcomes of anxiety and stress. Additionally, the perceived increase in quality of life was a major factor in their reported satisfaction with remote education (Cofini et al., 2022). As a result, this may have attributed to the effect on student engagement among participants. Lastly, the transition to remote course work allowed students time to focus and improve on their mental health.

In contrast, negative outcomes related to remote learning were centered around technology, workload, and engagement. Overall, students felt that the reliance on technology was detrimental to their learning experience during the pandemic. Most participants cited unreliable internet or lack of access to technology as limitations they

encountered during the semester which made learning and engagement difficult. Overall, this exemplified student engagement among participants. This was expected given that existing literature focused on the pandemic reflected students' dissatisfaction with learning platforms and technology (Maqableh & Alia, 2021). Furthermore, many participants addressed the workload as an obstacle to learning and understanding the material. In fact, many participants felt that they were given too much work and minimal instruction on the assigned material to facilitate their success in the course. These reported feelings exemplified an increase in life disturbances as examined in this study. Finally, participants cited the lack of engagement as the most difficult aspect of remote learning. Students indicated there were several factors that led to their disengagement with course work. Overall, most students felt their participation in courses decrease exponentially, they were easily distracted in their work environment, or they were not motivated to complete any course work. This lack of engagement exemplified a decrease in proposed academic outcomes. Overall, these findings were expected given that students' decreased engagement with professors and peers were pivotal in predicting dissatisfaction in the move to remote education (Sarwar et al., 2020).

Limitations

A primary limitation to this study was the timeline for data collection. As all data were collected in the Fall of 2021, the results may have been different had they been collected at the beginning of the pandemic and the shift to online education. Given that much of the literature reflected the early pandemic, our data may have been different if collected during that time. However, during data collection there was a substantial spike in COVID-19 cases and variants. These uncertainties may have been an advantage as

they replicated the early feelings of uncertainty around COVID-19 and potential shutdowns.

An additional limitation of the current study was the make up of the sampled population. Overall, most of the sample population were Nursing majors at the University of Texas at Arlington and the majority of which were enrolled in an online nursing program. Given that their academic program was comprised of courses that were meant to be taught online, the shift to remote learning was not a drastic life disruption as those courses that were emergency remote teaching (ERT). Generally, temporary ERT courses are the result of an external crisis and are meant to be face-to-face. Therefore, these Nursing students would not have been subject to the emergency protocol of course transition.

Another potential limitation to consider was the structure of the distributed measure given to participants. The measure was an online, self-report survey that could have been prone to bias. Given the length of the survey and the desire to receive course credit, attention bias was a significant concern to the study. However, two attention checks were utilized to minimize this concern and eliminate any bias by removing surveys that did not pass the attention checks. Another potential advantage of the survey was the short length and the online distribution that allowed for greater diversity in the sample.

An additional limitation to consider were the inconsistencies across GPA scales utilized by students and school districts. Although University Analytics provided semester GPA scores, participants also provided their GPA data from high school, prior to 2020, transfer, expected, and overall to ensure a variety of GPA data were collected.

However, students reported prior GPAs on different scales, letter grades, or percentage values. Further, self-reported GPA led to substantial data loss and the preclusion of prior GPA as a covariate in the models. However, to minimize this concern self-reported scores were converted during analyses to ensure that grades were on the same scale for uniformity and consistency.

Another limitation to consider was cross-sectional design of the current study. Although we were able to determine some points of significance between out predictors and outcomes, we cannot be certain that these findings are generalizable as they were collected at the same time point. A final limitation to address was the power of semester GPA. Overall, semester GPA was severely underpowered as only 106 participants consented to have their academic data released by university analytics. This limited data may have contributed to the lack of effects for academic achievement.

Future Directions

While the main objective of this study was to examine the impact of life disruptions caused by distance learning, COVID-19 impact, and connectedness on the mental health and academic achievement of college-level students, the study failed to address the effect on academic achievement. Future studies should continue to examine the efficacy of online education several years after the pandemic. During the initial transition both students and staff were navigating unfamiliar territories that could have attributed to their success or failure. Given that a deeper understanding of online education has been achieved, students may be better equipped to continue their education remotely. A better understanding of this construct would greatly predict the utilization of remote education at higher education institutions worldwide. However, now

that online education has become more commonplace, how have attitudes changed? Have academic outcomes improved or declined?

Additionally, future studies should retrospectively address the traumas that arose from the pandemic and ensuing changes that were enacted. Although we attempted to examine psychosocial factors and academic achievement, other factors may emerge as potential risk factors over time. What other psychosocial factors have emerged as buffers from this tumultuous time? Are specific age groups affected more or less? Does post-traumatic growth play a factor in students' successes?

Further, future studies should examine the direction of classroom instruction after the shift to remote education. Although emergency remote teaching was implemented because of the pandemic, many students preferred the freedom and flexibility during these courses. Given that many students may prefer an online setting, this could create a new shift in educational platforms that leave classrooms empty permanently. How has academic achievement changed since the shift to online education? Do students prefer face-to-face, online, or hybrid instruction? Have instructors adjusted their teaching methods since the shift to online?

Conclusion

Although this study was not able to predict semester GPA, this study was able to reaffirm the significance of psychosocial factors on the wellbeing of college students during one of the most tumultuous times in recent history. Given the novelty of the COVID-19 pandemic, ensuing lockdowns, and abrupt transition of course materials, it was important to ensure that students were not disconnected with school or each other. While we could not definitively state the impact of life disturbances or psychosocial

factors on semester GPA, we found that connectedness, resilience, and self-compassion were pivotal factors on engagement and the management of students' overall mental health. Therefore, it is paramount to ensure that students feel connected with their instructors and peers to maintain their engagement and wellbeing. Despite all the assertions surrounding the pandemic, one definitive truth emerged; the academic world changed in March of 2020 and the effects will be felt for years to come.

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Table 1. Sample Descriptive Statistics for Categorical Sociodemographic Variables (N = 254)

Variables		Count	Percentage
Age			
	17-22	217	85.4
	>22	31	12.2
	Missing	6	2.4
Gender			
	Male	54	21.3
	Female	196	77.2
Race/Ethnicity			
	Caucasian or White	53	20.9
	African American or Black	41	16.1
	Hispanic or Latino	85	33.5
	Asian	57	22.4
	Multiracial	16	6.3
	Prefer not to say	1	.4
	Other: Arab	1	.4
Student Classification			
	Freshman	185	72.8
	Sophomore	20	7.9
	Junior	24	9.4
	Senior	22	8.7
	Graduate	3	1.2
Field of Study			
	Art	5	2.0
	Biology	13	5.1
	Criminal Justice	3	1.2
	Education	2	.8
	Kinesiology	10	3.9
	Engineering	9	3.5
	Nursing	156	61.4
	Psychology	31	12.2
	Undeclared or Undecided	7	2.8
	Other	17	6.7

Table 2: Sample Descriptive Statistics for Academic Variables (*N* = 254)

Variables	*n*	*M*	*SD*	Median	Minimum	Maximum	25th Percentile	75th Percentile	Missing
Current Overall College GPA	211	2.833	1.439	3.50	0.00	4.0	2.80	3.80	43
GPA Prior to 2020	191	3.512	.7421	3.7	0.00	4.0	3.5	3.9	63
Online Courses Taken During COVID-19 Pandemic	253	3.87	4.525	2.00	0	34	1.00	5.00	1
Online Courses Taken Over Academic Career	251	5.12	5.620	4.00	0	34	1.00	7.00	3
Online and Face-to-Face Courses Taken Over Academic Career	251	12.03	13.991	6.00	0	100	4.00	15.00	3
Average Time Spent on Distance Education	254	2.60	.878	3.00	1	4	2.00	3.00	0

Table 3. Zero-Order Correlation Coefficients

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Anxiety	*r*	1.000	.638	-.220	-.183	.131	-.029	-.132	-.403	-.511	-.037	-.134	-.101	.108	-.056	-.145	-.121	-.119
	p		.000	.024	.003	.040	.646	.037	.000	.000	.558	.036	.109	.085	.373	.021	.056	.059
	N	253	253	106	253	246	252	252	253	251	250	247	253	253	253	253	250	253
2. Perceived Stress	*r*	.638	1.000	-.138	-.225	.259	.006	-.172	-.481	-.530	-.116	-.139	-.139	.054	-.033	-.171	-.068	-.161
	p	.000		.158	.000	.000	.920	.006	.000	.000	.068	.028	.027	.394	.600	.006	.286	.010
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254
3. Semester GPA	*r*	-.220	-.138	1.000	.261	-.091	-.146	.131	-.064	-.001	.096	-.194	-.029	-.216	-.116	-.167	-.184	.134
	p	.024	.158		.007	.357	.135	.181	.511	.992	.328	.047	.771	.026	.237	.087	.058	.170
	N	106	106	106	106	104	106	106	106	106	105	105	106	106	106	106	106	106
4. Student Engagement	*r*	-.183	-.225	.261	1.000	-.046	.029	.492	.139	.219	.404	.160	-.052	-.016	.010	.094	.054	.134
	p	.003	.000	.007		.469	.644	.000	.026	.000	.000	.012	.406	.794	.873	.136	.399	.033
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254
5. COVID Impact	*r*	.131	.259	-.091	-.046	1.000	.087	-.072	-.098	-.090	.028	.079	-.143	-.008	.017	.022	.093	-.144
	p	.040	.000	.357	.469		.172	.262	.126	.159	.658	.220	.024	.896	.786	.726	.147	.023
	N	246	247	104	247	247	246	245	247	245	245	241	247	247	247	247	245	247
6. Number of Online Classes	*r*	-.029	.006	-.146	.029	.087	1.000	.098	.123	.060	.128	.247	-.045	.185	.230	.326	.779	-.030
	p	.646	.920	.135	.644	.172		.122	.051	.343	.042	.000	.472	.003	.000	.000	.000	.640
	N	252	253	106	253	246	253	251	253	251	250	248	253	253	253	253	251	253
7. Connectedness	*r*	-.132	-.172	.131	.492	-.072	.098	1.000	.201	.181	.518	.182	.058	.098	.109	.107	.087	.176
	p	.037	.006	.181	.000	.262	.122		.001	.004	.000	.004	.363	.119	.084	.090	.169	.005
	N	252	252	106	252	245	251	252	252	250	249	246	252	252	252	252	249	252
8. Resilience	*r*	-.403	-.481	-.064	.139	-.098	.123	.201	1.000	.561	.235	.177	.171	.127	.087	.125	.173	.129
	p	.000	.000	.511	.026	.126	.051	.001		.000	.000	.005	.006	.044	.165	.047	.006	.039
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254
9. Self-Compassion	*r*	-.511	-.530	-.001	.219	-.090	.060	.181	.561	1.000	.221	.185	.170	.069	.025	.107	.168	.160
	p	.000	.000	.992	.000	.159	.343	.004	.000		.000	.004	.007	.275	.697	.089	.008	.011
	N	251	252	106	252	245	251	250	252	252	249	246	252	252	252	252	249	252
10. Self-efficacy	*r*	-.037	-.116	.096	.404	.028	.128	.518	.235	.221	1.000	.314	.004	.103	.108	.195	.175	.181
	p	.558	.068	.328	.000	.658	.042	.000	.000	.000		.000	.949	.105	.088	.002	.006	.004
	N	250	251	105	251	245	250	249	251	249	251	245	251	251	251	251	248	251
11. Age	*r*	-.134	-.139	-.194	.160	.079	.247	.182	.177	.185	.314	1.000	.100	.090	.215	.562	.307	.146
	p	.036	.028	.047	.012	.220	.000	.004	.005	.004	.000		.115	.155	.001	.000	.000	.021
	N	247	248	105	248	241	248	246	248	246	245	248	248	248	248	248	246	248
12. Male Sex	*r*	-.101	-.139	-.029	-.052	-.143	-.045	.058	.171	.170	.004	.100	1.000	.098	.128	.022	-.069	-.016
	p	.109	.027	.771	.406	.024	.472	.363	.006	.007	.949	.115		.119	.041	.726	.277	.799
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254
13. Sophomore	*r*	.108	.054	-.216	-.016	-.008	.185	.098	.127	.069	.103	.090	.098	1.000	-.094	-.097	.195	.081
	p	.085	.394	.026	.794	.896	.003	.119	.044	.275	.105	.155	.119		.133	.125	.002	.197
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254
14. Junior	*r*	-.056	-.033	-.116	.010	.017	.230	.109	.087	.025	.108	.215	.128	-.094	1.000	-.107	.270	.052
	p	.373	.600	.237	.873	.786	.000	.084	.165	.697	.088	.001	.041	.133		.090	.000	.413
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
15. Senior or Graduate	*r*	-.145	-.171	-.167	.094	.022	.326	.107	.125	.107	.195	.562	.022	-.097	-.107	1.000	.365	.074
	p	.021	.006	.087	.136	.726	.000	.090	.047	.089	.002	.000	.726	.125	.090		.000	.238
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254
16. Credit Hours	*r*	-.121	-.068	-.184	.054	.093	.779	.087	.173	.168	.175	.307	-.069	.195	.270	.365	1.000	.051
	p	.056	.286	.058	.399	.147	.000	.169	.006	.008	.006	.000	.277	.002	.000	.000		.424
	N	250	251	106	251	245	251	249	251	249	248	246	251	251	251	251	251	251
17.Internet Quality	*r*	-.119	-.161	.134	.134	-.144	-.030	.176	.129	.160	.181	.146	-.016	.081	.052	.074	.051	1.000
	p	.059	.010	.170	.033	.023	.640	.005	.039	.011	.004	.021	.799	.197	.413	.238	.424	
	N	253	254	106	254	247	253	252	254	252	251	248	254	254	254	254	251	254

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses.

Table 4. Life Disturbances Predicting Anxiety

Model		B	Std. Error	Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	$\Delta F(7, 230) = 2.634$, $p = .012$, $\Delta R^2 = .074$								
	Age	-0.406	0.738	-0.046	-0.550	.583	-.133	-.036	-.035
	Gender: Male	-0.928	0.476	-0.128	-1.949	.052	-.112	-.127	-.124
	Classification in College: Sophomore	1.750	0.798	0.153	2.192	.029*	.116	.143	.139
	Classification in College: Junior	-0.224	0.769	-0.022	-0.291	.771	-.095	-.019	-.018
	Classification in College: Senior or Graduate	-0.577	0.868	-0.059	-0.664	.507	-.149	-.044	-.042
	Credit Hours	-0.894	0.589	-0.118	-1.517	.131	-.127	-.100	-.096
	Quality of Internet	-0.051	0.034	-0.098	-1.524	.129	-.104	-.100	-.097
2	$\Delta F(3, 227) = 2.778$, $p = .042$, $\Delta R^2 = .033$								
	Age	-0.396	0.737	-0.045	-0.537	.592	-.133	-.036	-.034
	Gender: Male	-0.796	0.475	-0.110	-1.677	.095	-.112	-.111	-.105
	Classification in College: Sophomore	1.873	0.799	0.164	2.343	.020	.116	.154	.147
	Classification in College: Junior	-0.125	0.765	-0.012	-0.163	.870	-.095	-.011	-.010
	Classification in College: Senior or Graduate	-0.531	0.866	-0.054	-0.614	.540	-.149	-.041	-.038
	Credit Hours	-1.593	0.820	-0.210	-1.942	.053	-.127	-.128	-.122
	Quality of Internet	-0.029	0.034	-0.056	-0.856	.393	-.104	-.057	-.054
	Impact of COVID-19	0.042	0.024	0.113	1.759	.080	.132	.116	.110
	Number of Enrolled Courses	0.850	0.783	0.112	1.086	.279	-.055	.072	.068
	Connectedness	-0.019	0.010	-0.125	-1.910	.057	-.153	-.126	-.120

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; *p <.05, **p <.01.

Table 5. Life Disturbances Predicting Perceived Stress

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1 $\Delta F(7, 230) = 2.855$, $p = .007$, $\Delta R^2 = .080$								
Age	-0.279	0.667	-0.035	-0.418	.676	-.158	-.028	-.026
Gender: Male	-0.720	0.430	-0.110	-1.673	.096	-.111	-.110	-.106
Classification in College: Sophomore	0.741	0.722	0.071	1.026	.306	.064	.068	.065
Classification in College: Junior	-0.255	0.695	-0.028	-0.367	.714	-.054	-.024	-.023
Classification in College: Senior or Graduate	-1.423	0.785	-0.160	-1.814	.071	-.200	-.119	-.115
Credit Hours	-0.097	0.533	-0.014	-0.182	.856	-.079	-.012	-.012
Quality of Internet	-0.070	0.030	-0.147	-2.302	.022*	-.157	-.150	-.146
2 $\Delta F(3, 227) = 7.102$, $p < .001$, $\Delta R^2 = .079$								
Age	-0.386	0.648	-0.048	-0.596	.552	-.158	-.039	-.036
Gender: Male	-0.488	0.418	-0.074	-1.168	.244	-.111	-.077	-.071
Classification in College: Sophomore	0.891	0.703	0.086	1.267	.206	.064	.084	.077
Classification in College: Junior	-0.097	0.673	-0.011	-0.144	.885	-.054	-.010	-.009
Classification in College: Senior or Graduate	-1.279	0.762	-0.144	-1.679	.095	-.200	-.111	-.102
Credit Hours	-0.673	0.722	-0.098	-0.932	.352	-.079	-.062	-.057
Quality of Internet	-0.041	0.030	-0.087	-1.372	.171	-.157	-.091	-.084
Impact of COVID-19	0.079	0.021	0.234	3.740	<.001**	.257	.241	.228
Number of Enrolled Courses	0.605	0.689	0.088	0.878	.381	-.028	.058	.053
Connectedness	-0.021	0.009	-0.148	-2.322	.021*	-.198	-.152	-.141

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; *p <.05, **p <.01.

Table 6. Life Disturbances Predicting Semester GPA

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1 $\Delta F(7, 95) = 2.545$, $p = .019$, $\Delta R^2 = .158$								
Age	-1.571	1.599	-0.108	-0.982	.328	-.191	-.100	-.092
Gender: Male	0.078	0.952	0.008	0.081	.935	-.031	.008	.008
Classification in College: Sophomore	-5.138	1.765	-0.291	-2.912	.004*	-.263	-.286	-.274
Classification in College: Junior	-1.111	1.287	-0.096	-0.864	.390	-.109	-.088	-.081
Classification in College: Senior or Graduate	-2.026	1.782	-0.128	-1.137	.258	-.164	-.116	-.107
Credit Hours	-0.327	1.056	-0.036	-0.309	.758	-.196	-.032	-.029
Quality of Internet	0.094	0.056	0.162	1.692	.094	.139	.171	.159
2 $\Delta F(3, 92) = 0.944$, $p = .423$, $\Delta R^2 = .025$								
Age	-1.832	1.622	-0.126	-1.129	.262	-.191	-.117	-.106
Gender: Male	0.007	0.964	0.001	0.008	.994	-.031	.001	.001
Classification in College: Sophomore	-5.448	1.788	-0.309	-3.048	.003*	-.263	-.303	-.287
Classification in College: Junior	-1.214	1.298	-0.105	-0.935	.352	-.109	-.097	-.088
Classification in College: Senior or Graduate	-1.824	1.804	-0.115	-1.011	.314	-.164	-.105	-.095
Credit Hours	-0.259	1.587	-0.029	-0.163	.871	-.196	-.017	-.015
Quality of Internet	0.076	0.057	0.131	1.336	.185	.139	.138	.126
Impact of COVID-19	-0.051	0.047	-0.105	-1.083	.282	-.084	-.112	-.102
Number of Enrolled Courses	-0.111	1.395	-0.013	-0.080	.937	-.158	-.008	-.008
Connectedness	0.026	0.020	0.128	1.302	.196	.102	.134	.123

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; *p <.05, **p <.01.

Table 7. Life Disturbances Predicting Student Engagement

Model		B	Std. Error	Beta	t	Sig.	Correlations Zero-order	Partial	Part
1	$\Delta F(7, 230) = 1.473$, $p = .178$, $\Delta R^2 = .043$								
	Age	5.005	2.903	0.146	1.724	.086	.162	.113	.111
	Gender: Male	-1.354	1.871	-0.048	-0.724	.470	-.033	-.048	-.047
	Classification in College: Sophomore	-0.184	3.139	-0.004	-0.059	.953	.008	-.004	-.004
	Classification in College: Junior	0.378	3.023	0.010	0.125	.901	.045	.008	.008
	Classification in College: Senior or Classification in College: Graduate	0.419	3.412	0.011	0.123	.902	.093	.008	.008
	Credit Hours	-0.125	2.318	-0.004	-0.054	.957	.057	-.004	-.003
	Quality of Internet	0.241	0.132	0.119	1.822	.070	.139	.119	.118
2	$\Delta F(3, 227) = 23.045$, $p < .001$, $\Delta R^2 = .223$								
	Age	3.622	2.582	0.105	1.403	.162	.162	.093	.080
	Gender: Male	-1.919	1.664	-0.069	-1.153	.250	-.033	-.076	-.066
	Classification in College: Sophomore	-3.121	2.801	-0.070	-1.114	.266	.008	-.074	-.063
	Classification in College: Junior	-1.418	2.681	-0.036	-0.529	.597	.045	-.035	-.030
	Classification in College: Senior or Graduate	-0.759	3.035	-0.020	-0.250	.803	.093	-.017	-.014
	Credit Hours	1.109	2.875	0.038	0.386	.700	.057	.026	.022
	Quality of Internet	0.074	0.120	0.036	0.618	.537	.139	.041	.035
	Impact of COVID-19	-0.060	0.084	-0.041	-0.708	.480	-.064	-.047	-.040
	Number of Enrolled Courses	-1.423	2.745	-0.048	-0.518	.605	.026	-.034	-.029
	Connectedness	0.291	0.035	0.489	8.221	<.001**	.496	.479	.467

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; *p <.05, **p <.01.

Table 8. Descriptive Statistics for Themes Related to the Impact of COVID-19

Themes	*n*	Examples
Decreased Sociability	62	"I mostly stay at home all day when I am not at school. I also became less sociable with others and now tend to keep to myself more often."; "The pandemic has made it harder to communicate with others. Ever (since) starting college, I realize that it is more difficult for me and maybe others to be social and make friends since we're so used to being online for school."
Poor Mental Health	48	"It just got to me mentally. I felt more alone at home. Feeling like I was (living) in the same day over and over again."; "My overall mental health spiraled down for the entire year. It was hard not being able to see my friends in person. I lost almost all connections to my friends for an entire year and it was difficult. It was depressing just getting up from bed and starting work"
Fear of Virus and Health Consciousness	40	"It has made me feel unsafe around other people and my own wellbeing"; "It has made it harder for me to enjoy spending time with other (people) due to being scared of getting sick."; "It impacted how I saw the outside world and made me feel very isolated with (the) lockdown in fear that I would spread the virus to my family."
Academic Impact	28	"The Coronavirus pandemic has impacted my academic life greatly. I struggle with concentrating on my remote work. It has affected my family's health and my own"; "(COVID-19) shut down some businesses and groups that were going to give me scholarships, I ended up not being able to pay my first semester and had to take a gap semester…"
Personal Development	28	"During the pandemic I got a job, car, license, and I started working out."; "It taught me how to self-motivate, to spend time with family, and how to solve more problems."
Daily Activities	18	"Definitely moved everything from in-person to online. Now instead of going to Target on a whim, I search for the items I need beforehand and try not to waste time in the store."; "I had to start learning ways to make passive income because my mother is a high-risk person and can't really go back (to) full time work."

Themes	*n*	Examples
Poor Physical Health	18	"My father suffered from a heart attack due to stress from losing his job. His job got rid of his position and laid everyone off with said position. (He) was unable to get a new job, forcing my mom out of retirement to seek employment and causing strife in my household."; "One great-grandmother passed (away) from coronavirus so every time I hear someone in my family got diagnosed with coronavirus, it brings fear to me because I'm always afraid they won't make it."
Uncertain Future	7	"(COVID-19) has caused much anxiety and stress to put my life on pause and (on) the things I enjoy while being uncertain of the future".; "Just a general worry (and) anxiety about the handling of future public health crises."
Family Tension	5	"The coronavirus has caused a lot of rifts between friends and family over regulations, masks, vaccines, etc. It has showed many people's true colors and changed my perspective on who they were before."; "The coronavirus gave sight to a pre-existing political divide in my family. My conservative, anti-mask, anti-vaccine relatives spread COVID-19 to a great number of members, causing grief and lots of pain that is still being healed."

Table 9. Descriptive Statistics for Themes Related to the Positive Outcomes of Remote Learning

Themes	*n*	Examples
Flexibility and Independence	134	"I have more free time to myself, and I am able to do schoolwork that fits around my schedule."; "The great thing about distance learning is the ability to participate in class when it is accommodating to my family"; "Being able to work on school at anytime during the day or night, as well as choosing days of the week to work on tasks."
Time Management and Organization	76	"I was able to train myself to be more self-disciplined when it came to my studies and was able to work on (managing) my time effectively"; "There is more time to get work done not on a schedule because none of my classes this semester meet at a particular time…" ; "Learning remote pushed me to understand time management better, also work on self-discipline."
Improved Comfort	15	"I don't have to wake up early and for some (classes) I can choose what time I learn."; "I had more freedom to do other things such as studying, reading, and sleeping."; "getting more time with family, learning in a new way, and staying home."
Commute to Campus	12	"I don't have to commute and can start working on homework right away and get to have more free time later."; "I can learn during my own time and not waste time with commuting and being in a classroom learning things that could be learned faster at home."; "Managing my time and allocating it to studying has been easier since time commuting was cut"
COVID-19 Safety	11	"I was able to graduate, less likely to get COVID"; "I do not have to worry about getting COVID-19."; "My family didn't get exposed to COVID-19 until we started attending in person."
Improved Mental Health	6	"I was very self-conscious in school, so the amount of (time) we spent in quarantine really allowed me to love myself without comparing myself to others"; "I was able to manage my time. I was not as stressed, so my mental health had gotten better."

Table 10. Descriptive Statistics for Themes Related to the Negative Outcomes of Remote Learning

Themes	*n*	Examples
Lack of Engagement	116	"(My) internet keeps going out constantly and you can't really ask teachers questions as easily as before. You have to work harder for an answer that you could normally get by raising your hand"; "There are a lot of distractions at home. It's much harder to talk to classmates and make connections among your peers. Being in the same environment where you work and relax can be a little confusing at times. It makes it much harder to get the motivation to start working."
Low Quality of Learning	81	"I don't feel like I'm actually retaining information when I'm watching an online video or zoom call."; "Some instructors do not provide live or recorded lectures. I've done better with the instructors who have live or recorded lectures". "I feel as though I learn less online and am only doing the assignments to get an A".
Time Management	24	"I feel like some negatives would be being lazy, not attending online meetings, and putting off the work for later."; "I procrastinated a lot and did not take it seriously" and "I was likely to procrastinate when learning remotely."; "(I had) more overdue assignments, slipping grades."
Technological Difficulties	22	"Sometimes poor internet access would lead us to not turning in assignments on time"; "I have had internet connection issues, which may disconnect me from class meetings."
Workload of Courses	7	"I learn less and struggle often, I feel like everything is just thrown at me and I can't make sense of the material."; "Sometimes professors will post lectures that go over the designated 'class time'. Which means I have to do that on my 'own' time"

Table 11. Predicting the Effects of Life Disturbances Moderated by Psychosocial Factors on Anxiety

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	$\Delta F(7, 226) = 2.526$, $p = .016$, $\Delta R^2 = .073$							
Age	-0.421	0.741	-0.047	-0.568	.571	-.133	-.038	-.036
Gender: Male	-0.883	0.477	-0.123	-1.853	.065	-.110	-.122	-.119
Classification in College: Sophomore	1.722	0.799	0.152	2.154	.032*	.119	.142	.138
Classification in College: Junior	-0.259	0.770	-0.026	-0.336	.737	-.094	-.022	-.022
Classification in College: Senior or Graduate	-0.655	0.872	-0.066	-0.750	.454	-.151	-.050	-.048
Credit Hours	-0.774	0.595	-0.102	-1.300	.195	-.115	-.086	-.083
Quality of Internet	-0.051	0.034	-0.098	-1.509	.133	-.107	-.100	-.097
2	$\Delta F(3, 223) = 3.297$, $p = .021$, $\Delta R^2 = .039$							
Age	-0.464	0.738	-0.052	-0.629	.530	-.133	-.042	-.040
Gender: Male	-0.718	0.474	-0.100	-1.513	.132	-.110	-.101	-.095
Classification in College: Sophomore	1.826	0.798	0.161	2.290	.023	.119	.152	.144
Classification in College: Junior	-0.167	0.764	-0.017	-0.219	.827	-.094	-.015	-.014
Classification in College: Senior or Graduate	-0.666	0.868	-0.067	-0.768	.443	-.151	-.051	-.048
Credit Hours	-1.539	0.822	-0.203	-1.872	.062	-.115	-.124	-.118
Quality of Internet	-0.025	0.034	-0.048	-0.728	.467	-.107	-.049	-.046
Impact of COVID-19	0.051	0.024	0.135	2.071	.040*	.150	.137	.131
Number of Enrolled Courses	0.956	0.785	0.126	1.217	.225	-.043	.081	.077
Connectedness	-0.020	0.010	-0.128	-1.945	.053	-.154	-.129	-.123
3	$\Delta F(3, 220) = 22.902$, $p < .001$, $\Delta R^2 = .211$							
Age	-0.175	0.661	-0.020	-0.265	.791	-.133	-.018	-.015
Gender: Male	-0.022	0.425	-0.003	-0.053	.958	-.110	-.004	-.003
Classification in College: Sophomore	1.680	0.704	0.148	2.388	.018*	.119	.159	.132

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Classification in College: Junior	-0.405	0.674	-0.040	-0.601	.549	-.094	-.040	-.033
Classification in College: Senior or Graduate	-0.790	0.765	-0.080	-1.032	.303	-.151	-.069	-.057
Credit Hours	-0.758	0.734	-0.100	-1.033	.303	-.115	-.069	-.057
Quality of Internet	-0.012	0.030	-0.024	-0.405	.686	-.107	-.027	-.022
Impact of COVID-19	0.028	0.022	0.075	1.293	.197	.150	.087	.072
Number of Enrolled Courses	0.675	0.694	0.089	0.973	.332	-.043	.065	.054
Connectedness	-0.015	0.010	-0.098	-1.455	.147	-.154	-.098	-.081
Resilience	-0.150	0.051	-0.201	-2.962	.003*	-.399	-.196	-.164
Self-Compassion	-2.014	0.370	-0.372	-5.450	<.001**	-.489	-.345	-.302
Self-Efficacy	0.046	0.019	0.167	2.379	.018*	-.070	.158	.132
4 $\Delta F(9, 211) = .515$, $p = .863$, $\Delta R^2 = .015$								
Age	-0.535	0.706	-0.060	-0.757	.450	-.133	-.052	-.042
Gender: Male	0.118	0.442	0.016	0.266	.791	-.110	.018	.015
Classification in College: Sophomore	1.536	0.740	0.135	2.076	.039*	.119	.141	.116
Classification in College: Junior	-0.311	0.698	-0.031	-0.445	.657	-.094	-.031	-.025
Classification in College: Senior or Graduate	-0.700	0.800	-0.071	-0.875	.383	-.151	-.060	-.049
Credit Hours	-0.613	0.761	-0.081	-0.806	.421	-.115	-.055	-.045
Quality of Internet	-0.010	0.031	-0.019	-0.319	.750	-.107	-.022	-.018
Impact of COVID-19	0.023	0.023	0.063	1.015	.311	.150	.070	.057
Number of Enrolled Courses	0.493	0.722	0.065	0.683	.495	-.043	.047	.038
Connectedness	-0.015	0.011	-0.101	-1.426	.155	-.154	-.098	-.080
Resilience	-0.146	0.053	-0.195	-2.761	.006*	-.399	-.187	-.155
Self-Compassion	-2.136	0.390	-0.395	-5.475	<.001**	-.489	-.353	-.307
Self-Efficacy	0.045	0.020	0.163	2.258	.025*	-.070	.154	.126
Resilience X COVID Impact	-0.005	0.007	-0.055	-0.772	.441	-.038	-.053	-.043

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Resilience X Online Education	0.028	0.141	0.015	0.198	.844	.083	.014	.011
Resilience X Connectedness	-0.002	0.002	-0.059	-0.848	.398	-.038	-.058	-.047
Self-Compassion X COVID Impact	0.006	0.043	0.009	0.132	.895	-.069	.009	.007
Self-Compassion X Online Education	-0.117	1.037	-0.009	-0.113	.910	.065	-.008	-.006
Self-Compassion X Self-Efficacy	0.049	0.034	0.101	1.463	.145	.024	.100	.082
Self-Efficacy X COVID Impact	0.001	0.002	0.020	0.313	.754	.019	.022	.018
Self-Efficacy X Online Education	0.041	0.046	0.060	0.910	.364	.030	.063	.051
Self-Efficacy X Connectedness	5.136E-5	0.001	0.004	0.056	.955	.004	.004	.003

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; **p* <.05, ***p* <.01.

Table 12. Predicting the Effects of Life Disturbances Moderated by Psychosocial Factors on Perceived Stress

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	$\Delta F(7, 226) = 2.660$, $p = .012$, $\Delta R^2 = .076$							
Age	-0.184	0.672	-0.023	-0.274	.784	-.140	-.018	-.018
Gender: Male	-0.742	0.432	-0.114	-1.716	.088	-.115	-.113	-.110
Classification in College: Sophomore	0.729	0.725	0.071	1.006	.316	.063	.067	.064
Classification in College: Junior	-0.278	0.699	-0.030	-0.398	.691	-.055	-.026	-.025
Classification in College: Senior or Graduate	-1.321	0.791	-0.147	-1.670	.096	-.182	-.110	-.107
Credit Hours	-0.076	0.540	-0.011	-0.142	.888	-.069	-.009	-.009
Quality of Internet	-0.074	0.031	-0.157	-2.423	.016*	-.167	-.159	-.155
2	$\Delta F(3, 223) = 6.599$, $p < .001$, $\Delta R^2 = .075$							
Age	-0.334	0.655	-0.041	-0.510	.610	-.140	-.034	-.031
Gender: Male	-0.496	0.421	-0.076	-1.176	.241	-.115	-.078	-.073
Classification in College: Sophomore	0.864	0.708	0.084	1.220	.224	.063	.081	.075
J Classification in College: Junior	-0.134	0.678	-0.015	-0.197	.844	-.055	-.013	-.012
Classification in College: Senior or Graduate	-1.249	0.771	-0.139	-1.621	.107	-.182	-.108	.100
Credit Hours	-0.589	0.730	-0.085	-0.806	.421	-.069	-.054	-.050
Quality of Internet	-0.044	0.030	-0.093	-1.441	.151	-.167	-.096	-.089
Impact of COVID-19	0.079	0.022	0.230	3.623	<.001**	.252	.236	.223
Number of Enrolled Courses	0.568	0.698	0.082	0.814	.416	-.025	.054	.050
Connectedness	-0.020	0.009	-0.146	-2.270	.024*	-.193	-.150	-.140
3	$\Delta F(3, 220) = 27.960$, $p < .001$, $\Delta R^2 = .234$							
Age	0.141	0.572	0.017	0.247	.805	-.140	.017	.013
Gender: Male	0.137	0.368	0.021	0.373	.709	-.115	.025	.020
Classification in College: Sophomore	0.737	0.609	0.071	1.209	.228	.063	.081	.064

						Correlations		
Model	Beta	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Classification in College: Junior	-0.314	0.584	-0.034	-0.537	.592	-.055	-.036	-.028
Classification in College: Senior or Graduate	-1.297	0.662	-0.144	-1.959	.051	-.182	-.131	-.104
Credit Hours	0.239	0.635	0.035	0.376	.707	-.069	.025	.020
Quality of Internet	-0.027	0.026	-0.057	-1.032	.303	-.167	-.069	-.055
Impact of COVID-19	0.059	0.019	0.172	3.127	.002*	.252	.206	.165
Number of Enrolled Courses	0.252	0.601	0.037	0.419	.675	-.025	.028	.022
Connectedness	-0.007	0.009	-0.047	-0.732	.465	-.193	-.049	-.039
Resilience	-0.164	0.044	-0.241	-3.735	<.001**	-.465	-.244	-.197
Self-Compassion	-1.808	0.320	-0.368	-5.652	<.001**	-.526	-.356	-.299
Self-Efficacy	0.009	0.017	0.038	0.564	.573	-.174	.038	.030
4 $\Delta F(9, 211) = .372$, $p = .947$, $\Delta R^2 = .010$								
Age	0.105	0.613	0.013	0.171	.864	-.140	.012	.009
Gender: Male	0.120	0.384	0.018	0.314	.754	-.115	.022	.017
Classification in College: Sophomore	0.806	0.642	0.078	1.255	.211	.063	.086	.067
Classification in College: Junior	-0.229	0.606	-0.025	-0.377	.706	-.055	-.026	-.020
Classification in College: Senior or Graduate	-1.161	0.695	-0.129	-1.671	.096	-.182	-.114	-.089
Credit Hours	0.154	0.661	0.022	0.233	.816	-.069	.016	.012
Quality of Internet	-0.026	0.027	-0.055	-0.970	.333	-.167	-.067	-.052
COVID-19 Impact	0.056	0.020	0.164	2.787	.006*	.252	.188	.149
Number of Enrolled Courses	0.191	0.627	0.028	0.306	.760	-.025	.021	.016
Connectedness	-0.005	0.009	-0.039	-0.575	.566	-.193	-.040	-.031
Resilience	-0.174	0.046	-0.256	-3.782	<.001**	-.465	-.252	-.202
Self-Compassion	-1.781	0.339	-0.363	-5.256	<.001**	-.526	-.340	-.281
Self-Efficacy	0.011	0.017	0.046	0.665	.507	-.174	.046	.036
Resilience X COVID Impact	-0.004	0.006	-0.046	-0.679	.498	-.023	-.047	-.036

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Resilience X Online Education	-0.032	0.122	-0.019	-0.265	.791	.005	-.018	-.014
Resilience X Connectedness	-0.002	0.002	-0.065	-0.987	.325	-.106	-.068	-.053
Self-Compassion X COVID Impact	0.007	0.038	0.012	0.186	.853	-.037	.013	.010
Self-Compassion X Online Education	-0.292	0.900	-0.023	-0.324	.746	-.025	-.022	-.017
Self-Compassion X Self-Efficacy	0.019	0.029	0.042	0.645	.520	-.092	.044	.035
Self-Efficacy X COVID Impact	0.001	0.002	0.046	0.738	.462	.067	.051	.039
Self-Efficacy X Online Education	-0.011	0.040	-0.017	-0.269	.788	-.063	-.019	-.014
Self-Efficacy X Connectedness	0.000	0.001	-0.035	-0.507	.613	-.104	-.035	-.027

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; *p <.05, **p <.01.

Table 13. Predicting the Effects of Life Disturbances Moderated by Psychosocial Factors on GPA

Model		B	Std. Error	Beta	t	Sig.	Correlations: Zero-order	Partial	Part
1	$\Delta F(7, 94) = 2.477$, $p = .022$, $\Delta R^2 = .156$								
	Age	-1.596	1.601	-0.110	-0.997	.321	-.190	-.102	-.094
	Gender: Male	0.153	0.957	0.017	0.160	.874	-.027	.016	.015
	Classification in College: Sophomore	-5.178	1.767	-0.295	-2.930	.004*	-.262	-.289	-.278
	Classification in College: Junior	-1.157	1.289	-0.101	-0.897	.372	-.107	-.092	-.085
	Classification in College: Senior or Graduate	-2.112	1.786	-0.134	-1.182	.240	-.162	-.121	-.112
	Credit Hours	-0.162	1.073	-0.018	-0.151	.880	-.183	-.016	-.014
	Quality of Internet	0.093	0.056	0.161	1.670	.098	.139	.170	.158
2	$\Delta F(3, 91) = .847$, $p = .472$, $\Delta R^2 = .023$								
	Age	-1.859	1.627	-.128	-1.143	.256	-.190	-.119	-.109
	Gender: Male	0.071	0.971	0.008	0.073	.942	-.027	.008	.007
	Classification in College: Sophomore	-5.448	1.792	-.310	-3.040	.003*	-.262	-.304	-.289
	Classification in College: Junior	-1.240	1.302	-0.108	-0.952	.344	-.107	-.099	-.090
	Classification in College: Senior or Graduate	-1.887	1.810	-0.120	-1.043	.300	-.162	-.109	-.099
	Credit Hours	-0.141	1.599	-0.016	-0.088	.930	-.183	-.009	-.008
	Quality of Internet	0.076	0.057	0.131	1.327	.188	.139	.138	.126
	Impact of COVID-19	-0.045	0.048	-0.092	-0.944	.348	-.067	-.098	-.090
	Number of Enrolled Courses	-0.104	1.399	-0.012	-0.074	.941	-.147	-.008	-.007
	Connectedness	0.026	0.020	0.129	1.296	.198	.105	.135	.123
3	$\Delta F(3, 88) = .319$, $p = .811$, $\Delta R^2 = .009$								
	Age	-1.984	1.668	-0.137	-1.190	.237	-.190	-.126	-.114
	Gender: Male	-0.128	1.018	-0.014	-0.126	.900	-.027	-.013	-.012

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Classification in College: Sophomore	-5.515	1.866	-.314	-2.956	.004*	-.262	-.301	-.284
Classification in College: Junior	-1.129	1.325	-0.099	-0.853	.396	-.107	-.091	-.082
Classification in College: Senior or Graduate	-1.718	1.848	-0.109	-0.929	.355	-.162	-.099	-.089
Credit Hours	-0.482	1.688	-0.053	-0.286	.776	-.183	-.030	-.027
Quality of Internet	0.069	0.058	0.119	1.178	.242	.139	.125	.113
Impact of COVID-19	-0.045	0.049	-0.090	-0.911	.365	-.067	-.097	-.087
Number of Enrolled Courses	0.138	1.458	0.016	0.095	.925	-.147	.010	.009
Connectedness	0.030	0.025	0.148	1.205	.232	.105	.127	.116
Resilience	-0.059	0.103	-0.068	-0.572	.568	-.019	-.061	-.055
Self-Compassion	0.776	0.814	0.120	0.954	.343	.057	.101	.092
Self-Efficacy	-0.011	0.039	-0.037	-0.290	.773	.076	-.031	-.028
4 $\Delta F(9, 79) = .570$, $p = .818$, $\Delta R^2 = .050$								
Age	-1.954	1.884	-0.135	-1.037	.303	-.190	-.116	-.102
Gender: Male	-0.160	1.100	-0.017	-0.145	.885	-.027	-.016	-.014
Classification in College: Sophomore	-5.242	2.244	-0.298	-2.336	.022*	-.262	-.254	-.230
Classification in College: Junior	-0.906	1.412	-0.079	-0.642	.523	-.107	-.072	-.063
Classification in College: Senior or Graduate	-1.413	1.973	-0.089	-0.716	.476	-.162	-.080	-.070
Credit Hours	-0.921	1.825	-0.102	-0.505	.615	-.183	-.057	-.050
Quality of Internet	0.075	0.062	0.130	1.220	.226	.139	.136	.120
Impact of COVID-19	-0.041	0.058	-0.083	-0.707	.482	-.067	-.079	-.069
Number of Enrolled Classed	0.081	1.618	0.009	0.050	.960	-.147	.006	.005
Connectedness	0.036	0.027	0.180	1.350	.181	.105	.150	.133
Resilience	-0.073	0.114	-0.083	-0.636	.527	-.019	-.071	-.063

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Self-Compassion	0.962	0.942	0.148	1.021	.310	0.57	.114	.100
Self-Efficacy	-0.021	0.045	-0.071	-0.476	.635	.076	-.053	-.047
Resilience X COVID Impact	0.012	0.019	0.094	0.650	.518	-.023	.073	.064
Resilience X Online Education	0.515	0.327	0.218	1.574	.120	.087	.174	.155
Resilience X Connectedness	-0.002	0.006	-0.050	-0.384	.702	-.047	-.043	-.038
Self-Compassion X COVID Impact	-0.203	0.123	-0.236	-1.650	.103	-.069	-.183	-.162
Self-Compassion X Online Education	-3.065	2.591	-0.179	-1.183	.240	-.027	-.132	-.116
Self-Compassion X Self-Efficacy	0.020	0.075	0.039	0.270	.788	-.123	.030	.027
Self-Efficacy X COVID Impact	0.002	0.005	0.042	0.342	.733	-.044	.038	.034
Self-Efficacy X Online Education	0.003	0.100	0.004	0.032	.974	.084	.004	.003
Self-Efficacy X Connectedness	-0.002	0.002	-0.100	-0.769	.444	-.118	-.086	-.076

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; **p* <.05, ***p* <.01.

Table 14. Predicting the Effects of Life Disturbances Moderated by Psychosocial Factors on Student Engagement

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	$\Delta F(7, 226) = 1.507$, $p = .166$, $\Delta R^2 = .045$							
Age	5.129	2.909	0.149	1.763	.079	.170	.117	.115
Gender: Male	-1.175	1.870	-0.042	-0.628	.530	-.028	-.042	-.041
Classification in College: Sophomore	-0.284	3.136	-0.006	-0.091	.928	.011	-.006	-.006
Classification in College: Junior	0.224	3.022	0.006	0.074	.941	.049	.005	.005
Classification in College: Senior or Graduate	0.329	3.423	0.009	0.096	.924	.099	.006	.006
Credit Hours	0.419	2.336	0.014	0.179	.858	.073	.012	.012
Quality of Internet	0.233	0.132	0.116	1.757	.080	.140	.116	.114
2	$\Delta F(3, 223) = 23.678$, $p < .001$, $\Delta R^2 = .231$							
Age	3.837	2.575	0.111	1.490	.138	.170	.099	.085
Gender: Male	-1.759	1.657	-0.063	-1.062	.290	-.028	-.071	-.061
Classification in College: Sophomore	-3.251	2.785	-0.074	-1.167	.244	.011	-.078	-.067
Classification in College: Junior	-1.598	2.667	-0.041	-0.599	.550	.049	-.040	-.034
Classification in College: Senior or Graduate	-0.650	3.030	-0.017	-0.214	.830	.099	-.014	-.012
Credit Hours	1.815	2.871	0.062	0.632	.528	.073	.042	.036
Quality of Internet	0.059	0.120	0.029	0.491	.624	.140	.033	.028
Impact of COVID-19	-0.049	0.085	-0.034	-0.576	.565	-.051	-.039	-.033
Number of Enrolled Courses	-1.647	2.743	-0.056	-0.600	.549	.039	-.040	-.034
Connectedness	0.294	0.035	0.498	8.356	<.001**	.504	.488	.476
3	$\Delta F(3, 220) = 3.941$, $p = .009$, $\Delta R^2 = .037$							
Age	2.145	2.576	0.062	0.833	.406	.170	.056	.047
Gender: Male	-2.115	1.658	-0.076	-1.276	.203	-.028	-.086	-.071
Classification in College: Sophomore	-2.752	2.742	-0.063	-1.003	.317	.011	-.067	-.056

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Classification in College: Junior	-1.256	2.628	-0.032	-0.478	.633	.049	-.032	-.027
Classification in College: Senior or Graduate	-0.578	2.981	-0.015	-0.194	.846	.099	-.013	-.011
Credit Hours	0.282	2.859	0.010	0.099	.922	.073	.007	.006
Quality of Internet	0.019	0.118	0.009	0.160	.873	.140	.011	.009
Impact of COVID-19	-0.044	0.084	-0.030	-0.524	.601	-.051	-.035	-.029
Number of Enrolled Courses	-0.774	2.704	-0.026	-0.286	.775	.039	-.019	-.016
Connectedness	0.233	0.040	0.394	5.802	<.001**	.504	.364	.324
Resilience	-0.113	0.197	-0.039	-0.575	.566	.171	-.039	-.032
Self-Compassion	3.061	1.440	0.146	2.126	.035*	.266	.142	.119
Self-Efficacy	0.178	0.075	0.168	2.382	.018*	.415	.159	.133
4 $\Delta F(9, 211) = 1.200$, $p = .296$, $\Delta R^2 = .033$								
Age	2.728	2.713	0.079	1.005	.316	.170	.069	.056
Gender: Male	-2.450	1.699	-0.088	-1.442	.151	-.028	-.099	-.080
Classification in College: Sophomore	-3.500	2.842	-0.080	-1.232	.219	.011	-.084	-.069
Classification in College: Junior	-0.641	2.681	-0.016	-0.239	.811	.049	-.016	-.013
Classification in College: Senior or Graduate	-0.771	3.075	-0.020	-0.251	.802	.099	-.017	-.014
Credit Hours	0.654	2.923	0.022	0.224	.823	.073	.015	.012
Quality of Internet	0.016	0.119	0.008	0.137	.891	.140	.009	.008
Impact of COVID-19	-0.020	0.089	-0.014	-0.222	.825	-.051	-.015	-.012
Number of Enrolled Courses	-1.828	2.772	-0.062	-0.659	.510	.039	-.045	-.037
Connectedness	0.238	0.041	0.402	5.734	<.001**	.504	.367	.319
Resilience	-0.117	0.203	-0.040	-0.575	.566	.171	-.040	-.032
Self-Compassion	3.878	1.499	0.186	2.586	.010*	.266	.175	.144
Self-Efficacy	0.144	0.076	0.136	1.884	.061	.415	.129	.105
Resilience X COVID Impact	0.035	0.026	0.097	1.374	.171	.030	.094	.077
Resilience X Online Education	0.421	0.540	0.057	0.780	.436	.028	.054	.043

						Correlations		
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
Resilience X Connectedness	-0.004	0.009	-0.033	-0.479	.632	.062	-.033	-.027
Self-Compassion X COVID Impact	-.429	0.166	-0.179	-2.576	.011*	-.087	-.175	-.143
Self-Compassion X Online Education	3.943	3.984	0.074	0.990	.323	.115	.068	.055
Self-Compassion X Self-Efficacy	-0.113	0.130	-0.059	-0.869	.386	.117	-.060	-.048
Self-Efficacy X COVID Impact	0.001	0.009	0.005	0.076	.940	-.037	.005	.004
Self-Efficacy X Online Education	-0.111	0.175	-0.042	-0.635	.526	.093	-.044	-.035
Self-Efficacy X Connectedness	0.004	0.004	0.082	1.157	.249	.189	.079	.064

Note: Female & Freshman were used as the reference group for dummy coding; Square transformation was used to correct variables of internet quality and semester GPA. Log transformation was used to correct variable of number of online courses; *p <.05, **p <.01.

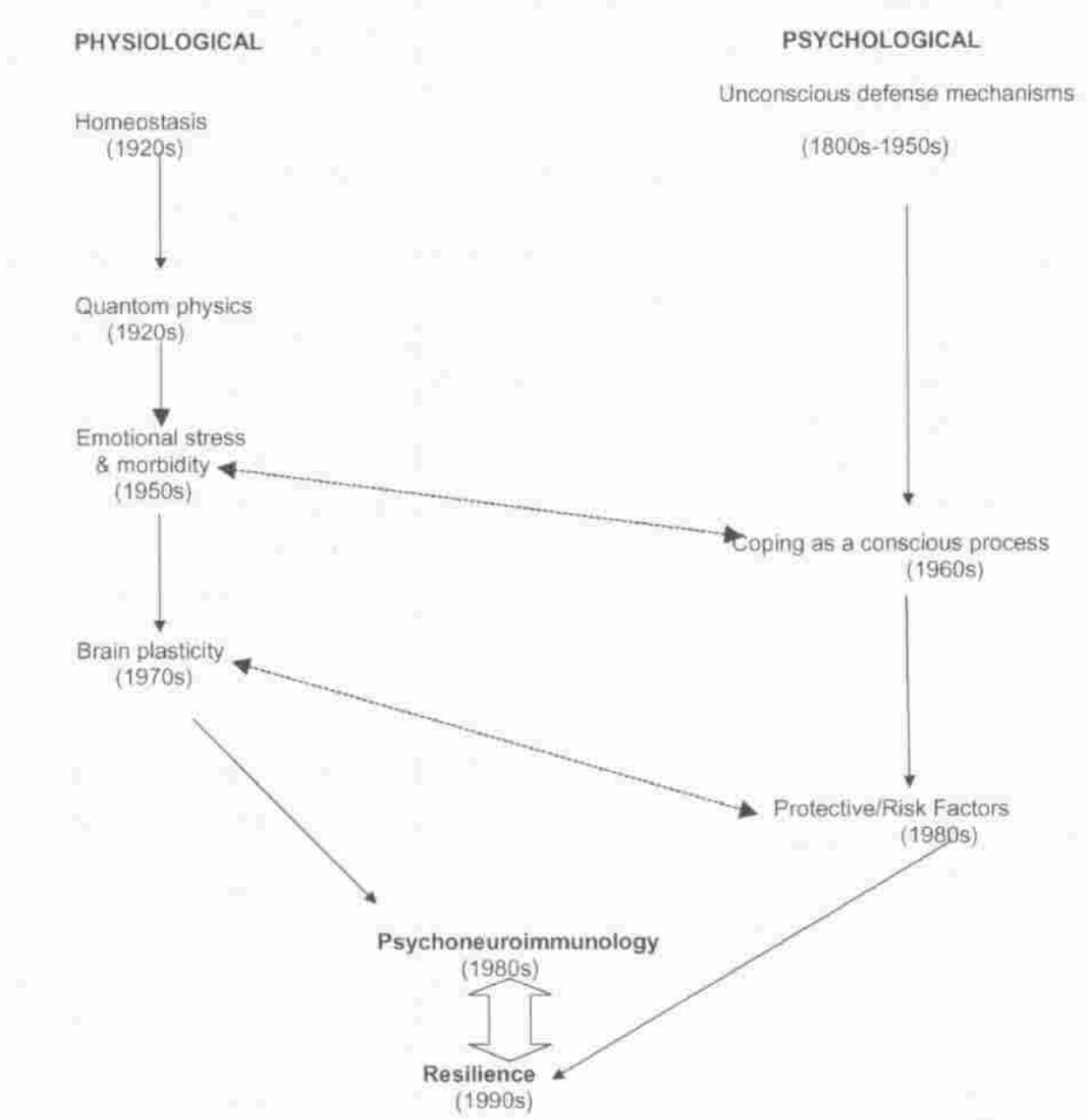

Figure 1. Evolution of the construct of resilience. In Tusaie K, & Dyer J. (2004). Resilience: A historical review of the construct. *Holistic Nursing Practice,* (p.5).

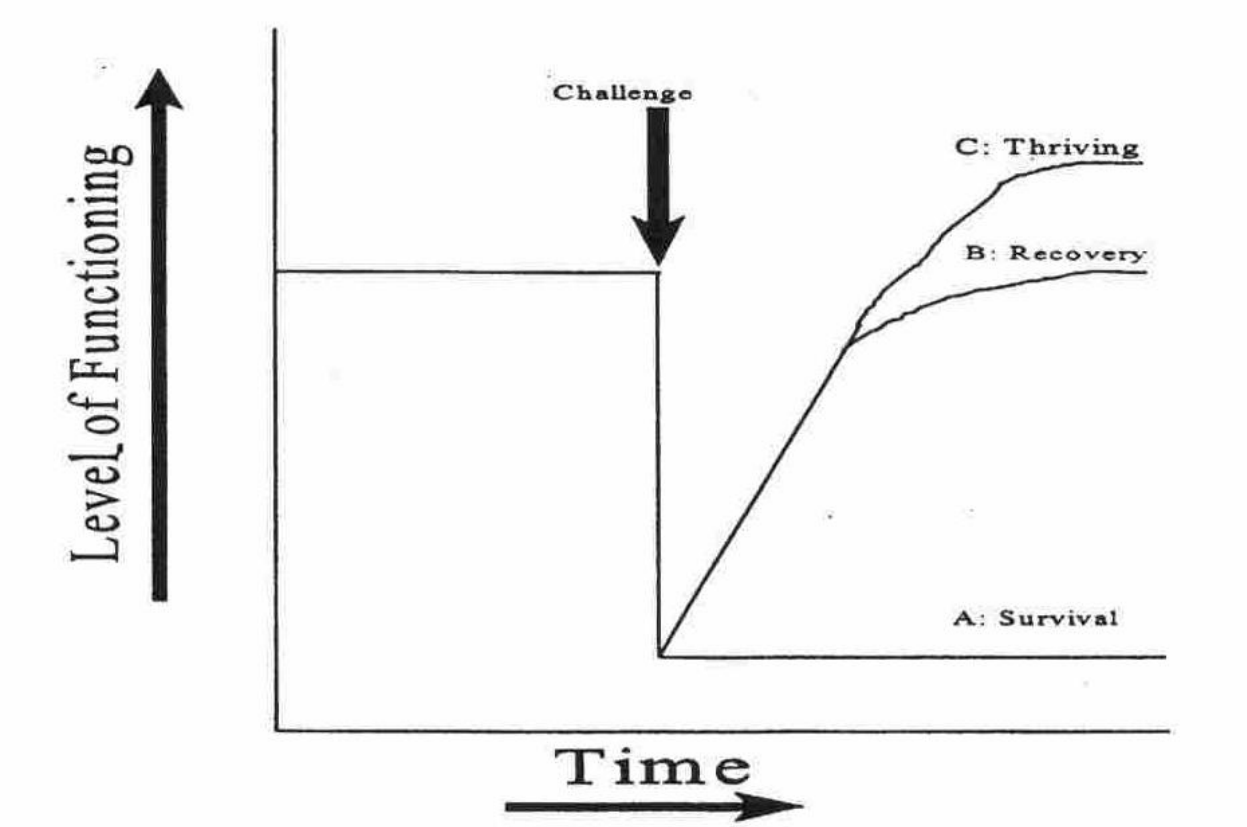

Figure 2. Possible outcomes of challenge as described by O'Leary and Ickovics (1995). In O'Leary (1998). Strength in the face of adversity: Individual and social thriving. *Journal of Social Issues* (p. 430)

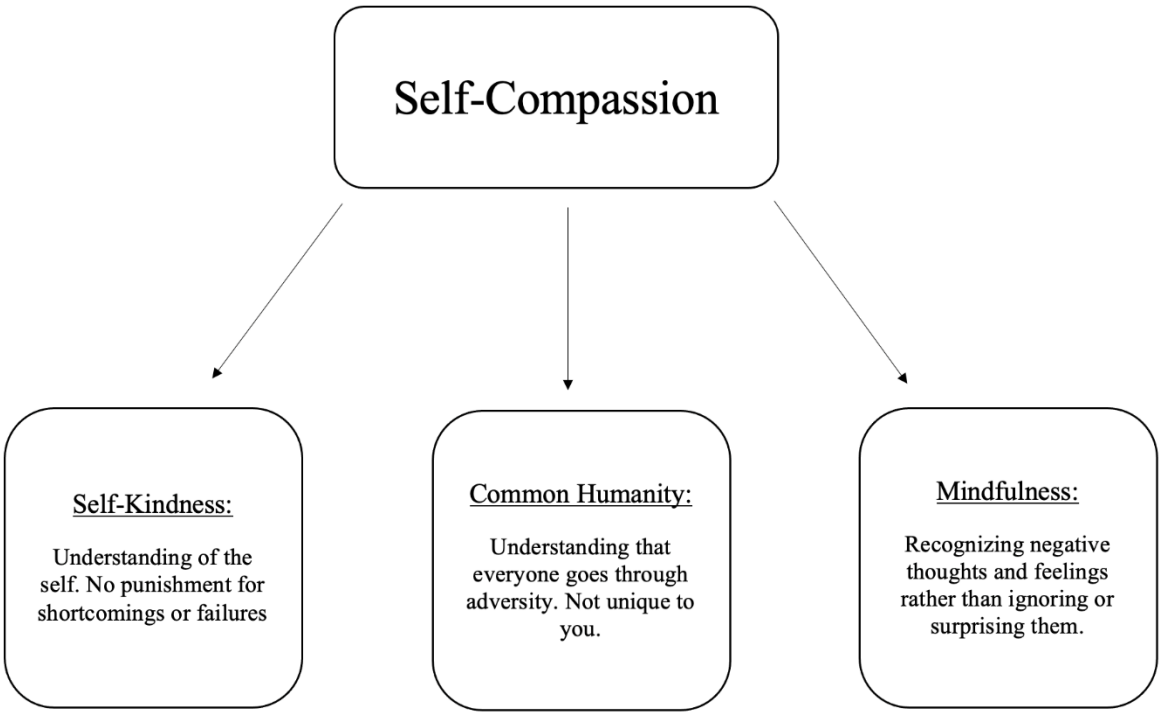

Figure 3. Three elements of self-compassion. Adapted from Neff (2020). Definition and three elements of self-compassion Retrieved from https://self-compassion.org/the-three-elements-of-self-compassion-2/

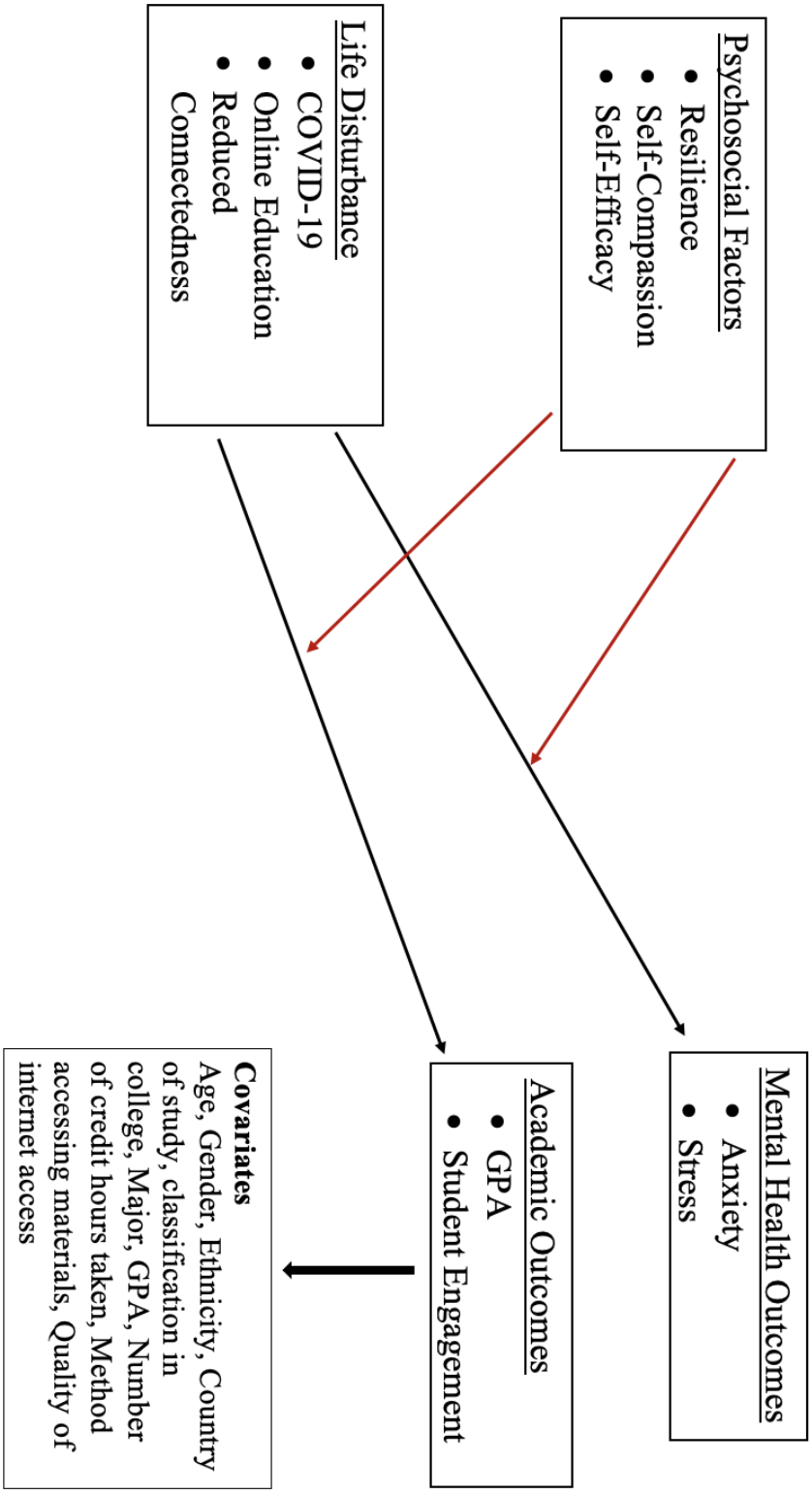

Figure 4. Conceptual Model of Presented Study

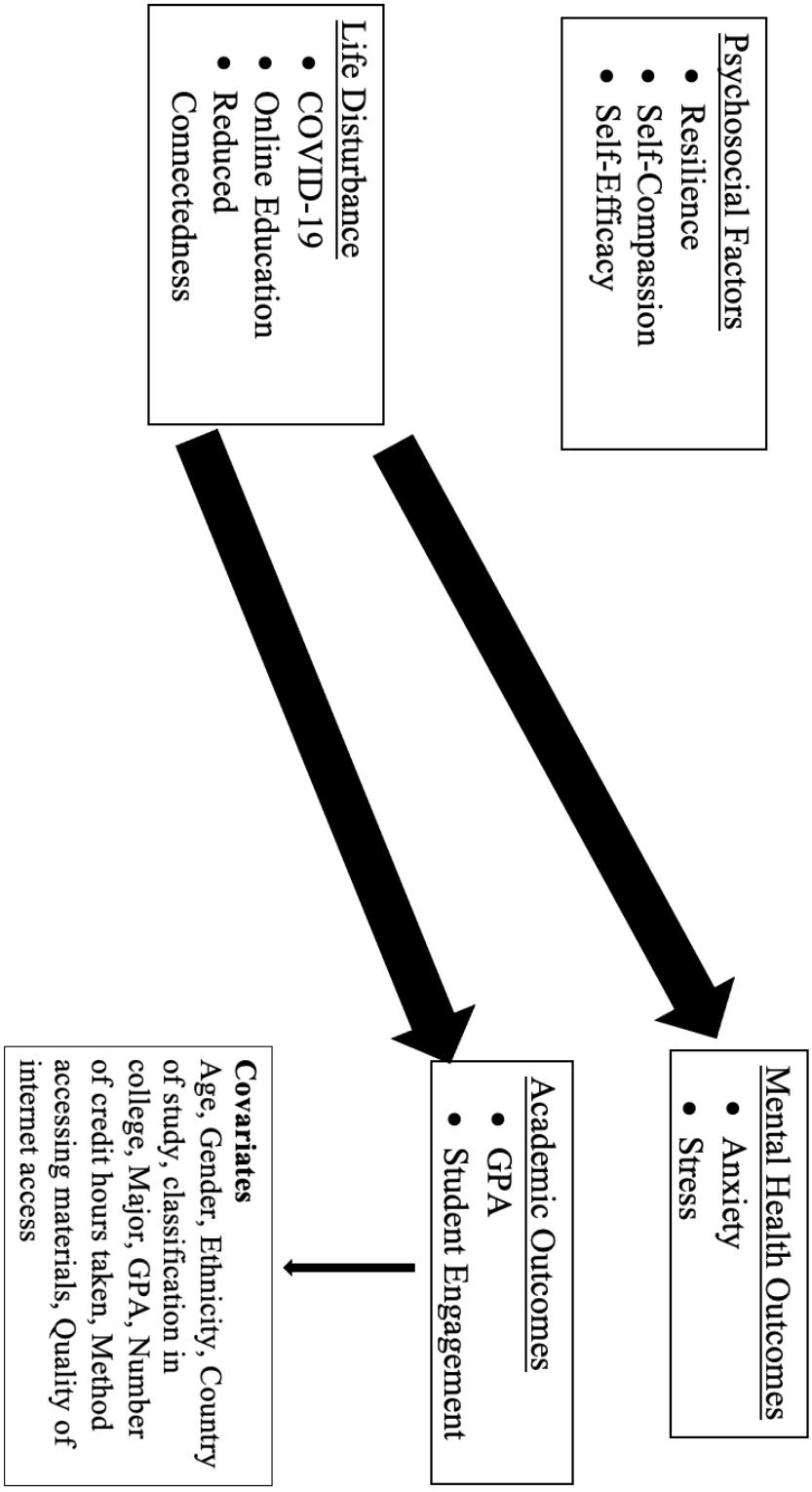

Figure 5: Aim I of Presented Study

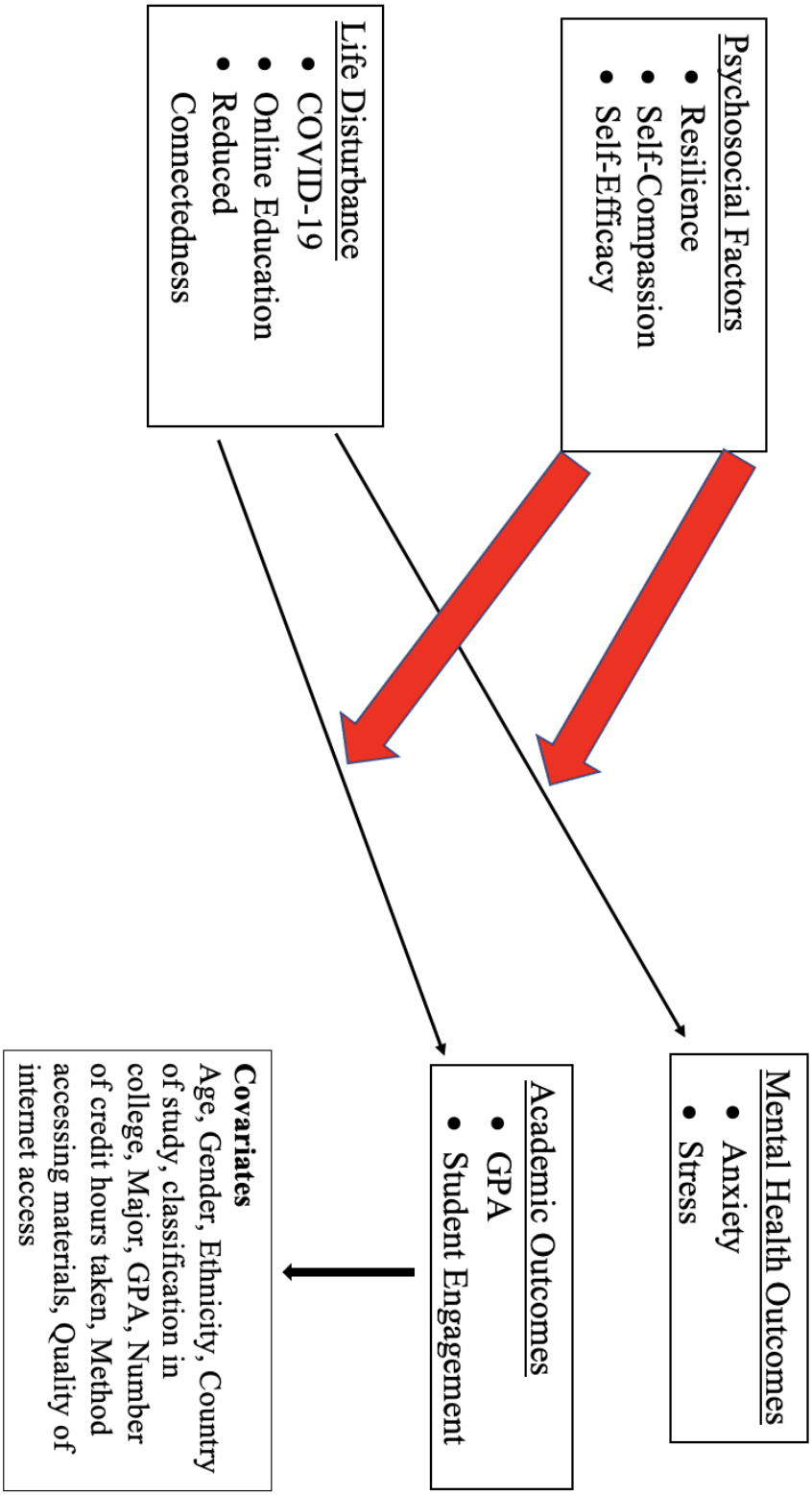

Figure 6: Aim II of Presented Study

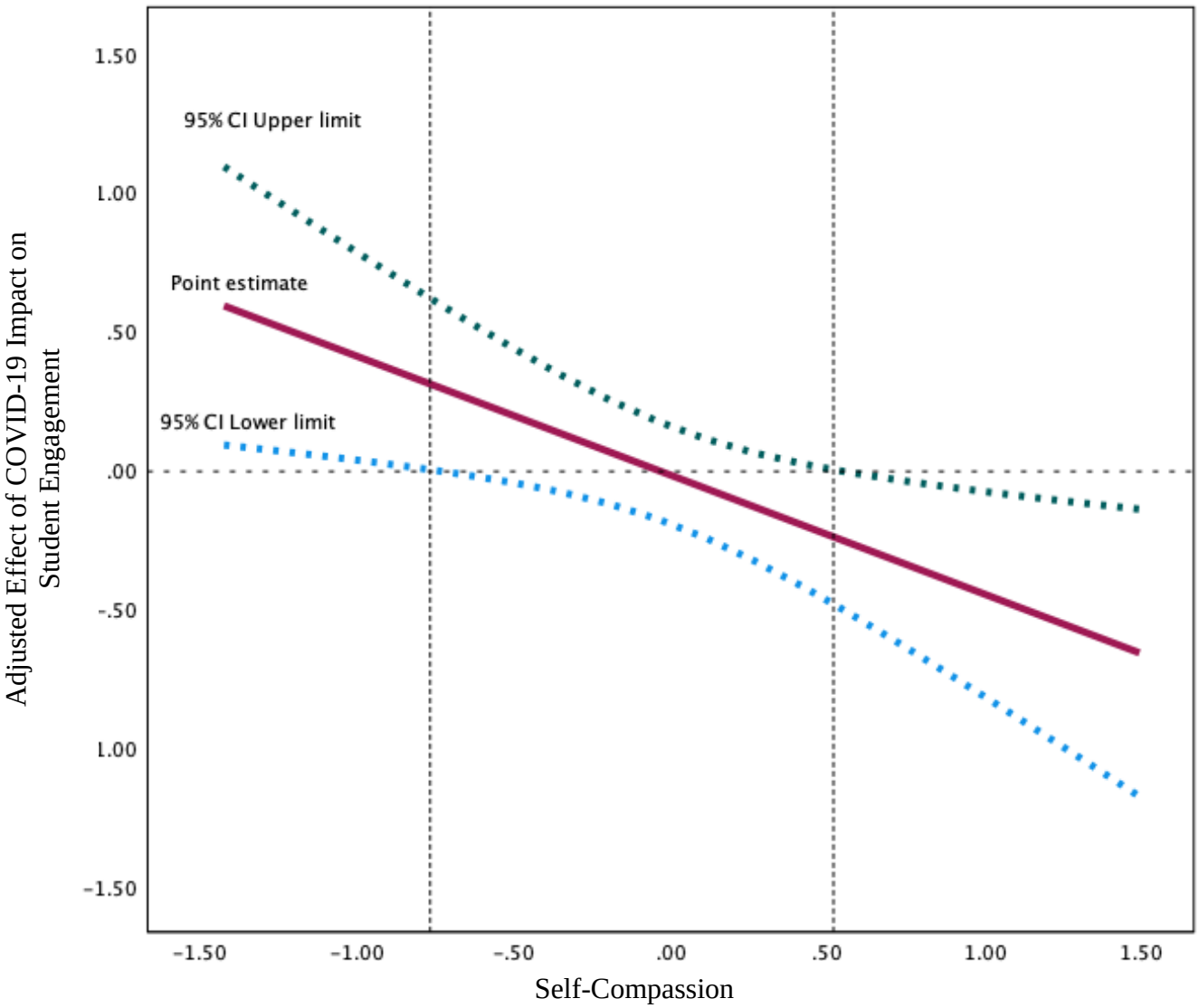

Figure 7: Johnson-Neyman values and CI's. When self-compassion was at the value of -.766 and below (7.692% of the sample), the adjusted effect of COVID-19 on student engagement became significant and more positive as self-compassion decreased. Additionally, when self-compassion was at the value of 0.519 and above (17.094% of the sample), the adjusted effect of COVID-19 impact on student engagement became significant and more negative as self-compassion increased.