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Coping Self-Efficacy and Stress Mindset as Predictors of Student Success Outcomes

Meg Kapil*, Ramin Rostampour, & Allyson Hadwin

University of Victoria

Abstract

University students experience stress from academic demands. Stress is in fact expected in academic settings and important for achieving goals. How students experience the inevitable stress in the academic context, and whether stress is a support or hindrance for them, is related to their beliefs about stress. This study examined two types of beliefs regarding academic stress: (a) perceptions of being capable of coping with academic stress and demands, named coping self-efficacy, and (b) general beliefs regarding stress itself, named stress mindset, and the impact of those two stress beliefs on two types of outcomes related to student success: academic performance (GPA) and student experiences (mental health, perceived motivation challenges). Findings indicate coping self-efficacy positively predicts higher mental health and lower motivation challenges; neither stress mindset nor coping self-efficacy predicted GPA. Coping self-efficacy in the university context, which denotes feeling capable of managing stress and academic demands, emerged as a useful predictor of student success outcomes. As eliminating stress altogether is not practical or possible, this research focuses on beliefs about stress as important for student success.

Keywords: coping self-efficacy, mental health, stress appraisal, stress mindset, student success

* Contact: megkapil@uvic.ca

Coping Self-Efficacy and Stress Mindset as Predictors of Student Success Outcomes

University students experience stress from academic demands, which has the potential to impact student success (American College Health Association, 2016; Keyes, 2005; Organization for Economic Cooperation and Development, 2017). In recent years, stress in academic settings was further amplified by uncertainty and social isolation due to the global pandemic (Cockerham et al., 2021; Elmer et al., 2020). While undergraduate university students report high levels of stress, an emphasis on eliminating stress for students is: (a) not possible or practical and (b) counterproductive (Jenkins et al., 2021). In addition, the negative impacts of stress have often been overemphasized, and stress is an expected and variable component of student success (Brooks, 2014; Jamieson et al., 2018; Jenkins et al., 2021). The academic context is expected to include stress, and stress has the capacity to either help or hinder student success depending on how stress is perceived or managed (Jenkins et al., 2021).

In addition to being expected in academic settings, stress is influential in student success and has the potential to impact outcomes positively (Denovan & Macaskill, 2017; Rudland et al., 2020) or negatively (Chou et al., 2011; Pascoe et al., 2020). When managed well, stress in academic settings is important for achieving goals (Brooks, 2014; Jamieson et al., 2018) that are important for both academic (Jenkins et al., 2021) and wellbeing outcomes (Ng et al., 2009). How people cope in motivated performance contexts, like academic settings, is determined in part by their beliefs about stress (e.g., Jenkins et al., 2021). Despite the recognition that stress is impactful in academic settings and the significance of stress-related self-beliefs in these contexts, the student success and educational psychology literature has largely overlooked beliefs about stress. We therefore need to better understand the degree to which student success outcomes are impacted by the ways students think about and respond to academic stress. How students experience the inevitable stress in the academic context, and whether stress is a support or hindrance for them, is related to their beliefs about stress. As eliminating stress altogether is not practical or possible, this research focuses on beliefs about stress as important for student success.

Relevant Literature and Theory

It is well documented that how students manage academic demands, like assignments and studying, impacts student success (Panadero, 2018; Robbins et al., 2004; Winne & Hadwin, 2008). However, the impact of student perceptions, beliefs, and appraisals regarding academic stress on student success is not understood as thoroughly. First, student success will be discussed with reference to both academic performance and student experiences. Then, to understand what to expect from the impact of

stress-related beliefs or appraisals on student success, we turn to stress optimization theory and self-beliefs within academic contexts.

Student Success

Historically student success research was motivated by concerns about attrition and measured primarily by rate of graduation (Louis & Schreiner, 2012). Shifting from a focus on outcome markers like grades and degree completion, student success research now encompasses student experiences that contribute to success, such as persistence, motivation, effective learning, and mental health (Kuh et al., 2005; Louis & Schreiner, 2012; Suldo et al., 2006; Tinto, 2017). This is a holistic view of student success that recognizes the importance of both doing well and feeling well. Despite theory and evidence indicating that student success includes aspects of both academic performance and student experiences (Chou et al., 2011; de la Fuente et al., 2020; Denovan & Macaskill, 2017; Pascoe et al., 2020; Vogel & Schwabe, 2016), student success research frequently examines these outcomes in isolation. This study therefore examines the impact of stress beliefs on two types of student success outcomes: (a) academic performance and (b) student experiences.

Academic Performance Outcomes

A standard measure for capturing academic success is GPA (Robbins et al., 2004; Zollanvari et al., 2017). Although GPA is a useful and widely used metric of academic performance, GPA is a distal and static outcome measure. GPA does not explicitly identify academic difficulties or challenges that may have deleterious impacts on student success; from a self-regulatory perspective, numerous factors contribute to academic performance (Hadwin et al., 2022). Extant research has demonstrated limited success in predicting GPA, with academic performance best predicted by an assessment of a variety of individual differences (Richardson et al., 2012; Robbins et al., 2004; Zollanvari et al., 2017). For example, GPA is correlated with previous academic performance, academic self-efficacy, academic engagement, learning strategies, and conscientiousness (Pérez-González et al., 2022). Cognitions specific to academic performance (e.g., performance self-efficacy) is one of the strongest correlates with GPA (Richardson et al., 2012). In addition, Jamieson et al. (2022) reported evidence that cognitive appraisals were predictive of GPA. The current study will again test the association between stress appraisals and GPA.

Student Experience Outcomes

As previously indicated, student success research includes student experiences or processes that contribute to success such as persistence, motivation, regulation of learning, and mental health (Kuh et al., 2005; Louis & Schreiner, 2012; Suldo et al., 2006; Tinto, 2017). This study focuses on two student experiences implicated in student success that may be sensitive to beliefs or appraisals about stress: (a) motivation challenges and (b) mental health.

Limited attention is given to academic challenges, which are difficulties that are associated with deleterious impacts on student success. Navigating challenges effectively is an important academic outcome in student success (e.g., Louis & Schreiner, 2012). Academic challenges are negatively associated with academic performance and function as a metric of adaptive regulation of learning (Hadwin et al., 2021; Koivuniemi et al., 2017). Specifically, motivation challenges, a type of academic challenge, will be assessed as an outcome in this research as they are consistently high for students (Hadwin et al., 2019, 2021; Koivuniemi et al., 2017). In addition, prior research suggests stress-related beliefs or appraisals, like stress mindset and self-efficacy, are influential constructs in shaping student motivation (Bandura & Locke, 2003; Crum et al., 2017; Schunk, 1991). Those who feel more capable of achieving desired outcomes through personal effort have more incentive to try; therefore, self-efficacy is an important aspect of human motivation (Usher, 2023). It is expected that proactive stress-related self-beliefs, like higher levels of coping self-efficacy and a "stress is enhancing" mindset, will be associated with lower reports of motivation challenges in this research.

Mental health is another student experience that is implicated in student success. A broad and multifaceted construct that refers to optimal functioning and experience (Diener et al., 2017; Ryan & Deci, 2001), mental health is associated with superior functioning related to psychosocial functioning, work and academic performance, and physical health (Howell, 2009; Keyes, 2007; Moulin et al., 2017). Mental health is viewed as a state of wellbeing that supports individuals to cope with stressors, work productively, and function as a contributing member of society (World Health Organization, 2016). Mental health captures the degree to which students are flourishing emotionally, psychologically, and socially and aligns with current perspectives regarding student success that includes student experiences in addition to outcome markers like GPA and retention (e.g., Louis & Schreiner, 2012). There is prior evidence that self-beliefs or appraisals are predictive of emotional and psychological wellbeing (Freire et al., 2019; Melato et al., 2017), positive coping (Cattelino et al., 2021), and happiness (Caprara et al., 2006). It is therefore expected in this study that stress-related appraisals will predict mental health and wellbeing for students.

To explain how stress appraisals are expected to influence student success outcomes, this study draws on research and theory from two sources: (a) stress optimization theory and (b) self-beliefs in academic contexts.

Stress Optimization Theory

Stress is expected in academic settings where students are pursuing personally relevant goals and the context is evaluative, goal-oriented, and performance-based (Brooks, 2014; Jamieson et al., 2018; Park et al., 2018). Responding to stress adaptively is integral to wellbeing (Denovan & Macaskill, 2017) and adaptive learning (Vogel & Schwabe, 2016). When not managed well, academic-related stress can reduce academic achievement, decrease motivation, increase risk of dropout, and reduce retention (Pascoe et al., 2020).

Importantly, this research focuses on stress in acute-motivated performance contexts like academic settings. This is distinct from experiences of chronic stress or traumatic experiences. Individuals who are exposed to difficult life experiences (e.g., trauma, war, poverty, abuse, lack of social support, neglect, racism, systemic oppression), especially at key developmental stages, can experience distressing consequences in terms of both mental and physical health. These circumstances are not considered adaptive or enhancing; rather evidence is accumulating regarding the detrimental impacts of such experiences. Chronically imbalanced body budgets, meaning the body's resources are not being replenished or utilized effectively due to chronic stress and adversity, lead to physiological changes and corresponding problematic changes in regulatory capacity (Barrett, 2017a, 2017b). For example, consider the research on adverse child experiences (ACES) for a more thorough discussion (e.g., Bellis et al., 2019; Center for Disease Control, 2020; Houtepen et al., 2020; Hughes et al., 2017).

In contrast, stress in motivated performance contexts is a complex process and can have both enhancing and debilitating effects. Stress mindsets and stress appraisals can simplify and orient individuals to a set of expectations and motivations that increase the chance that a person will experience the enhancing effects of stress, especially in performance situations (e.g., exams). Even for students where there was a relationship between adverse life events and perceived distress and lack of control, this relationship was weakened for those who understood and experienced the enhancing capacities of stress (Park et al., 2018). Indeed, equipping individuals with an accurate understanding of stress and stress optimization has the potential to facilitate agency, situational control, and competence in counteracting the myriad adverse experiences people encounter (Park et al., 2018). The interactions between the individual, life experiences, and context within which they experience this are complex and only partially addressed here.

A stress optimization approach recognizes that stress is expected in academic settings and other motivated performance contexts characterized by goal pursuit (Jamieson et al., 2018). A stress optimization approach aims to facilitate thriving, resilience, and adaptive coping in times of pressure and uncertainty, often inevitable in academic contexts (Jamieson et al., 2018). Stress optimization theory is relevant for research on student success based on evidence that stress is commonly experienced in academic settings (Jenkins et al., 2021) and that stressful experiences can impact both performance and wellbeing for students (Jamieson et al., 2018, 2022).

Stress optimization encompasses both stress appraisal and stress mindset research. Both are informed by the idea that stressful experiences can: (a) lead to physiological and psychological thriving, (b) enhance performance and wellbeing when stressors are perceived as opportunities for growth, and (c) be appraised as functional and adaptive in acute-motivated performance contexts (Jamieson et al., 2018). Student responses to stress, including stress-related appraisals and beliefs, have the potential to impact both learning processes and academic outcomes (de la Fuente et al., 2020). Stress optimization theory suggests that how we perceive and cope with stress is influenced by our

beliefs and appraisals about stress (Crum et al., 2017; Jamieson et al., 2022). Students' stress-related appraisals or beliefs are therefore a critical component of adaptive learning and student success; however, this has been underexamined in academic contexts. This study aims to investigate the impact of two different stress appraisals, namely stress mindset and coping self-efficacy, on student success outcomes.

Stress Mindset

In the challenging university context, this research examines stress mindset as an important self-belief for student success. Stress mindset refers to beliefs about the nature of stress as enhancing or debilitating (Crum et al., 2013, 2017). It proposes that stress responses can be influenced, even when the situation cannot be changed (Crum et al., 2017), such as academic program requirements. Stress mindset is expected to shape the impacts of stress including behaviour, performance, and wellbeing, and is expected to inform psychological and motivational contexts within which coping actions are selected and enacted (Crum et al., 2017).

Extant research shows stress mindset is predictive of different outcomes. To elaborate, stress mindset is implicated in a range of outcomes important to university students, such as: (a) psychological wellbeing (Keech et al., 2018), (b) perceived stress (Keech et al., 2018), (c) physical wellbeing (Keech et al., 2018), (d) cortisol levels (Crum et al., 2013), (e) positive affect (Crum et al., 2017), (f) cognitive flexibility (Crum et al., 2017), (g) attentional bias towards positive stimuli (Crum et al., 2017), (h) mental health (Khan & Shamama-tus-Sabah, 2020), (i) academic performance (Keech et al., 2018), and (j) mental and physical health as mediated by approach coping and perceived distress in college students (Jenkins et al., 2021).

Informed by stress optimization, stress mindset is therefore expected to predict student experiences and academic performance outcomes that comprise student success. To further understand expectations regarding stress mindset and student success, mindset research in academic contexts will be addressed in a later section. Prior to that inquiry, we will consider what a stress optimization perspective indicates about stress appraisals.

Stress Appraisal

Stress appraisal, and reappraisal, can be viewed as a cognitive perceptual process that shapes valuations with the goal of modifying actions (e.g., approach or avoidance behaviour; Gross, 2015). Within stress optimization theory, it is recognized that emotional processes like stress are malleable. Cognitive appraisals and reappraisals—which are perceptions, beliefs, or judgments of stress as adaptive or distressing—play a critical role in regulating emotion and stress (Barrett, 2017b). Stress optimization research shows reappraisal predicts academic performance by facilitating the belief that stress is beneficial and can be managed (e.g., Jamieson et al., 2022; Jamieson & Hangen, 2020).

Informed by stress optimization, it is not the presence of stress or academic demands that is inherently problematic. Both are expected in academic settings and can exert

positive or negative influence on student success, depending on how they are perceived and managed. Instead, how students manage stress and academic demands is crucial in determining whether stress supports or detracts from student success. However, the student success literature has limited information on appraisals or beliefs about being able to cope with both academic stress and demands simultaneously. The appraisal coping self-efficacy will be introduced in a later section to fill this gap. While stress-related appraisals and beliefs are underexamined in student success research, there is considerable evidence regarding other self-beliefs in academic contexts that inform expectations in the current study.

Self-Beliefs in Academic Contexts

In academic contexts, internal self-influence factors such as self-efficacy have consistently predicted motivation and a range of student success outcomes. It is purported that a combination of external social systems (e.g., academic context) and internal self-influence factors (e.g., stress mindset, coping self-efficacy) motivates and regulates behaviour (Bandura, 2001; Schunk & Pajares, 2002). Self-beliefs are important and influence strategic choices and regulatory processes that impact academic performance. While stress-related beliefs have not been thoroughly explored in academic contexts, two self-beliefs have received considerable attention, namely intelligence mindsets and academic self-efficacy (e.g., Bandura, 2008; Dweck, 2006).

Intelligence Mindsets

Prior to stress mindsets, general mindset theory was developed by Carol Dweck (Dweck, 2006; Dweck et al., 1995). This theory posits that students with growth mindsets tend to demonstrate more adaptive behaviours and psychological traits such as resilience when faced with failure, which in turn generates greater academic achievement. Implicit theories about intelligence have been studied extensively in educational settings including how they: (a) relate to intelligence (Dweck, 2006), (b) facilitate challenge seeking (Yeager & Dweck, 2012), (c) impact academic performance and physiological stress responses (Yeager et al., 2022; Yeager & Dweck, 2012), (d) foster psychological wellbeing and increased positive emotion (Tamir et al., 2007), and (e) enhance positive affect and positive functioning (Howell, 2017). In addition, extant evidence shows that endorsing a malleable perspective of emotion is associated with more adaptive functioning than a fixed view (Howell, 2017). Informed by stress optimization and extant research regarding mindsets in academic settings, a similar relationship is expected between stress mindset and student success outcomes in this study. For example, a "stress is enhancing" mindset is expected to be associated with higher levels of mental health and adaptive academic functioning (e.g., lower motivation challenges and higher GPA).

Academic Self-Efficacy

Although self-efficacy related to coping with expected academic stress has been underexamined, existing literature indicates that academic self-efficacy plays a role in student

success. Academic self-efficacy has been shown to contribute to motivation and performance across a range of contexts (Bandura & Locke, 2003), predict student success (Pajares, 1996, 2003), and influence stress outcomes by shaping perceptions of stress as either a challenge or a threat (Freire et al., 2019; Karedemas & Kalantzi-Azizi, 2004). Academic self-efficacy: (a) is a positive predictor of coping with stress (Freire et al., 2016), (b) promotes adaptive coping (Freire et al., 2016; Karademas & Kalantzi-Azizi, 2004), (c) facilitates flourishing mental health (Kashdan et al., 2018), (d) is associated with academic performance (Klassen & Klassen, 2018), and (e) facilitates successfully enacting academic strategies (Bandura, 2001).

Several types of self-efficacy have also been positively associated with social emotional outcomes. For example, (a) emotional self-efficacy is linked to wellbeing and positive coping strategies during the pandemic (Cattelino et al., 2021; Won et al., 2023) and high levels of positive thinking and happiness (Caprara et al., 2006), (b) academic self-efficacy is associated with psychological wellbeing (Freire et al., 2019; Melato et al., 2017), and (c) coping self-efficacy has functioned in a predictive capacity for emotional and psychological wellbeing (Melato et al., 2017). Self-efficacy beliefs have been established as an important component of motivation associated with performance and academic success (Hadwin et al., 2022; Richardson et al., 2012; Robbins et al., 2004). Self-efficacy contributes to the assessment of demands as challenges or threats (Bandura, 2008; Liu & Li, 2018), and therefore a component of adaptive coping (Freire et al., 2016; Karademas & Kalantzi-Azizi, 2004). In summary, extant evidence indicates the predictive capacity of different types of self-efficacy on aspects of student experiences and performance that are important for student success. This provides the rationale for examining the predictive capacity of coping self-efficacy, which has received minimal attention in prior student success research.

Coping Self-Efficacy

Given that stress is expected in academic contexts and is not inherently good or bad, the focus in this research pivots to examining coping with stress as impactful regarding student success. The regulation of stress in academic environments is important, with a focus on an individual's perception of their ability to cope effectively with a variety of challenges and demands, referred to as coping self-efficacy (Chesney et al., 2006). Coping self-efficacy is an appraisal in coping and stress regulation and is comprised of three broad factors, confidence in the ability to: (a) use problem-focused coping, (b) get support from friends and family, and (c) stop unpleasant emotions or thoughts (e.g., emotion focused coping; Chesney et al., 2006). In the academic context, coping self-efficacy captures perceptions of managing both academic stress and demands and therefore has considerable potential in research regarding stress and student success.

Coping self-efficacy has been primarily studied in other acute-motivated performance contexts such as the military (e.g., Delahajj & Van Dam, 2017) and mental health settings (e.g., Benight & Harper, 2002; Melato et al., 2017; Midkiff et al., 2018; Singer et al., 2016; Wissing et al., 2011). While research about coping self-efficacy and student success is exploratory, prior research confirms the predictive capacity for other types of

self-efficacy (e.g., academic self-efficacy) in student success and coping self-efficacy has proven utility in contexts other than student success research. It is therefore hypothesized in this research that coping self-efficacy will similarly be effective at predicting student success outcomes, especially considering the importance for student success of feeling capable of coping with both stress and academic demands that is captured by coping self-efficacy.

While academic self-efficacy is well established with academic performance outcomes (see Robbins et al., 2004; Honicke & Broadbent, 2016; Richardson et al., 2012, for reviews), and coping self-efficacy and stress reappraisals or beliefs are associated with coping with high stress situations (Delahajj & Van Dam, 2017) and persisting in academic contexts (Jamieson et al., 2022), coping self-efficacy has not yet been established as a predictor of student success outcomes. This study proposes that coping self-efficacy is underutilized in educational and student success research. It is hypothesized in this research that higher levels of coping self-efficacy will be associated with higher GPA and adaptive student experiences that support student success, including flourishing mental health and lower motivation challenges.

Present Study

This research recognizes that university students will experience stress and challenges. This can be good or bad for students depending on how they appraise their capacity to cope with academic stress and demands (coping self-efficacy) and stress itself (stress mindset). Evidence is growing to support the assertion that in motivated performance contexts like academic settings stress responses, psychological processes, and behavioural and performance outcomes are impacted by stress appraisals (e.g., Brady et al., 2018; Jamieson et al., 2022). However, there is a notable gap in student success literature regarding how stress appraisals or beliefs, like stress mindset and coping self-efficacy, contribute to student success outcomes.

Three notable gaps exist in the current literature regarding stress appraisals and student success: (a) in education and student success research self-efficacy beliefs have focused on domain specific knowledge beliefs and academic performance but beliefs about capacity to cope with stress and stressful situations have been underexamined, (b) distal academic outcomes such as academic performance have been examined with limited attention to the broad array of academic difficulties or challenges associated with deleterious academic performance outcomes, and (c) academic success related outcomes have narrowly emphasized performance (e.g., GPA) with little attention to student experiences implicated in student success (e.g., mental health) beyond motivational outcomes.

Therefore, informed by stress optimization, this study examines the degree to which two stress-related beliefs—stress mindset and coping self-efficacy—contribute to two kinds of student success outcomes: academic performance and student experiences.

It is hypothesized that both stress mindset and coping self-efficacy will contribute to higher levels of mental health, lower motivation challenges, and higher GPA, and therefore contribute to overall student success.

Method

Aims

The purpose of this research is to examine the impact of beliefs about stress (e.g., coping self-efficacy, stress mindset) on student success related outcomes (e.g., academic wellbeing, motivation challenges, GPA).

Research Questions

The following research questions are addressed:

(1) Do stress-related self-beliefs predict academic wellbeing?
(2) Do stress-related self-beliefs predict motivation challenges?
(3) Do stress-related self-beliefs predict academic performance?

Participants

Participants were 185 students at a Western Canadian university enrolled in an undergraduate elective educational psychology course on learning, motivation, mental health, and academic success (Learning Strategies for University Success) in fall 2021. Participants were from a range of faculties and included first, second, and upper-year students. The mean age of participants was 20.2 years (SD = 2.7) and 50.3% were female. About 88% were Canadian citizens or permanent residents while about 12% were international students on study permits. Demographic information regarding ethnicity was not collected as this is considered sensitive information at the institution.

Research Context

Participants were voluntarily enrolled in an undergraduate course on learning strategies for university success. Data were collected as part of required course activities and assignments. In weekly self-assessments, students reflected on their own strengths and weaknesses related to the course topic covered that week. Students used these self-report results in class discussions, to choose strategies for themselves, and to complete a self-study report due at the end of the course. Temporal precedence in data collection was observed with coping self-efficacy and stress mindset data collected during week 8 of the term (predictor variables) and mental health and motivation challenges (student success outcome variables) collected during week 11 of the term. The assessments used for data collection were completed as part of the weekly course requirements. Students consented to the research as a component of the course. Students received credit for

the course but were not graded on any of the self-assessment measures used in the research. Students were informed of the data being used in research and could decline consent at any time without their grade or participation in the course being impacted. Further, the responses to the self-assessments used in the research were confidential. All students were informed before, during, and after the course of the process to decline consent. Confidentiality was ensured through replacing student names with numeric identifiers and completing analysis after course grades were posted.

Variables and Measures

In this section, the variables included in the analysis and the measures used to collect data are described.

Academic Performance Outcomes

Academic performance was measured by semester GPA and students' self-reported motivational challenge experiences. Semester GPA was obtained from institutional data and reported on a 9-point GPA scale, where 0 = E (0%–48%), 1 = D (50%–59%), 2 = C (60%–64%), 3 = C+ (65–69%), 4 = B– (70%–72%), 5 = B (73%–76%), 6 = B+ (77%–79%), 7 = A– (80%–84%), 8 = A (85%–89%), and 9 = A+ (90%–100%).

Student Experience Outcomes

Mental health was measured by the nine-item Academic Well-Being Subscale (AWBS), a measure of mental health in academic contexts that assesses the degree to which students are flourishing regarding emotional, psychological, and social wellbeing in their academic context (Rostampour et al., 2023). Students rated each item on a 5-point Likert scale from *never* to *always*.

The AWBS was adapted from the Mental Health Continuum Short Form (MHC-SF; Keyes, 2009) for the academic context. The AWBS demonstrates improved predictive capacity over the MHC-SF, and concurrent validity shows strong positive associations with (a) MHC-SF, (b) self-regulated learning (SRL) practices, (c) foundational academic behaviours, and (d) students' GPA. The AWBS predicts a wide range of academic challenges and is associated with students' GPA while the MHC-SF is not (see Rostampour et al., 2023). Composite reliability (McDonald's ω) is .71 to .88 for overall and subscale scores. Overall scores were used in this study.

Students responded to the prompt "How are you doing this term?" A sample academic emotional wellbeing being item is "I am interested in my classes." A sample academic psychological wellbeing item is "In general, I feel confident and positive about myself as a student." A sample academic social wellbeing item is "I have developed personal relationships with other students in my classes."

Academic challenges were measured using the 43-item Self-Regulated Learning Challenges scale (SRL-C), which is the degree of academic challenges encountered by students, with a higher score denoting more challenges and indicating a student is

struggling to manage aspects of studying (Hadwin et al., 2022). The SRL-C is part of the Self-Regulated Learning Assessment and Self-Diagnostic tool (SRL-PSD-2021; Hadwin et al., 2022). The SRL-C is comprised of 5 subscales assessing the degree to which students encountered a range of challenges in their studying over the last two weeks. Responses were reported on a 5-point Likert scale from *strongly disagree* to *strongly agree*. Higher scores indicate a student is struggling to manage aspects of studying theoretically and empirically associated with student success and performance. Reliability scores for the SRL-C subscales are .70 to .88 (Hadwin et al., 2022).

The five SRL-C subscales are (a) motivation, (b) metacognitive, (c) cognitive, (d) behavioural, and (e) socioemotional. The motivation and socioemotional challenges subscales were selected for this research. The Motivation Challenge subscale is comprised of four items related to motivational beliefs, interest, and persistence. The reliability score for the Motivation Challenge subscale is .70 (Hadwin et al., 2022). Items for Motivation Challenge are in response to the prompt *Over the last two weeks, I struggled with*: "Believing I can do my work," "Feeling like my work was worth doing," "Persisting when things got tough," and "Being discouraged by setbacks."

Coping Self-Efficacy

Coping self-efficacy was measured by the 26-item Coping Self-Efficacy Scale (CSES; Chesney et al., 2006), with higher scores indicating higher levels of coping self-efficacy. Participants rated items on a 5-point Likert scale from *not confident* to *completely confident*. The scale consists of three subscales: (a) managing unpleasant emotions and thoughts, (b) using problem-focused coping, and (c) getting support from family and friends. The CSES uses this prompt before the scale items: *When things aren't going well for you, how confident are you that you can*. The prompt was adapted for this research by instructing the students to consider their responses in reference to coping with challenges in the academic context; specifically, the prompt was: *When things aren't going well for you at school, how confident are you that you can*. The CSES has high internal consistency (alpha = .95) and strong construct validity (Chesney et al., 2006).

Results from a CFA prompted inclusion of only emotion-focused and problem-focused subscales in the analysis (15 items). The support subscale was methodologically problematic in the following ways and therefore excluded: (a) suboptimal fit indices for the three-factor model, (b) cross loading between support items and the emotion focused coping subscale items, (c) local misspecifications (e.g., cross loadings for the four support items), and (d) redundancy of the items.

Stress Mindset

The Stress Mindset Scale (SMS; Crum et al., 2013) is an eight-item measure that assesses an individual's beliefs about the nature of stress and its consequences, for example whether the effects of stress are enhancing or debilitating. Items evaluate a participant's general stress mindset ("The effects of stress are negative and should be avoided"), as well as signs and symptoms related to the enhancing and debilitating consequences of stress in the realms of health and vitality, learning and growth, and performance and

productivity ("Stress enhances my learning and growth"). Participants rated items on a 5-point Likert scale to indicate if the scale items are *never true*, *rarely true*, *sometimes true*, *usually true*, or *always true*. Stress Mindset scores are obtained by reverse scoring the four negative items and then taking the mean of all eight items. Higher scores on the SMS represent the mindset that stress is enhancing. Internal consistency for the SMS is reported as .86 (Crum et al., 2013).

Data Analytic Strategy

The open-source R program was used for the analysis (Rosseel, 2012). Descriptive statistics and correlations were calculated first. Then, linear regression using the backward method was used to examine the effect of each predictor. Separate regression analyses were conducted for the student success outcomes. Backward elimination starts with all possible explanatory variables and then discards the least significant. The backward approach is suitable when there is not a large number of candidate variables (Smith, 2018).

Results

Descriptive Statistics and Correlations

The assumptions of linearity, independence, and homoscedasticity were met. The analyses were conducted using complete datasets (e.g., no missing values). Descriptive statistics are displayed in Table 1. Skewness and kurtosis scores indicated responses fall within normal distribution range. Correlations are displayed in Table 2. Correlation scores and the direction of the relationships are consistent with expectations regarding relationships among variables. Specifically, results showed Coping Self-Efficacy was significantly correlated with Academic Wellbeing (r = .57, p < .001), Motivation Challenge (r = –.40, p < .001), and Stress Mindset (r = .29, p < .001). Stress Mindset was only significantly correlated with Academic Wellbeing (r = .19, p < .05). Academic Wellbeing was significantly correlated with all other variables. Motivation Challenges was significantly negatively associated with

Table 1. Descriptive Statistics and Correlations

Variable	Mean	sd	Skewness	Kurtosis	α	CSE	SM	AWB	MotCh	GPA
CSE	3.11	.68	–.05	.09	.92	-				
SM	2.67	.55	.04	.49	.78	.29***	-			
AWB	3.53	.63	–.58	.63	.86	.57***	.19*	-		
MotCh	2.84	.81	–.24	.14	.75	–.40***	–.11	–.38***	-	
GPA	5.46	1.8	–.01	–.9	n/a	–.008	–.04	.24***	–.10	-

Note. N = 185. CSE = coping self-efficacy; SM = stress mindset; AWB = academic wellbeing; MotCh = motivation challenges; GPA = grade point average.

*p < .05, **p < .01, ***p < .001.

Coping Self-Efficacy ($r = -.40$, $p < .001$) and Academic Wellbeing ($r = -.38$, $p < .001$). GPA was only significantly positively associated with Academic Wellbeing ($r = .24$, $p < .001$).

To address the research questions regarding whether Coping Self-Efficacy and Stress Mindset predict the student success outcomes, Academic Wellbeing, and Motivation Challenges, linear regression was conducted using the backward method. A Bonferroni correction was applied to reduce the likelihood of Type 1 error, with the adjusted p value 0.025.

The results in Table 2 show that when Stress Mindset and Coping Self-Efficacy were entered as predictors for Academic Wellbeing, only Coping Self-Efficacy was a significant predictor ($\beta = 0.57$, t (184) = 9.29, $p < .001$, $R^2 = 0.32$). Coping Self-Efficacy also accounted for 32% of the outcome variability in Academic Wellbeing. Thus, the model with only coping self-efficacy as predictor was selected.

The results in Table 3 show that when Stress Mindset and Coping Self-Efficacy were entered as predictors for Motivation Challenges, only Coping Self-Efficacy was a significant predictor ($\beta = -.40$, t (184) = –5.87, $p < .001$, $R^2 = 0.16$). Coping Self-Efficacy accounted for 16% of the outcome variability in Motivation Challenges. Neither Coping Self-Efficacy nor Stress Mindset were significant predictors of GPA (Table 4).

Findings indicate Coping Self-Efficacy positively predicts Academic Wellbeing and negatively predicts Motivation Challenges. However, neither Stress Mindset nor Coping Self-Efficacy were significant predictors of GPA. Stress Mindset had no incremental predictive capacity above and beyond Coping Self-Efficacy.

Table 2. Linear Regression Model Summary With Academic Wellbeing as Outcome Variable

Model		B	SE	β	*t*	*p*
1	CSE	.52	.06	.56	8.76	<.001
	SM	.03	.07	.03	.45	.66
2	CSE	.52	.06	.566	9.29	<.001

Note. Method = backward; R^2 for model is .32. SM was considered but not included. CSE = coping self-efficacy; SM = stress mindset.

Table 3. Linear Regression Model Summary With Motivation Challenges as Outcome Variable

Model		B	SE	β	*t*	*p*
1	CSE	–.47	.08	–.40	–5.64	<.001
	SM	.01	.11	.01	.11	.91
2	CSE	–.47	.08	–.40	–5.87	<.001

Note. Method = backward; R^2 for model is .16. SM was considered but not included. CSE = coping self-efficacy; SM = stress mindset.

Table 4. Linear Regression Model Summary With GPA as Outcome Variable

Model		B	SE	β	*t*	*p*
1	CSE	.01	.21	.00	7.00	.96
	SM	–.14	.27	–.04	.05	.61
2	SM	–.13	.25	–.40	–5.87	.60

Note. Method = backward; R^2 for model is .002. CSE = coping self-efficacy; SM = stress mindset.

Discussion

In academic settings that are inherently evaluative, goal-oriented, and performance-based, stress and academic demands are expected. It is neither practical nor possible to eliminate stress in motivated performance contexts like academic settings. Further, when stress is well managed it provides a valuable resource and is an adaptive component of wellbeing and performance that comprises student success (de la Fuente, 2020). Appraisals about stress play a key role in how stress is managed, whether stress is adaptive or distressing for example. This research examined two types of stress appraisals and their association with student success outcomes: (a) general beliefs about stress itself or stress mindset and (b) specific appraisals of feeling capable of coping with academic stress and demands or coping self-efficacy. Findings inform the role of coping self-efficacy and stress mindset in relation to the student success outcomes included in this study.

Stress Mindset and Student Success

Findings showed that stress mindset had a negligible influence on student success in this study. Stress mindset did not contribute directly to variability in any of the student success outcomes. In other words, stress mindset did not add any predictive capacity regarding student success outcomes above what was accounted for by coping self-efficacy. Stress mindset was only significantly positively correlated with mental health, although the strength of the association was small. The finding that stress mindset did not contribute to student success outcomes was unexpected considering prior research indicating stress mindset contributes to psychological, motivational, and performance outcomes (Crum et al., 2017; Jamieson et al., 2018; Jenkins et al., 2021).

Mindsets are operationalized as a 'lens' or 'frame of mind' that orient a person to a particular set of associations, expectations, and predictions (Dweck, 2006). Stress is a complex process and can have both enhancing and debilitating effects. Stress mindsets can simplify and orient individuals to a set of expectations, strategies, and motivations that increase the chance that a person will experience the enhancing effects of stress, especially in performance situations (e.g., exams, university context; Crum et

al., 2013, 2017). Although the idea of mindsets is appealing, mindsets research has been criticized recently with respect to effect size (Macnamara & Burgoyne, 2023; Sisk et al., 2018), construct validity (Macnamara & Burgoyne, 2023), and overstating claims of importance for academic performance and wellbeing (Burnette et al., 2023; Macnamara & Burgoyne, 2023; Yan & Schuetze, 2023). Although extant research shows stress mindset functioning in a predictive role (Crum et al., 2013, 2017; Jenkins et al., 2021; Keech et al, 2018), this research did not confirm the predictive capacity of stress mindsets on student success outcomes in academic settings. We hypothesize that it was a combination of the above factors that detracted from stress mindset exerting significant impact on student success in this research.

Coping Self-Efficacy and Student Success

This study was exploratory in terms of confirming the utility of coping self-efficacy in educational settings. Coping self-efficacy captures student perceptions of being able to cope with the emotion of stress and academic demands, both of which are expected in academic contexts. Results showed coping self-efficacy as holding value as a predictor of student success. Coping self-efficacy did not predict GPA directly, however. The data was collected during the academic term, and GPA is a distal measure that is compiled upon completion of the term. It is possible that coping self-efficacy is more impactful on proximal processes such as mental health and motivation challenges.

These preliminary findings confirm coping self-efficacy as important in understanding student success and worth further exploration. In this study, coping self-efficacy predicted both higher mental health and lower motivation challenges. In other words, when students believe they can cope with stress and academic demands at university, they report higher levels of mental health and less challenges with motivation. Evidence shows both mental health and motivation challenges are important contributors to student success (Hadwin et al., 2022; Howell, 2009; Koivuniemi et al., 2017). This result is important given the established impact of psychological processes like mental health for facilitating student success outcomes (Howell, 2009; Keyes, 2007; Kuh et al., 2005; Louis & Schreiner, 2012; Moulin et al., 2017) and the prior evidence that motivation challenges are associated with poor academic outcomes (Boekaerts, 2011; Hadwin et al., 2022; Koivuniemi et al., 2017). Findings are also consistent with prior research in stress optimization that showed stress reappraisals predict adaptive coping in academic settings, specifically mastery performance goals (Jamieson et al., 2022). Findings from this study support the value of coping self-efficacy as a metric of student expectations regarding capacity to cope with academic stress and demands and as a predictor of student success outcomes.

Next Steps for Examining Stress-Related Beliefs and Student Success

For future research on stress and student success, there is considerable potential utility for a theoretical frame that can account for both stress and academic demands

in academic settings. For example, in this study neither stress mindset nor coping self-efficacy were predictive of academic performance, in contrast with prior research (e.g., Jamieson et al., 2022). A focus on learning practices and processes in addition to stress beliefs has the potential to add to stress and student success research in several areas including: (a) the assessment of resources and demands in academic contexts, (b) facilitating task understanding and engagement as part of the context for stress beliefs, and (c) providing adaptive resources for students that foster positive predictions about future academic demands and related adaptive stress beliefs. It is recommended that future research on stress and student success include aspects of learning processes.

Further, a stress appraisal like coping self-efficacy captures perceptions of feeling capable of managing both the emotion of stress and academic demands within an academic setting, which are distinct processes. Therefore, when considering stress in educational contexts, stress optimization approaches could benefit from the extensive knowledge about the learning process offered within an approach like self-regulated learning (SRL) (e.g., see Panadero, 2018; Winne & Hadwin, 2008). Self-regulated learning moves beyond an outcome focus to examine processes that support effective learning and success, creating an extensive map to support students to achieve autonomy, healthy stress beliefs, and regulation over time. It is recommended that future research examine the associations between stress beliefs, aspects of SRL, and student success outcomes.

Implications and Future Directions

Students are experiencing high levels of stress that presents a threat to wellbeing and performance aspects of student success. Findings from this research support the integration of coping self-efficacy in supporting student success. Additional information regarding the role of perceptions of coping with school stress and demands has potential for supporting student thriving and success. Beliefs about stress contribute to student experiences that comprise student success, namely academic wellbeing and motivation challenges in this research. In the challenging and stressful university context, feeling capable of coping with academic stress and demands and recognizing that stress can promote growth wellbeing can facilitate student success.

With considerable outcome variability not accounted for, there is room in future research to include additional variables that will impact student success. For example, how students are managing their academic demands was not included in this study. SRL practices and behaviours have been linked to both academic success and social emotional outcomes in academic settings (Howell, 2009; Robbins et al., 2004; Schunk & Greene, 2018; Zollanvari et al., 2017). The next step in this inquiry would be to include SRL practices and whether they mediate the association between coping self-efficacy and the student success outcomes. It is expected that students' strategies for handling academic stress and demands are linked to their perceived capacity to cope within the academic environment, potentially explaining further variations in student success beyond what was examined in this study.

Limitations

While findings from this research provide important information about student success, there are some notable limitations. First, the sample size is adequate for a regression analysis but still relatively small. Optimally, future research can replicate these findings with a larger sample. Second, this study is cross-sectional. The study is exploratory as coping self-efficacy is not well established in academic or student success research. Thus, the first step is to establish the association between coping self-efficacy and outcome variables. However, with a cross-sectional study using regression, the findings should be generalized with caution. It is recommended future research attends to the multifaceted and recursive nature of the variables involved by examining change over time and measurement at multiple time points. Finally, future studies should investigate the effect of possible confounding variable like demographic characteristics.

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