Analysis of the Relationship Between Stress, Academic Success, and Self-Efficacy in Undergraduate Students

By

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Author Note

I have no known conflict of interest to disclose.

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Abstract

Previous studies have examined stress' potential impact on undergraduate college student academic outcomes. The existing literature has defined the populations' lived experiences of stress as a significant factor that can often destabilize a student's physical and mental health, as well as detract from a student's ability to achieve targeted goals related to achieving and maintaining academic success. This study examined the potential moderating effect that academic self-efficacy has on the relationship between perceived stress and academic performance. Using the self-care in undergraduates study conducted at the University of Washington, Tacoma, a secondary data analysis was conducted. The self-care in undergraduates study included over 700 participants, with some of the data collected including individual's scores on the Perceived Stress Scale (PSS), the College Academic Self-Efficacy Scale (CASES), and the participants' self-reported grade point average. Moderation analysis determined there was a statistically nonsignificant moderation affect for academic self-efficacy and the relationship between stress and academic performance.

Keywords: Undergraduate students, stress, academic self-efficacy, academic performance

Chapter 1

Within the undergraduate student population, self-esteem and self-efficacy can play an enormous role in the success and overall performance of students. As such, reviewing these factors within this demographic can occasionally function as predictors of their future achievement levels. Basith et al. (2020) noted, "Self-efficacy has a positive relationship and is also a predictor in determining academic achievement. This shows that any improvement in academic self-efficacy will be accompanied by an improvement in academic achievement" (p. 163). This argument posits then, academic growth can be augmented by any form of improvement within academic self-efficacy, and these two premises go hand in hand in their symbiosis. This concept was further supported by Bouih et al. (2021), who identified a core connection and concrete pathway that exemplified a positive impact of self-efficacy on the academic achievement of and, by extension, the overall grade point average (GPA) of undergraduate students within their initial progress.

With these concepts in mind, it is evident the correlation between GPA as the outcome or direct result of academic self-efficacy is being reinforced among undergraduate students. As such, examining this linkage can be beneficial for increasing retention in undergraduate students and reinforcing their upward trajectory within both academic pursuits and the development of their self-esteem, especially at this vulnerable stage. Hence, these ideals are instrumental in creating a solid framework for expanding on these concepts accordingly.

Variable Definitions and Supporting Theories

Stress

The definition of stress varies greatly depending on the context in which it is used. The definition of stress has also changed over time as new theories about the mechanisms of stress

have arisen. One of the earliest recorded definitions of stress comes from Selye's 1956 book *The Stress of Life*, which defined stress as a "non-specific response of the body to a demand" (p. 54). Selye developed the Hans Selye theory of stress, in which he differentiated between acute stress and chronically applied stressors. Selye believed that when an individual is exposed to chronically applied stressors, they respond in three phases. These phases include the initial alarm to the stressor, attempting to maintain homeostasis by resisting the stressor, and finally succumbing to exhaustion from trying to counter the stressor (Selye, 1956).

In addition to differentiating between acute stress and chronically applied stressors, the Hans Selye theory of stress also addressed how individuals may interact with their stressors (Seyle, 1956). Selye (1956) posited that stress is an inevitable fact of life and that it is not always bad as stress can help people grow and evolve. He posited stress becomes a problem when it overtakes the mind and overruns the emotions creating anxiety, neurosis, and acute physical distress as in the case of panic attacks. Selye defined positive stress as "eustress" and negative stress as "distress." Selye identified stress was a malleable psychological state that could be modified and partially controlled by individuals through self-management techniques and therapeutic interventions (Selye, 1956).

In further support of the understanding that stress can be beneficial in the right contexts, Drs. Yerkes and Dodson (1908) developed the Yerkes-Dodson Law to describe the relationship between stress and performance. This law posits that an individual's performance increases when faced with stress but will decrease when the stress level becomes too high. This balance creates an optimal level of stress in which an individual can perform to their greatest capacity. Drs. Yerkes and Dodson found that optimal stress levels varied depending on the complexity of the task, with a moderate level of stress generally being best for performance outcomes (Yerkes

& Dodson, 1908). For the purpose of this dissertation, the conceptual definition of stress is any type of change that causes physical, emotional, or psychological strain, with a stressor being the cause of change.

Self-Efficacy

The concept of self-efficacy was defined by Bandura (1977) as an individual's fundamental belief in their capacity to achieve a goal/task (Heslin & Klehe, 2006). This concept is different from self-confidence as it is rooted in actionable outcomes. An overly self-confident person may ignore results that reflect poorly on their self-concept. Self-efficacy grows with results, and in the domain of performance, "High self-efficacy improves employees' capacity to collect relevant information, make sound decisions, and then take appropriate action, particularly when they are under time pressure" (Heslin & Klehe, 2006, p. 705).

Bandura's (1977) self-efficacy theory was developed as an aspect of social learning (Zulkosky, 2009). This hallmark theory coined self-efficacy as a term reflecting an "'important set of proximal determinants of human motivation, affect, and action' . . . constituting action through motivational, cognitive, and affective intervening processes" (Zulkosky, 2009, p. 94). Defining the range of what a person believes themselves capable of, self-efficacy provides a cognitive ground on which to base developmental goals. Studies of this concept emphasize that the higher a person sets their goals, the higher their levels of personal commitment and motivation will become (Zulkosky, 2009).

Bandura's (1977) theory emphasizes the role of perception on success, as illustrated in his 1986 study. In this study, children were separated into two groups to perform math problems. Bandura (1986) gathered the students' opinions of their math proficiency, and those students who believed themselves to be better at math performed better during the study.

Bandura believed that it is more helpful to overestimate one's self-efficacy than to underestimate it, using it to motivate people to attain higher goals (Zulkosky, 2009). The conceptual definition of self-efficacy used in this dissertation is the extent to which an individual believes they are capable of completing a task or achieving a goal.

Academic Success

Academic success has been loosely defined as meeting a set of agreed-upon standards utilizing task-oriented behavior in which performance is judged against peers (Singh, 2011). Because of this, the GPA was created to measure academic success. High academic achievement has been defined in some cases as a GPA of at least 3.0 (Jiraporncharoen et al., 2015).

Many different elements contribute to academic success. The intrinsic motivation theory is one approach that helps provide lasting improvement in many domains including academic success. Motivation is a complex process, ranging from extrinsic motivations that avoid punishment and seek external rewards, amotivation or inaction, introjected regulation motivations that are responding to internal pressure, identified regulation motivations that are recognizing the value in acting, and intrinsic motivations including action moving from internal drives (Froiland et al., 2012).

Intrinsic motivation supports academic success as it helps to align sustainable personal goals for studies with what a person holds most dear. Froiland et al. (2012) defined the concept as a complex set of self-motivating behaviors that encourage individuals to learn about selected topics of interest. A key example that the authors put forth included a student's willingness to study a topic of interest outside of a formal classroom setting, providing engagement with the material not only as an educational requirement but to provide personal enrichment (Froiland et al., 2012). Along with improved academic outcomes, this motivation supports psychological

health. Morris et al. (2022) noted that intrinsically motivated employees often demonstrate a higher ability to self-manage depression and anxiety when compared to individuals who are primarily motivated by extrinsic rewards. Research has found students with intrinsic motivation to flow and remain deeply focused for longer periods of time. These students have shown higher rates of conceptual learning and overall improved memory (Froiland et al., 2012).

A second theory that helps define academic success is Walberg's (1992) theory of academic achievement. In the 1980s, researcher Walberg performed a large scholarly review of the theoretical and empirical inquiries surrounding the question of what academic achievement is. Walberg defined nine factors critical to student achievement, which are (a) student ability or prior achievement; (b) motivation; (c) developmental level (e.g., age); (d) quantity (or amount of time); (e) quality (or appropriateness) for the student; (f) class environment; (g) the stimulating qualities of the home environment; (h) peer environment; and (i) exposure to mass media, particularly television, outside of school (Ma & Wang, 2001). These factors will help determine the specificity of influence, risk, opportunity, and the various methods of support students of diverse backgrounds will need to succeed. Managing these factors as much as possible will help students reach their potential (Fraser et al., 1987).

Walberg's (1992) theory of academic achievement emphasizes that academic success rests on the shoulders of those shareholders (e.g., parents, educators, administrators, legislators) who support education. Walberg emphasized that academic achievement is a national achievement and that the socioemotional development that occurs in schools is just as important as grades. Improving academic performance must go hand in hand with behavioral support and policies that promote economic justice (Zins et al., 2007). For the purpose of this

dissertation, the conceptual definition of academic performance was an individual's ability to meet standardized performance goals in an academic setting.

Stress and Performance

An aspect to consider is the effect that stress may have and the role it could play in a student's academic performance. Examining the nature of stress is an integral part of understanding its effect on undergraduate students and how it can quickly derail their progress. Bulo and Sanchez (2014) presented the case for college students receiving stress from numerous sources, both internal and external. Bulo and Sanchez (2014) stated:

> College students are exposed to many problems from family, finances, peers, and school environment. These various stressors hamper the successful attainment of his primary and secondary goals. There are common stressors that affect college students: intrapersonal, interpersonal, academic, and environmental stressors. (p. 2362)

Bulo and Sanchez (2014) argued that most of a student's stress is formulated from the collegiate environment and the pressures that traditionally accompany it. Even though this stress can often be debilitating, it is crucial for students to endure the challenge, especially during the first semester of university, persisting in their studies and achieving their goals (Denovan & Macaskill, 2017; Garett et al., 2017). Losing focus and confidence or becoming depressed can throw learners off course and even contribute to a complete withdrawal from their university studies. Equipping students with strategies, techniques, and tools to efficiently overcome or cope with such stressors and strains thus represents an essential area of education. Providing students with these supports can prevent students from succumbing to the stressors they will likely experience in the undergraduate setting.

Likewise**,** academic-related stressors can have a deleterious effect on student progress from a multidimensional perspective. These psychological pressures can be all-encompassing in terms of distracting students' focus and concentration. Denovan and Macaskill's (2017) study of college undergraduates in the United Kingdom identified the complex effects that the population's stress can have on their physical health and dimensions of academic performance. The authors contended that the phenomenon can potentially disrupt healthy sleeping patterns among college undergraduates and increase their risks of engaging in problematic types of alcohol consumption. Stress's impact on a first-year college student's physical and psychological health may disrupt their ability to achieve key academic goals, including the individual's ability to maintain a positive grade point average. The task of helping new college students self-manage the stress that they experience during their freshman year can be viewed as a strategy to promote academic success both.

The connection between stress and academic performance has been documented in several studies. Talib and Zia-ur-Rehman (1970) assessed the ties these topics have to each other, and how the effect of one of these items can correlate with another by stating:

> Perceived stress was found to have a significant negative correlation with academic performance of students. Moreover, the mean stress score among low academic achievers versus high academic achievers as well as low-stress level and high-stress level groups were found to differ significantly. (p. 129)

These results aligned with the concept that stress could deteriorate academic performance at a significant level. Talib and Zia-ur-Rehman (1970) observed:

> Course load, sleep problems, and social activities were the major sources of stress affecting academic performance of the students. In a nutshell, perceived stress was

> found [to be] a principal factor that needs university administration, faculty, and parents' focus on effective psychoanalysis services along with stress management programs that could be useful for achieving academic success. (p. 131)

Although some of these topics are directly associated with the collegiate environment, some have also been linked to external problems and sources. To that end, the student may require resources such as a solid support system of friends, parents, faculty members, advisors, or student mentors and liaisons who could assist them in learning about productive means of identifying stress and formulating strategies to aid in their effective stress management.

Stress does not end in the collegiate environment but instead impacts diverse areas of a student's experience with higher education. The constant pressures associated with exams and major assignments can be considered a significant source of stress for many undergraduates. In their 2006 article, Weekes et al. observed:

> First, the examination stress protocol proved to be an effective trigger of elevations in both psychological measures of stress and cortisol levels. Second, sex differences were observed in cortisol levels, such that males showed an elevation in cortisol during the high examination stress session whereas females did not. . . . These findings suggest that the examination stress protocol used in the present study effectively elevated both psychological stress and cortisol levels. (p. 205)

In this passage, Weekes et al. (2006) demonstrated stress's physical dimensions and its implicit ability to impact a university student's experience with examinations. The authors implicitly indicated that the subjects' heightened cortisol levels made them more vulnerable to hypertension and weight gain. Weeks et al.'s analysis aligns with other studies that identify an empirical link between an individual's experience of stress; the subject's rising cortisol levels;

and their likelihood of developing acute and chronic diseases (Thau et al., 2023). Finally, Weeks et al.'s study demonstrated that stress possesses the potential to disrupt a student's academic performance. Participants who showed increased stress levels during examinations performed more poorly on academic evaluations than those who did not.

Further considerations of stress's academic impact may include the loss or lack of certain abilities by some individuals, such as diminished advanced critical thinking skills or hindered problem-solving abilities. D'Zurilla and Sheedy (1991) reflected on the reduced problem-solving talents in students experiencing elevated stress levels. D'Zurilla and Sheedy (1991) observed, "The results of a hierarchical multiple regression analysis showed that general problem-solving ability was negatively related to later stress, even after prior stress level and several life problems were controlled" (p. 843). This study and the examination by D'Zurilla and Sheedy indicated that a student's problem-solving abilities can be negatively impacted by stress. Additionally, an affected student's critical thinking capacity might also be limited. Both effects could then detract from the student's academic performance. The individual, affected by stress in this manner, would be less able to make important and even life-altering decisions as an undergraduate. Given the impacts that many of these choices could have on an undergraduate's future-term life, appropriate forms of stress-management education could improve their ability to achieve academic and career-related goals.

Depression and anxiety are some of the more natural results of stress and its ramifications. Teh et al. (2015) perceived this fact and presented the findings in their study, as well as how depression and anxiety relate to one another. Although Teh et al. primarily concentrated on medical students for their study, their questions can apply to issues impacting undergraduates. Their findings specifically illustrated a connection between participant stress

levels, individual forms of self-management, and broader-level outcomes. Teh et al. (2015) noted:

> Depression, anxiety, and stress have a high detrimental effect on individuals and society, which can lead to negative outcomes including medical dropouts, increased suicidal tendencies, relationship, and marital problems, impaired ability to work effectively, burnout, and also existing problems of health care provision. With that, there is a need for greater attention to the psychological wellbeing of undergraduate students to improve their quality of life. (p. 8)

With that concept in place, there is a solid relationship between these factors in undergraduate student populations. The effects related to these variables could alter thought processes and decision-making skills and even cause learners to execute harmful choices. These choices could include maladaptive drinking or drug-using habits, withdrawal from the university, or other contrary elections for their future.

In their cross-sectional analysis, Knettel et al. (2021) connected that when a collegiate athletes perceived stress levels were increased, they showed an increased level of alcohol use, recreational drugs, and opioids. Reviewing the outcomes of stress and its impact on those whom it affects, as well as granting it the attention it deserves, is necessary due to the potential ramifications of unaddressed stress; once stress reaches the threshold of feeling overwhelming, it can quickly undermine an individual's personality, demeanor, thoughts, and overall performance. The phenomenon's effects can also interfere with activities such as getting out of bed each day, showering, and going to class or work. Interactions with others can also be impacted, as stress can impede dialogue and effective communication (Hernández et al., 2019).

This dissertation identified the need to view stress as a complex phenomenon that impacts individuals and those within the individual's social and professional networks. The current study examined how stress can exert multidimensional effects that disrupt academic performances among college students. Its singular focus will thus generate implications that can contribute to other examinations of the topic.

Stress and Self-Efficacy

Understanding self-efficacy and how it may play a role in an undergraduate student's psyche and performance is critical for both understanding this issue and grasping the correlation between self-efficacy and stress in an undergraduate student. Choi (2005) referenced self-efficacy as a "form of construct" and tool of social cognitive theory that may be employed as a barometer to determine which students may be academically successful. Likewise, Choi believed that using social constructs in conjunction with items such as criterion variables as a measure of grades, achievement, and probable future success can provide a detailed and fair assessment of student performance. These terms were integral to gaining an understanding of this topic and how it affects learners overall.

The definition of stress appears to be the antithesis of the ideals that contribute to favorable self-esteem and a positive attitude among learners and people in general. Pfeiffer (2001) recognized stress as being pervasive throughout students' lives in several subjects, such as "academic, interpersonal, and environmental" (p. 2). Overall, Pfeiffer recognized most stress instigators as being connected to the student's own life and the changes that impacted them after leaving home and attending school. Pfeiffer (2001) noted, "Many undergraduate students undergo considerable stress due to the demands associated with change: leaving home, becoming independent decision-makers, and competing against new standards" (p. 3). These

major life changes and events can set the stage for students to become stressed, and to feel unable to cope with the items presented in a necessary or effective fashion. As such, the stress may appear to be overwhelming and can cause learners to feel helpless and stymied, unable to regain control of their own lives or to adapt to their new circumstances constructively. Therefore, stress can be an adversarial force and can weaken confidence, academic presentation, and self-esteem. It is crucial to formulate coping methods for undergraduate students experiencing stress as soon as symptoms are recognized.

Although some may argue stress is an ongoing occurrence and part of life regardless of age, it may have an especially prevailing impact on the lives of young adults entering a collegiate environment for the first time, older undergraduate students, and those returning to school after being away for an extended period. This may largely be due to how this life change can define a student's perception of self, which in turn can influence a student's self-esteem and understanding of their own capabilities. Goldman and Wong (1997) concurred with studies that linked self-efficacy, academic ability, self-esteem, and the risks associated with stress to each one of these aspects of a person's life when they stated, "Stress was negatively related with student's self-perceptions in all domains" (p. 117). Stress is shown to be a complex phenomenon that combines external pressures with an individual's internal ability to self-manage their experience of stress. Without effective training, individuals can become vulnerable to stress' psychological and physiological impacts. An absence of insights related to self-care and efficacy strategies can also reduce one's ability to manage their personal stress during acute crises. These aggregate risks can then detract from the quality of a university student's academic performance.

Self-Efficacy and Performance

In 2013, Ouweneel et al. conducted two studies to examine the relationship between students' self-efficacy levels and their academic performance. Basing their study on Bandura's self-efficacy theory, Ouweneel et al. believed there would be a positive correlation between self-efficacy and performance. Ouweneel et al. attempted to manipulate the participants' levels of self-efficacy by providing either positive or negative performance feedback. Their findings indicated changes in self-efficacy correlated with similar changes in performance. Not only did they find participants with increased self-efficacy increased their level of academic performance, they also identified participants whose self-efficacy decreased were at risk to be less engaged and show decreased performance. These findings also indicated self-efficacy can be impacted by the feedback of academic instructors, highlighting a potential area of intervention for students that have low self-efficacy (Ouweneel et al., 2013).

Stress, Self-Efficacy, and Performance

Dumitrescu (2016) noted self-efficacy can combat stress as well as generate a positive relationship with both student academic performance and overall satisfaction within their academic setting. This association can allow self-efficacy to aid in overcoming adverse impacts of stress and build student satisfaction, which can in turn supply the incentives and academic drive students require to attain their goals within a scholastic setting. With increased academic drive, learners are more prepared to attain their academic goals. Dumitrescu emphasized the importance of mental health related to self-efficacy in achieving these goals. Thus, the variables of internal motivation and confidence can enable students to achieve key and measurable performance outcomes. Examples might include the learner's ability to improve their GPA while simultaneously enhancing their self-efficacy and problem-solving capabilities.

Hsieh et al. (2007) highlighted the importance of self-efficacy, presenting that self-efficacy is an essential trait necessary for goal setting and building one's future. Accordingly, self-efficacy can not only affect academic performance and grades but may also figure prominently in areas such as student retention. Students suffering from stress might be confronted with decisions such as whether they should continue their schooling. Hsieh et al. (2007) also stated:

> Self-efficacy refers to peoples' judgments about their abilities to complete a task. Goal orientations refer to the motives that students have for completing tasks, which may include developing and improving ability (proficiency goals), demonstrating ability (performance-approach goals), and hiding lack of ability. (p. 454)

With those values in place, self-efficacy can be a determining factor for self-esteem, learner confidence, and knowledge basis, and can form the cornerstone of academic achievement altogether. Therefore, students with a greater degree of self-efficacy may be better poised to attain scholastic benchmarks than those who do not. Further, external forces such as stress can reduce student confidence and self-esteem. This effect would, in turn, subtract from student self-efficacy. These same effects would then negatively manifest in areas of the student's performance and could include declines in their measured GPA average. Understanding what constitutes stress and how it may diminish student outcomes is key to understanding how to best address it.

In keeping with academic studies and their associated pressures, monetary responsibility can play a vast role in both student academic outcomes and student retention, as well as being a significant stress contributor. Britt et al. (2017) touched on this aspect of student stress as fiscal obligations (including financial aid processes) can pose a significant amount of tension on

individuals and contribute to elevated stress levels. Britt et al. observed that resources such as dedicated counselors who can assist with this process are beneficial in alleviating student fiscal stressors. Learners are tasked with performing critical functions. Among these include the responsibilities of initiating financial aid procedures, filling out paperwork in a timely fashion while meeting deadlines, and attempting to understand how to address guided inquiries.

Some of these questions could potentially create additional levels of stress in applicants as they provide information related to their parents' income. Britt et al. (2017) contended that some students who tend to be strongly impacted by these questions may be at a greater risk of withdrawing or dropping out of university programs. Britt et al., however, additionally noted the presence of guided support programs that provide new college applicants with information related to the financial aid process could enable these students to self-manage their stress and avoid making hasty decisions. This specific issue demonstrates how stress can impact undergraduate college students before they even begin their studies.

Implications and Significance

The argument could be made that everyone experiences stress to one degree or another daily. This observation, however, obscures the significance of specific types of stress that can detract from an individual's ability to obtain their academic or professional goals. The fact that many undergraduate students have not experienced this level of stress prior to attending college creates additional problems. Accordingly, these stressors may represent experiences far removed from the problems they faced during their high school years. An undergraduate's unfamiliarity with this type of stress could rapidly transform into an unmanageable problem. Although stress may be an ever-constant detractor from an undergraduate's academic performance**,** self-efficacy could alleviate some of the detrimental effects it can cause. Stress

impacts the development of one's self-perception. Unfamiliarity in managing specific types of stress can generate an individual's doubt regarding their ability to manage an emerging set of problems. The responsibilities associated with young adulthood represent specific factors that can both generate stress within an individual and detract from their confidence. Self-efficacy, from this perspective, can help an undergraduate learn to balance personal and academic issues and protect them against the threats related to unmanaged stress. This variable may preemptively address self-doubt and the disruptive effects stemming from negative self-perception (Hernández et al., 2019).

In observing self-efficacy's importance, it is helpful to review the research related to combatting and managing stress. Arbona (2016) stated, "College self-efficacy moderated the relation of both college stress and minority status stress to persistence intentions" (p. 11). This idea implies that although grades and GPA may be influenced if stress is present in a student's life, the impact stress has on their overall performance is lessened by the presence of self-efficacy, particularly relating to a persistent mindset in undergraduate students. Additionally, Arbona's (2016) findings echoed the idea that this concept also contributes to a healthy psychological profile for the individual at hand; if a student is performing well, even in light of stressful events, they may be encouraged that their efforts are paying off, whereas a student whose efforts do not appear to be making a favorable impact on their grades or social interactions may feel they are more of a failure (Arbona, 2016).

Arbona (2016) also examined issues students with nondominant identities may face who may feel alienated in addition to their other stressors as an outcome of their race or ethnicity, in turn potentially dividing them from their peers merely because they do not share common

characteristics. Arbona pointed out that many of these students press forward with their efforts despite their obstacles, which aids them in combatting some forms of stress. Therefore, individuals with a stronger sense of resilience may be better equipped to cope with the stressors related to higher education.

Stress and its associated conditions can not only cause cognitive and physical issues but can take a toll on psychological health as well. In many cases, those affected by stress may suffer from a powerful sense of self-doubt, a lack of confidence in their abilities and background, and a fear of intermingling with others due to apprehension over being judged. If left unaddressed, stress may lead to other psychological symptoms as well, such as being afraid to attend classes (or even to leave one's apartment), a fear of talking with others, and a concern of being viewed negatively in those encounters. Cantrell (2016) referenced these symptoms and more within their study and noted how some learners use avoidant strategies as a coping mechanism. In this case, Cantrell presented a situation where students deliberately avoided activities or actions to protect themselves from negative consequences and sustain their confirmed GPA. Along those lines, Cantrell claimed that for students dealing with symptoms, developing an internal sense of control, and improving their self-perceptions would more commonly lead to success. Although Cantrell indicated that self-efficacy is shown to be a key component of maintaining one's GPA, this study diverged from that view. This analysis identified the need for improving an undergraduate's self-efficacy by encouraging their success and protecting them against the types of stress that can detract from their confidence. The study emphasized mental health treatment and support as critical components to an undergraduate's capacity to moderate their stress and gradually enhance their self-efficacy-related capabilities.

As previously mentioned, stress and GPA can have a contentious effect on one another. Being aware of the impact one can have on the other is crucial for comprehending and minimizing the damage stress can cause to a student's GPA and continued participation in classes. Fanning (2016) also touched on the importance of avoiding stress, just as Cantrell (2016) did in their research. Fanning addressed that the ability to avoid stress within the collegiate environment may be close to impossible as stress nearly always accompanies the pressure to excel academically, and many collegiate students are entering into an unfamiliar environment, often with minimal preparation. To that end, these circumstances combined into an aggregate risk could result in a stressful situation causing students to feel helpless, hopeless, or overwhelmed. Self-efficacy could therefore be the force to hold these negative effects of stress at bay and could also serve to sustain an individual's overall health.

Stress has an adverse effect on GPA, student performance, and overall interactions with other people. It also interferes with effective interpersonal communication, critical thinking, and problem-solving skills, and erodes the learner's personality. Foulstone and Kelly (2019) reiterated these same premises and further highlighted the relevance of examining the parallel between each of them to gain mastery over the variables that contribute to student self-efficacy. However, they adopted a slightly different approach in that they posited self-efficacy is not always a solid indicator of academic achievement, but instead can simply be an aspect of a student's personality that is impacted by negativity and stress, causing harmful results that impact the learner's psyche (Foulstone & Kelly, 2019). This observation is intriguing because it appears contradictory to previous findings from other related studies. Moreover, it may indicate a skewed outcome from student surveys and test-takers, such as a bias or an altered viewpoint, which could affect the results away from their actual components (Foulstone & Kelly, 2019).

Regardless of the cause, Foulstone and Kelly's (2019) work still indicated that stress, student performance, and GPA exhibit a potential link. As they also observed, student self-efficacy and personality are closely linked and dependent on each other; although most literary studies and research on this topic would support the viewpoint that the connection between self-efficacy and personality is a strong one, the outlying perspective presented in this study would warrant a more detailed consideration to ensure that no aspect of the discussion was missed or overlooked. Foulstone and Kelly introduced concepts that could grant additional opportunities for ongoing review and examination by other studies and test-takers.

Frazier et al. (2019) contemplated the function stress could have within a student's individual and unique situation and reviewed how it could consequently detract from a student and their GPA. As a part of their analysis, they pointed out, "Students who reported that stress affected their performance had lower GPAs, and reported more stress and lower coping self-efficacy, resilience, and social support" (Frazier et al., 2019, p. 562). Because it has been well established that stress is an integral part of collegiate life in tandem with everyday social interchanges and living tasks, students could potentially become overwhelmed. As such, the relationship between stress and GPA is critical to ensuring proper student progress and scholastic advancement. Frazier et al. also pointed out that stress can sometimes generate situations where students may feel they lack the knowledge or competency to pursue a higher-level degree. In those instances, the student may become depressed or discouraged, impacting their desire to move forward in their endeavors, thereby becoming a loss to the higher education system overall.

First-year undergraduate students may fall prey to this mindset; their lowered self-esteem can pose a significant barrier for this group, which could lead to the abandonment of

their plans and avoidance of school completely (Frazier et al., 2019). Caldwell et al. (2010) supported this notion as well, noting development of regulatory behaviors in the collegiate setting originated from several areas, including self-efficacy, mood, stress, and sleep quality and issues. An imbalance in any of these areas could initiate an adverse reaction in the student in question and detract from their behavior, performance, and even capability to complete daily tasks properly. Caldwell et al. argued in favor of incorporating relaxation techniques and strategies like yoga or comparable movement-based activities that could aid in the reinstatement of self-efficacy in these venues. Through using these tools, students may feel more empowered in their actions and therefore believe they can tackle academic work appropriately, which could uphold student retention and favorable results.

Zajacova et al. (2005) underscored the bond between stress and self-efficacy within the student population. In their studies, they inspected the results of self-efficacy, especially when viewed in the context of academics, and the stress that affected the selected participants of their survey in terms of their college duties, grades, number of credits taken, and whether they opted to remain in college. The negative responses obtained from the questionnaires supported the contention that academic self-efficacy is a form of predicting academic success in the present as well as the near future (Zajacova et al., 2005). This finding coincided with the study commenced by Sandler (2000) who tackled the issue of self-efficacy among students entering or reentering college. Sandler considered the demographic of adult learners, which could experience further difficulties that are not as apparent with younger learners. For instance, Sandler (2000) noted that adult learners face stress within a few prominent areas, most notably "career decision-making self-efficacy (CDMSE), perceived stress and financial difficulty" (p. 537).

In addition, the students surveyed for this program included individuals 24 years of age or older, who were enrolled in 2-year or 4-year degree programs, as opposed to younger pupils who may be attending college directly from high school and as incoming first-year students (Sandler, 2000). Among the results, the clearest and most concerning aspect was career placement and vocational directions, which presented stress for adult learners. This can be viewed in sharp contrast with younger learners, whose primary focus for attending college may not be driven by the same motivations as older learners. Placing a focus on what specifically may be causing an individual's stress and how those concerns could be reconciled before escalating or becoming problematic could be key in student retention and demonstrating that the person can, in fact, be successful in their academic setting. This focus could offer supplemental benefits that incoming learners may require for their self-esteem, confidence, and self-efficacy to continue their success. As such, this backdrop could be helpful for counselors and administrators who seek to aid students in planning and executing their futures through higher education; understanding their possible stumbling points could allow that to happen and potentially prevent the loss of those students.

Some psychological studies and research have reflected that self-efficacy forms during earlier stages of emotional childhood development and develops over stages and different age brackets. Matsushima and Shiomi (2003) referenced this premise in their study, noting that interpersonal stress can take root within adolescents, and then escalate in later interactions once they leave their familiar home environments and move into college. Their new environment would have a diverse span of people, differing cultures and beliefs, and the pressures that accompany grades, academic performance, making new friends, and becoming acclimated to their new homes. To that end, Matsushima and Shiomi (2003) conducted a study in which they

inspected the alignment between adolescent self-efficacy and the types of stress that derive from interpersonal relationships. The study's findings indicated the participants exhibited key differences in terms of how each of the surveyed students contended with stress and reacted to stressful situations. The adolescent years represent a formative basis for the establishment of coping mechanisms, maturity, and responsiveness to challenging scenarios. Accordingly, the ability of teens to develop effective coping and stress-management strategies can be viewed as a critical aspect of the maturation process. Thus, a person's background and support system could be an influence later in life when faced with situations where the student is placed in an unfamiliar setting and expected to perform to high standards. One proactive coping skill that teens may develop includes properly identifying what is expected of them.

Comprehending the curriculum correctly, in tandem with being able to apply it effectively, is a critical part of student academic performance and self-efficacy alike. Prat-Sala and Redford (2012) analyzed the use of formative and summative testing exercises within classes to assess student progress. They placed special emphasis on essay writing and how it could serve as a measure of student learning in either a productive or harmful way, depending on the circumstances involved. Prat-Sala and Redford similarly noted reading and writing can play integral parts in student understanding of class material and that this knowledge base ties into self-efficacy. Prat-Sala and Redford (2012) observed:

> Self-efficacy beliefs have been identified as associated with students' academic performance. The present research assessed the relationship between two new self-efficacy scales (self-efficacy in reading [SER] and self-efficacy in writing [SEW]) and students' writing performance on a piece of assessed written coursework. (p. 9)

According to this observation, Prat-Sala and Redford's (2012) study's outcome revealed connections between reading and writing and mirrored self-efficacy connections, particularly among undergraduates in their first year. Prat-Sala and Redford's statement identified three critical themes. First, the passage identifies the diversity of self-efficacy models that college faculty can use to address their students' academic stress. Second, the authors' arguments implicitly linked these frameworks to improved educational outcomes among college undergraduates. Third, Prat-Sala and Redford correlated the self-efficacy model with its ability to benefit undergraduate students in terms of their stress-management and academic outcomes.

Prat-Sala and Redford (2012) concluded that self-efficacy has a significant impact on students and their ability to cope with and assimilate new materials in their courses. Bilgin et al. (2015) concurred with these findings and contended that student stress-management strategies can enable them to understand complex ideas presented in science courses. Bilgin et al. (2015) used a test to measure the level of data recall and how it connected with self-efficacy, stating, "The Science and Technology Teaching Achievement Test (STTAT) and self-efficacy belief scale (SEBS) were used as pre-and post-test measures. The results showed that students in the [group given stress-management strategies] produced better performance on the Post-SEBS and the Post-STTAT" (p. 475). Moreover, the students involved in the testing exercises expressed favorable feelings regarding the training and their ability to learn based on using these tactics. These skills could reinforce core concepts within learners and aid in building self-efficacy as well.

Student self-efficacy concepts can enable learners to understand complex issues and demonstrate application-based competencies. McMullan et al. (2012) examined this method's application in prerequisite courses related to various majors. They noted many students have

math anxiety due to the subject's complexity. However, math often represents an essential skill across a range of professional disciplines, including nursing. McMullan et al. demonstrated that applied self-efficacy concepts enabled beginning-level nurses to perform critical functions with greater confidence. A mistake in these tasks could cause patient harm, and a lack of self-efficacy could interfere with their ability to perform those functions. Accordingly, it is imperative for nurses to gain the competencies that enable them to calculate dosages and other related medical equations quickly and accurately. According to McMullen et al., self-efficacy measures improved nursing mathematical competencies and enhanced the participant's ability to accurately measure patient dosages.

Similarly, adult and nontraditional learners returning to school may suffer the same anxieties as their younger counterparts in terms of their performances in topics they find challenging. With that in mind, the techniques used with younger students to better acquaint them with mathematics may also be effective in this context. Jameson and Fusco (2014) elaborated on the themes presented by McMullan et al. (2012). Jameson and Fusco identified the correlation between adult learners' self-efficacy and their ability to understand and master complex topics. Jameson and Fusco (2014) observed:

> Adult learners comprise a significant portion of current undergraduate populations, and projections indicate steady or growing numbers of adult learners in the future. Previous research has suggested that adult learners possess lower self-confidence than and face barriers not experienced by traditional undergraduate students. . . . Using data collected from 226 undergraduate students (60 traditional students, 166 adult learners), the current research found that adult learners self-report lower levels of math self-efficacy and higher levels of math anxiety than their traditional peers. (p. 301)

This passage underscores the challenges that impact adult learners and how self-efficacy-related concepts can improve their ability to study previously forgotten material. Jameson and Fusco's emphasis on the role of tutors additionally supports the contention that external forms of support can often assist students who might otherwise struggle with various subjects. Based on these assessments, the aid of tutors for struggling learners can enable them to develop the academic competencies and self-efficacy needed for longer-term academic success. Therefore, offering resources would represent an optimal way of building GPA and self-efficacy simultaneously.

Cheng and Chiou (2010) identified the benefits that preparatory exams can have in terms of ensuring a student's readiness for the field. Cheng and Chiou (2010) observed:

> Correlations were examined between two measures of accounting self-efficacy, achievement goal setting, attributions, and scores on the Accounting Practice Achievement Test obtained 1 yr. apart from 124 freshmen in junior college. Analysis indicated favorable attribution contributed to a higher mean score on accounting self-efficacy. Students with higher perceived self-efficacy performed better on the proficiency tests. Those with higher self-efficacy also set higher goals for subsequent achievement tests. (p. 62)

According to these findings, it may be seen that learners with a higher degree of self-efficacy possessed greater skill levels and had a more defined sense of career and professional goals for their future. These connections make a clear case for self-efficacy and its effect on confidence and test performance, which could favorably affect a student's academic standing and GPA. These measurements reveal the importance of the links between accounting pretests and field-based competencies and how alleviating or easing stress as much as possible can enhance learner

confidence and performance and build on students' overall GPA averages throughout their academic careers.

A review of the preceding findings yielded a set of generalized themes involving the relationship between stress, self-efficacy, and performance. Based on the research presented, this dissertation had four hypotheses:

1. Stress will negatively predict academic performance (GPA) in undergraduate students
2. Stress will negatively predict academic self-efficacy in undergraduate students
3. Academic self-efficacy will positively predict academic performance (GPA)
4. Academic self-efficacy will moderate the relationship between stress and academic performance (GPA) in undergraduate students

Through a collective review of the information gathered, the linkage between academic performance/GPA and stress can be easily noted. Relieving or eradicating that stress from students as much as possible could reduce or eliminate the deleterious effects it may have on their lives, academic abilities, and GPAs. Moreover, as noted in studies such as Cheng and Chiou (2010), those students who already possess a solid and defined sense of self-efficacy have a superior opportunity for success, whereas those whose sense of self-efficacy or self-esteem may be lower will be faced with a larger struggle to reach their desired academic goals or career desires. Self-efficacy represents a crucial variable that enables students to moderate their stress and gain increased confidence as they engage with new and challenging material. In some cases, struggling undergraduates may require external assistance that could help them cultivate the skills necessary to complete challenging coursework. The presence of effective and optimized support programs within a university can thus represent crucial systems that

would enable diverse undergraduates to cultivate the skills necessary to successfully fulfill their courses.

Overall, self-efficacy has an enormous impact on every person it touches. Its partnership with an individual's self-esteem is important as it presents the idea that those with a weaker sense of one or both may not perform as well, either academically or socially, as their colleagues with higher self-efficacy or self-esteem. The concept that self-efficacy can define who may be a more proficient achiever is both impressive and frightening, as it grants insight into a person's psyche and allows an inside perspective on the extent of their intellectual abilities and how well they may perform in a collegiate setting. The importance of self-efficacy and its relationship to stress and the impact it could have on GPA and achievement echelons cannot be overstated and should be a topic of concern for all those who seek to help students perform at their optimal levels, as well as for those who seek to design and implement measures to help those students who are not thriving due to stress.

Chapter 2

Although there has been a significant amount of research on how stress, self-efficacy, and academic performance influence each other, there is still a gap in the existing literature regarding the potential moderating role that self-efficacy may have on the relationship between stress and academic performance. To address this gap in the literature, the following four hypotheses were presented:

1. Stress will negatively predict academic performance (GPA) in undergraduate students
2. Stress will negatively impact academic self-efficacy in undergraduate students
3. Academic self-efficacy will positively predict academic performance (GPA)
4. Academic self-efficacy will moderate the relationship between stress and academic performance (GPA) in undergraduate students

Participants

The sample population for this study consisted of participants from the Self-Care in Undergraduates Study. This population included over 700 undergraduate students from the Pacific Northwest region of the United States. The only exclusion criteria for the participants were that individuals had to be at least 18 years old to participate. Participation was voluntary and confidential, with participants enrolled in the participant pool as part of their undergraduate coursework. Participants were allowed to choose which study to participate in from a selection of studies approved by the University of Washington Tacoma Institutional Review Board (IRB). Participants were offered extra credit for participating in a study.

Materials or Measures

Data collection for this study consisted of archival data collected from the Self-Care in Undergraduates Study. I had no access to any identifying information, as participants in the

original study did not present any. All participants in the original study signed informed consent forms approved by the University of Washington Tacoma IRB, with no participants being deceived or endangered. Data collection was completed using survey methodology, with participants providing information relating to the following demographics: age, ethnicity, sex, religious affiliation, class standing, educational goals, grade point average (GPA) from the previous quarter, cumulative GPA, major GPA, potential status as a first-generation college student, potential status as a returning student, educational major, and how many credits the participant was enrolled in this quarter.

This study examined three variables measured in the Self-Care in Undergraduates Study: academic performance, academic self-efficacy, and stress. Academic performance was measured by GPA, which was self-reported by the participants. Participants provided their GPA on a 0.0–4.0 scale, with 0.0 indicating an average grade of less than 65% and a 4.0 indicating an average grade of 95% or greater.

Academic self-efficacy was measured using Owen and Froman's (1988) 33-item College Academic Self-Efficacy Scale (CASES). Participants indicated their level of confidence in completing stated behaviors using a Likert scale, with (5) indicating 'very little' confidence and (1) indicating 'quite a lot' of confidence. A lower CASES score indicates higher self-efficacy. The internal consistency reliability coefficient, as determined by Cronbach's alpha value, was .827 for all items on the questionnaire (Owen & Froman, 1988).

Stress was measured using Cohen and Williamson's (1988) 10-item Perceived Stress Scale (PSS). Participants responded to statements about subjective experiences related to stress that have occurred over the past month, using a Likert scale to indicate how often they have had those experiences. For this Likert scale, (0) indicates 'never' having that experience in the last

month, whereas (4) indicates 'very often' having that experience in the last month. A higher PSS score indicates a higher level of perceived stress (Cohen & Williamson, 1988). The internal consistency reliability coefficient varies between studies between the values of .74 and .91, with the test-retest reliability score above .70 in all studies (Lee, 2012).

Study Procedures

Design and Data Collection

This study used a secondary data analysis design using archival data. The dataset was collected as part of the Self-Care in Undergraduates Study through the University of Washington Tacoma, with participants responding to a 254-item survey on the Qualtrics data collection platform which consisted of several questionnaires. Prior to completing the survey, participants were given informed consent and were prompted to identify if they were age 18 or older to meet the inclusion criteria. All data collected were anonymous, with no identifying information requested.

Summary

This study used a secondary data analysis design, using the dataset created by the Self-Care in Undergraduates Study. The relevant variables from this dataset for this study included demographic information, self-reported GPA, academic self-efficacy measured using the CASES, and stress measured by the PSS. These data were run through a series of regressions to test this study's four hypotheses, with the fourth hypothesis being dependent on the acceptance of the first hypothesis.

Chapter 3

The objective of this study was to determine whether academic self-efficacy moderates the relationship between stress and academic performance in undergraduate students. Data used in this analysis were collected in the Self-Care in Undergraduates Study. In this study, regression analyses were used to test the following four hypotheses. For Hypotheses 1–3, a multiple regression analysis was conducted to determine the correlation strength and direction between the variables presented. For Hypothesis 4, a hierarchical regression was used to determine the potential moderating effect that self-efficacy has on the relationship between stress and academic performance. The hypotheses of this study were as follows:

1. Stress will negatively predict academic performance (GPA) in undergraduate students
2. Stress will negatively impact academic self-efficacy in undergraduate students
3. Academic self-efficacy will positively predict academic performance (GPA)
4. Academic self-efficacy will moderate the relationship between stress and academic performance (GPA) in undergraduate students

Descriptive Statistics

Table 1 shows the sociodemographic characteristics of participants. There were 25% males, 74% females, and 1% other participants. Forty-two percent of participants were Caucasian, 8% African American, 15% Hispanic/Latino, 19% Asian, 10% two or more races, and 6% other. Of participants, 37% endorsed being Christian, 8% Agnostic, 7% Atheist, 17% unaffiliated, 13% Catholic, and 18% other religion. Regarding class standing, 26% of participants were freshman, 16% sophomores, 31% juniors, 25% seniors, and 2% were super senior.

Table 1

Sociodemographic Characteristics of Participants

Variable	*n*	%
Sex		
Male	189	25
Female	563	74
Other	7	1
Ethnicity		
Caucasian	307	42
African American	57	8
Hispanic/Latino	110	15
Asian	140	19
Two or more races	75	10
Other	41	6
Religion		
Christian	266	37
Agnostic	60	8
Atheist	53	7
Unaffiliated	120	17
Catholic	93	13
Other	129	18
Class standing		
Freshman	199	26
Sophomore	121	16
Junior	237	31
Senior	195	25
Super Senior	19	2

Results

Data Analysis

The measures for stress, self-efficacy, and academic performance in the dataset were presented as continuous variables. As a result of this, the first three hypotheses were tested using a linear regression to determine correlation strength and direction. In consideration of the potential impact that sociodemographic factors may have on the relationships between variables, multiple regression analysis was performed for the first three hypotheses. As the first hypothesis

was accepted, a moderation analysis was used to determine the potential moderating effect that self-efficacy has on the relationship between stress and academic performance in order to test the fourth hypothesis.

Hypothesis 1: Stress (PSS) Will Negatively Predict Academic Performance (GPA) in Undergraduate Students

A multiple regression analysis was conducted to ascertain the predictive capacity of various sociodemographic variables (i.e., age, ethnicity, sex, religion, class standing, first-generation college student status, and stress) on academic performance. The findings of this analysis are presented in the following section.

The regression model was statistically significant (R^2 = .067, F [16, 617] = 2.784, p < .001), with predictor variables explaining 6.7% of the variation in academic performance. The demographic factors of age, ethnicity, religious affiliation, and class standing all exhibited nonsignificant relationships with academic performance. Sex, however, emerged as a significant predictor of academic performance. Specifically, if a participant was identified as female, it was positively associated with academic performance (B = .143, p = .019). This suggested that female participants tended to perform better academically. Conversely, participants identifying as another sex displayed a nonsignificant positive association with academic performance (B = .284, p = .340).

Being a first-generation college student was also found to be a significant predictor of academic performance (B = .147, p = .006), indicating a positive influence on academic outcomes for such individuals. Finally, the analysis identified that stress was a significant negative predictor of academic performance (B = -.013, p = .002). This finding suggests that as levels of stress increase, academic performance tends to decrease. Consequently, it can be

asserted that H1 was robustly substantiated by the outcomes of the regression analysis, as illustrated in Table 2.

Table 2

Regression Analysis: Stress and Academic Performance

Effect	Estimate	*SE*	*p*
Intercept	3.103	.215	< .001
Age	.004	.005	.434
Ethnicity			
African American	-.146	.101	.148
Hispanic/Latino	-.080	.084	.357
Asian	.060	.078	.443
Two or more races	.087	.091	.338
Other	.112	.125	.374
Sex			
Female	.143	.061	.019
Other	.284	.298	.340
Religion			
Agnostic	.117	.101	.248
Atheist	.166	.103	.106
Unaffiliated	.148	.077	.053
Catholic	.054	.092	.553
Other	-.004	.084	.962
Class standing[a]	.039	.025	.121
First-generation college student[b]	.147	.054	.006
Stress[c]	-.013	.004	.002

Note. The dependent variable is Academic Performance (last quarter GPA on a scale of 0.0 – 4.0, with a higher score indicating higher academic performance).

[a] 1 = Freshman, 2 = Sophomore, 3 = Junior, 4 = Senior, 5 = Super Senior

[b] 0 = yes, 1 = no; [c] Perceived Stress Scale

Hypothesis 2: Stress (PSS) Will Negatively Predict Academic Self-Efficacy (CASES) in Undergraduate Students

A multiple regression analysis was conducted to assess the predictive capacity of various sociodemographic variables (i.e., age, ethnicity, sex, religion, class standing, first-generation college student status, and stress) on academic self-efficacy. Because of the scoring used in the CASES, a low score on the CASES meant high self-efficacy. Therefore, positive relationships indicate lower academic self-efficacy, and negative relationships indicate higher academic self-efficacy. The findings of this analysis are presented next.

The regression model was statistically significant ($R^2 = 1.59$, F [16, 658] = 7.774, $p <$ .001) with the predictor variable accounting for 15.9% of the variation in self-efficacy. The demographic factors of age, religious affiliation, class standing, and first-generation college student status all exhibited nonsignificant relationships with academic self-efficacy. In regard to ethnicity, being of African American ethnicity emerged as a significant positive predictor of lower academic self-efficacy ($B = 6.163$, $p = .029$). Participants of African American ethnicity tended to exhibit higher scores on the CASES, implying lower levels of academic self-efficacy. Similarly, for participants identifying as Asian, ethnicity was found to be a significant positive predictor of academic self-efficacy ($B = 5.457$, $p = .012$), suggesting an association between Asian ethnicity and higher scores on the CASES, which implies decreased academic self-efficacy.

Sex played a noteworthy role, with female participants displaying a negative significant relationship with academic self-efficacy ($B = -4.318$, $p = .010$), signifying lower scores on the CASES among females, implying higher levels of academic self-efficacy. Participants of other sexes exhibited a negative, though nonsignificant, association with academic self-efficacy ($B =$

-11.111, $p = .188$). Notably, stress was identified as a positive significant predictor of scores on the CASES ($B = .924$, $p < .001$), indicating that increased stress levels were associated with a decrease in academic self-efficacy.

Table 3

Regression Analysis: Stress and Academic Self-Efficacy

Effect	Estimate	*SE*	*p*
Intercept	77.010	5.989	< .001
Age	-.123	.152	.418
Ethnicity			
African American	6.163	2.816	.029
Hispanic/Latino	3.137	2.378	.188
Asian	5.457	2.157	.012
Two or more races	-1.800	2.481	.468
Other	1.926	3.451	.577
Sex			
Female	-4.318	1.678	.010
Other	-11.111	8.429	.188
Religion			
Agnostic	-1.309	2.773	.637
Atheist	-1.885	2.859	.510
Unaffiliated	2.389	2.121	.260
Catholic	3.237	2.542	.203
Other	-1.007	2.270	.657
Class standing[a]	-1.649	.686	.016
First-generation college student[b]	-.468	1.482	.752
Stress[c]	.924	.110	< .001

Note. The dependent variable is Academic Self-efficacy (lower score indicating higher academic self-efficacy).

[a] 1 = Freshman, 2 = Sophomore, 3 = Junior, 4 = Senior, 5 = Super Senior

[b] 0 = yes, 1 = no; [c] Perceived Stress Scale

Hypothesis 3: Academic Self-Efficacy (CASES) Will Positively Predict Academic Performance (GPA) in Undergraduate Students

A multiple regression analysis was conducted to explore the predictive influence of various factors, including age, ethnicity, sex, religion, class standing, first-generation college student status, and academic self-efficacy, on academic performance. The multiple regression model was statistically significant ($R^2 = .134$, F [16, 616] = 5.972, $p < .001$), where the predictor variable explained 13.4% of the variation in academic performance. The results indicate that age, ethnicity, sex, and class standing exhibited a nonsignificant relationship with academic performance ($B = .004$, $p = .485$). Participants unaffiliated with any religion displayed a positive and significant relationship with academic performance ($B = .167$, $p = .024$), suggesting that individuals with no religious affiliation tended to achieve higher academic performance.

Additionally, being a first-generation college student was identified as a positive and significant predictor of academic performance ($B = .147$, $p = .005$). Notably, higher scores on the CASES were revealed as a negative and significant predictor of academic performance ($B = -.010$, $p < .001$), signifying that as academic self-efficacy levels decrease, academic performance tends to decrease. These findings collectively support Hypothesis 3, with higher academic self-efficacy indicating higher levels of academic performance.

Table 4

Regression Analysis: Academic Performance and Academic Self-Efficacy

Effect	Estimate	*SE*	*p*
Intercept	3.731	.210	< .001
Age	.004	.005	.485
Ethnicity			
African American	-.065	.097	.503
Hispanic/Latino	-.050	.084	.550
Asian	.113	.075	.135
Two or more races	.087	.088	.325
Other	.127	.121	.292
Sex			
Female	.080	.058	.167
Other	.157	.287	.585
Religion			
Agnostic	.083	.099	.403
Atheist	.143	.099	.148
Unaffiliated	.167	.074	.024
Catholic	.083	.088	.351
Other	-.003	.080	.975
Class standing[a]	.028	.024	.246
First-generation college student[b]	.147	.052	.005
Academic self-efficacy[c]	-.010	.001	< .001

Note. The dependent variable is Academic Performance (last quarter GPA on a scale of 0.0 – 4.0, with a higher score indicating higher academic performance).

[a] 1 = Freshman, 2 = Sophomore, 3 = Junior, 4 = Senior, 5 = Super Senior

[b] 0 = yes, 1 = no; [c] lower score indicating higher academic self-efficacy

Hypothesis 4: Academic Self-Efficacy (CASES) Will Moderate the Relationship Between Stress (PSS) and Academic Performance (GPA) in Undergraduate Students

In the context of the study, moderation analysis was executed to investigate whether academic self-efficacy acts as a moderator in the relationship between stress and academic performance. The regression model was not statistically significant, $R^2 = .015$, F (2, 650) =

4.864, $p = .219$. The findings indicated that age and ethnicity were nonsignificant predictors of academic performance ($p > .05$). Being female was found to be a positive significant predictor of academic performance, signifying an increase in academic performance ($B = .135$, $p = .027$), other sex categories did not exert a significant influence ($p > .05$). Similarly, religion (except Unaffiliated group ($B = .153$, $p = .046$) and class standing were nonsignificant predictors of academic performance ($p > .05$).

Notably, being a first-generation college student was identified as a positive significant predictor of academic performance, $B = .144$, $p = .008$. Furthermore, stress was revealed as a negative significant predictor, signifying that as stress levels increase, academic performance decreases, $B = -.013$, $p = .002$. Nevertheless, the interaction between stress and academic self-efficacy was deemed nonsignificant in predicting academic performance ($B = -.028$, $p = .219$), leading to the conclusion that hypothesis 4 is not supported by the results of the moderation analysis.

Table 5

Moderation Analysis: Academic Performance, Stress, and Academic Self-Efficacy

Effect	Estimate	*SE*	*p*
Intercept	3.103	.215	< .001
Stress * Academic self-efficacy	-.028	.022	.219
Stress[c]	-.013	.004	.002
Age	.005	.005	.366
Ethnicity			
African American	-.148	.101	.144
Hispanic/Latino	-.081	.088	.357
Asian	.053	.079	.504
Two or more races	.094	.092	.302
Other	.112	.126	.373
Sex			
Female	.135	.061	.027

Effect	Estimate	*SE*	*p*
Other	.271	.298	.364
Religion			
Agnostic	.099	.103	.337
Atheist	.168	.103	.103
Unaffiliated	.153	.077	.046
Catholic	.050	.092	.586
Other	.002	.084	.981
Class standing[a]	.041	.025	.107
1st generation college student[b]	.144	.054	.008

Note. The dependent variable is Academic Performance (last quarter GPA on a scale of 0.0 – 4.0, with a higher score indicating higher academic performance).

[a] 1 = Freshman, 2 = Sophomore, 3 = Junior, 4 = Senior, 5 = Super Senior

[b] 0 = yes, 1 = no; [c] Perceived Stress Scale

Summary of Results

This section identified the demographic information of the participants in the Self-Care in Undergraduates Study, which consisted of over 700 undergraduate students enrolled at the University of Washington, Tacoma. The key descriptive features that were notable in the sample population included age, sex, ethnicity, religious affiliation, socioeconomic status, academic standing, and potential status as a first-generation college student. The appropriate means of testing the four presented hypotheses was identified, with the first three hypotheses being testing using multiple regression analyses (to account for the potential impact that the sociodemographic variables may have on the relationship between stress, academic performance, and academic self-efficacy) and the fourth hypothesis being testing using a moderation regression analysis. The results of the statistical analyses demonstrated statistical significance for the first three hypotheses and that there was a nonsignificant significance in relation to the fourth hypothesis.

Chapter 4

This chapter has several purposes. The first purpose is to discuss how the data analysis for each hypothesis aligns with previous empirical findings and applicable theories. The second purpose is to acknowledge the limitations of the study. The third purpose is to suggest directions for future research. Each of these purposes is addressed in a distinct section of the chapter.

Hypothesis 1

Hypothesis 1 stated that stress would negatively predict academic performance in undergraduate students. The results of the study found that stress was significantly and negatively associated with academic performance. This finding is aligned with the seminal finding of Talib and Zia-ur-Rehman (1970), as well as several possible theoretical explanations of the deleterious nature of stress, including D'Zurilla and Sheedy's (1991) discovery that stress reduces problem-solving and critical-thinking capabilities, Teh et al.'s (2015) theory about stress as a reducer of self-management capacity via the mediation of depression and anxiety, Weekes et al.'s (2006) identification of elevated cortisol as a factor in reducing the physical capacities needed to perform well academically, and Bulo and Sanchez's (2014) multifactorial theory of stress as a debilitating factor in performance.

Therefore, the results of Hypothesis 1 were expected based on the spectrum of findings in the previous literature and broadly compatible with various conceptual explanations that have been posed to model the negative relationship between stress and academic performance. As noted briefly in the last section of the discussion, future research can help to narrow some of these theoretical possibilities by applying more targeted designs. Although the relationship between stress and reduced academic performance should be considered well-established, the reason for this relationship still requires further analytical investigation.

Hypothesis 2

Hypothesis 2 stated stress would negatively predict academic self-efficacy in undergraduate students. The results of the study found stress was significantly and negatively associated with academic self-efficacy. It is important to recall, for the scoring system used in the CASES, a lower score indicates higher academic self-efficacy, whereas a higher score indicates lower academic self-efficacy. This finding aligned with existing literature that stress tends to be associated with reduced self-efficacy. In their study, Goldman and Wong (1997) calculated a negative relationship between academic self-efficacy and stress. Moreover, they also found stress, self-efficacy, and academic performance were all negatively linked. These findings were confirmed in the context of Hypothesis 2.

Hypothesis 3

Hypothesis 3 stated academic self-efficacy would positively predict academic performance in undergraduate students. This study found academic self-efficacy was significantly and positively associated with academic performance. This finding is aligned with existing literature which shows that when students feel more efficacious, they tend to perform better (Dumitrescu, 2016; Hsieh et al., 2007; Ouweneel et al., 2013). The reason for this relationship can be adduced from the original theoretical description of the construct of self-efficacy. According to Bandura (2020), self-efficacy can be defined as follows:

> Efficacy is a generative capability in which cognitive, social, emotional, and behavioral subskills must be organized and effectively orchestrated to serve innumerable purposes. There is a marked difference between possessing subskills and being able to integrate them into appropriate courses of action and to execute them well under difficult

> circumstances. People often fail to perform optimally even though they know full well what to do and possess the requisite skills to do it. (pp. 36–37)

Drawing on this definition, it can be concluded that students with high self-efficacy are better able to bring their resources to bear on problems, even in tough situations. On the other hand, students with low self-efficacy are less likely to apply their resources to problems. Given academic performance requires a steady application of resources—including cognitive, emotional, physical, and other resources—it is quite expected that self-efficacy would be positively associated with academic performance, as the statistical analysis for Hypothesis 3 confirmed.

Hypothesis 4

Hypothesis 4 stated academic self-efficacy would moderate the relationship between stress and academic performance in undergraduate students. The null hypothesis for Hypothesis 4 was academic self-efficacy would not moderate the relationship between stress and academic performance in undergraduate students. The results of this study suggest the null hypothesis could not be rejected, as there was not a significant moderating effect on the relationship between stress and academic performance. This finding was unexpected in that Dumitrescu (2016) found stress's effect on reduced academic performance is multiplied by stress's effect on reduced self-efficacy. A similar finding was reported by Hsieh et al. (2007). However, the designs of these two studies were not directly comparable to the design for the current study, so it is not necessarily known whether the findings for Hypothesis 4 contradict those of previous studies. Therefore, no firm conclusions should be drawn about the relationship between the findings for Hypothesis 4 and what has been found in the previous literature.

Limitations

Although this study had several strengths, it was not without limitations. First, from a methodological perspective, this study relied on self-reported data, which contributed to common method bias (Podsakoff et al., 2003). Second, although the Self-Care in Undergraduates Study sampled over 700 participants, all those participants were students at the University of Washington, Tacoma. This limited the scope of the current study, as the population of the University of Washington, Tacoma may not reflect the populations of other universities regarding sociodemographic factors, which may impact the relationship between stress, academic performance, and academic self-efficacy.

Future Directions

Applying Yerkes-Dodson

Several future directions can be proposed for this topic, but perhaps the most important suggestion is for researchers to better understand the potentially complex relationships between stress, academic performance, and self-efficacy. This relationship could be described as simple in nature if, as in Goldman and Wong's (1997) study and the present study, these three variables were all negatively correlated. In that case, it might plausibly be concluded that stress decreases both academic performance and self-efficacy. However, it might be that there are more complex relationships between these variables that can be understood in other ways and from other perspectives.

For instance, according to the Yerkes-Dodson Law, there is an association between stress and performance in which a moderate amount of stress is associated with increased, not decreased, performance (Dewi, 2022; Garger et al., 2020; James et al., 2023; Marsh et al., 2023). Taking the Yerkes-Dodson Law as a theoretical starting point, future researchers could attempt

to differentiate between moderate and extreme stress to determine whether their effects on performance differ. It is possible that a negative relationship between performance and stress could exist because stress surpassed the Yerkes-Dodson threshold, and that a positive relationship between academic self-efficacy and stress could exist because stress was, by Yerkes-Dodson standards, moderate.

Future researchers could structure an analysis of this sort by treating the independent variable of stress as being of three levels (i.e., low, moderate, and high), and then treating the dependent variables of academic performance or self-efficacy as normal continuous measures. Statistically, this approach would be appropriate for an analysis of variance, or, if covariates such as gender and previous academic performance are included, an analysis of covariance. This approach would have the advantage of aligning an empirical investigation of the relationship between (a) the independent variable of stress and (b) the dependent variables of academic performance and self-efficacy with the precepts of the Yerkes-Dodson Law.

Theoretical Reasons for Stress and Performance Reduction

Another direction for future research would be to try to understand the theoretical reasons for certain connections between variables. For example, in the context of Hypothesis 1, the finding was that stress and academic performance are negatively related; however, there are several theoretical reasons why this relationship exists. These reasons, although complementary in some respects, are also divergent from each other. One cognitive explanation of this relationship involves the phenomenon of cognitive load; because stress drains cognitive resources, the resources that are then available to be applied to the kind of problem solving and critical thinking required for academic success are diminished (Klepsch & Seufert, 2020). A socioemotional explanation of this relationship is that student stress can express itself in the form

of missing home, struggling in the context of new social settings, and otherwise experiencing life-related stresses that can drain the time and emotional resources needed for academic success (Knight-Manuel, 2019). A physiological explanation of this relationship could be based on cortisol and sleep levels (Koudela-Hamila et al., 2022). Moreover, a multifactorial explanation (Mendes et al., 2022) could focus on interrelations. For example, being away from one's family could trigger anxiety, anxiety could produce cortisol, cortisol could reduce sleep, reduced sleep could increase cognitive load, and increased cognitive load could result in reduced problem-solving and critical-thinking ability.

These models each contain their own complexities, but they also offer opportunities for further analysis and exploration. The following section provides some specific research opportunities and approaches that can be applied. An experimental study on cognitive load could assess stress's impact on students' problem-solving skills. A longitudinal socioemotional study could track emotional stress and social adaptation's effects on academic performance over time. A physiological study on cortisol and sleep could examine cortisol levels and sleep quality's correlation with academic success. A mixed-methods study on multifactorial relationships could explore anxiety, cortisol, sleep, and cognitive load's combined effects on academics. A case study on individual stress management could investigate personal stress experiences and academic impacts. A cross-sectional study on stress levels could analyze stress and academic performance at one time-point across a broad student group. A path analysis of stress effects could model direct and indirect pathways from stress to academic outcomes. A quasi-experimental study on interventions could test stress-reduction interventions on academic factors. Finally, a comparative study in different educational settings could compare stress's academic impact in varying educational environments.

Theoretical Reasons for Stress and Self-Efficacy Reduction

Given Bandura's (1997) definition of self-efficacy, there remain open questions about how and why stress could be associated with reduced self-efficacy. Bandura, as noted earlier, defined self-efficacy not as a capability in its own right, but rather as a sort of meta-ability to orchestrate and apply existing abilities to a problem in a goal-oriented way. In other words, a self-efficacious person does not necessarily possess raw resources (e.g., cognitive, emotional, physical, psychological) that another person does not; the self-efficacious person is merely better at marshaling and applying their resources, whereas, in effect, a nonefficacious person leaves their resources untapped and unapplied (Bandura, 2020).

Based on this definition of self-efficacy, there are any number of ways stress could reduce self-efficacy. There could be a cognitive pathway (Klepsch & Seufert, 2020), such that stress overloads the brain's thinking capacity in a manner that then prevents someone from marshaling their cognitive resources. There could also be emotional and psychological pathways (Knight-Manuel, 2019), such that, in the presence of stress, students might ask themselves what the point is of even trying to complete an assignment, read a book, or solve a problem. There could be a self-concept pathway (Arens et al., 2021), such that stress might predispose students to think of themselves as being certain kinds of people (for instance, 'bad' students or 'lazy' students), and this self-concept could then dissuade low-efficacy students from applying their resources to performance in the manner that more high-efficacy students would. Clearly, then, there are many ways in which stress could reduce self-efficacy, and exploring these pathways is a new task for researchers.

Investigating Persistence and Resilience

There is a well-researched phenomenon known as persistence (Kozlowski & Fouad, 2023) that explores how and why some students who face stressful and difficult circumstances keep working and trying, whereas other students drop out or somehow disengage from academic tasks. Persistence would appear to be a natural variable to study alongside stress, self-efficacy, and academic performance. To begin with, adding persistence as a variable can help to elucidate how and why the relationship between stress and performance might vary from student to student. Stress is, after all, highly common, and experienced by students who are at varying levels of academic performance. How and why students with similar capabilities react to stress in different ways requires further analysis—with some students excelling and others experiencing decreased performance. Persistence has possible explanatory power in this respect, as it could be the variable that explains why some students do better under pressure than other students.

Persistence in academics can be described as a specific instance of the more general phenomenon of resilience. Resilience has a long history of being measured, for example, through the well-known CD-RISC instrument (Pulido-Martos et al., 2020). The psychological basis of the theory of resilience is that, although stresses are likely to be equally distributed in any sufficiently large population, some people have traits or engage in behaviors that are more protective against stress and more predictive of high performance in the face of stress (Chitra & Karunanidhi, 2021; Pulido-Martos et al., 2020). Resilient people experience at least as much stress as anyone else, but, for various reasons, they keep going anyway (Karaşar & Canlı, 2020; Pulido-Martos et al., 2020). These reasons can include the following:

- Maintaining a positive perspective even in tough times, focusing on potential growth rather than defeat.

- Having the ability to find meaning and purpose in challenges, which motivates perseverance.
- Having high adaptability to adjust strategies and goals in response to obstacles.
- Being effective at problem solving.
- Having a strong network of support to provide emotional sustenance and practical assistance.
- Being confident in their own abilities to cope with and overcome various types of stressors.
- Having the capacity to manage and express emotions healthily in a manner that helps process stress.
- Having a general tendency to expect good outcomes.
- Setting and striving for personal goals.
- Being proficient in employing strategies (and learning new strategies) to reduce or cope with stress.
- Engaging in physical, emotional, and spiritual self-care.
- Viewing failures as being learning opportunities rather than seeing them as insurmountable defeats.

This list of some of the characteristics of resilience relates to the topic of the current study in that resilience could be a booster of both self-efficacy and stress reduction while perhaps also constituting an independent pathway toward academic success. For this reason, future researchers interested in the relationships between stress, academic self-efficacy, and academic performance should also consider the helpfulness of variables such as resilience and persistence.

These variations can be included in statistical models, for example, in order to try to explain links between self-efficacy and stress or as independent predictors of academic performance. In qualitative approaches, resilience and persistence are also important as they provide the conceptual frameworks through which researchers can understand the experiences, behaviors, and orientations of students who can persevere through high stress to obtain better academic outcomes. In this context, resilience and persistence need not replace the conceptual frameworks offered by self-efficacy and stress, but rather are capable of expanding and enriching analysis.

Summary and Conclusion

This dissertation examined the relationship between stress, academic performance, and academic self-efficacy in undergraduate students. Chapter 1 provided a framework for examining the relationships between those key variables. Several theories related to each variable (i.e., stress, academic performance, and academic self-efficacy) were examined. The chapter's aggregate themes identified the existing literature on the interactions between the three key variables and identified a lack of significant research identifying the potential moderating effect that academic self-efficacy may have on the relationship between stress and academic performance.

Chapter 2 described the dissertation's research methodology and design. This section identified the study as a secondary data analysis based on the Self-Care in Undergraduates Study conducted at the University of Washington, Tacoma. This chapter described the selected population sampling strategy and the practices that were used in obtaining institutional permission to conduct the study. This chapter also introduced the four hypotheses that guided the dissertation. The hypotheses claimed that perceived stress will negatively predict academic

performance, perceived stress will negatively predict academic self-efficacy, academic self-efficacy will positively predict academic performance, and that academic self-efficacy will moderate the effect of perceived stress on academic performance.

Chapter 3 provided the demographic information of the sample population, the data analysis strategy, and the results of the regression and moderation analyses used to test the four hypotheses. For the first three hypotheses, multiple regression analyses were used, with each analysis determining there was a statistically significant relationship between the predictor variable and the dependent variable. A moderation analysis was used to test the fourth hypothesis, which stated that academic self-efficacy would moderate the effect of perceived stress on academic performance in undergraduate students. The results of the moderation analysis showed there to be a statistically nonsignificant moderation effect, which resulted in Hypothesis 4 being rejected and the null hypothesis being accepted.

Chapter 4 related the negative stress-academic performance correlation, the negative self-efficacy and stress correlation, and the positive self-efficacy and academic performance correlation to similar findings in the previous literature and noted that the absence of a moderating effect of self-efficacy on the relationship between stress and academic performance is possibly discrepant with past findings. The discussion noted the limitations constituted by common method bias and using a sample consisting of undergraduates from one singular university. Finally, the discussion also noted what can be added to the existing body of knowledge on this topic by integrating the Yerkes-Dodson Law of stress-performance relationships, exploring theoretical reasons for stress and performance reduction, examining theoretical reasons for stress and self-efficacy reduction, and investigating persistence and resilience.

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