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Moderating Role of Academic Stress on Self-Efficacy, Self-Compassion, and Psychological Well-Being among University Students

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Abstract

This study investigated the moderating role of academic stress in the relationship between self-efficacy, self-compassion, and psychological well-being among university students in Pakistan. A cross-sectional research design was employed with a sample of 202 students (123 males and 79 females) aged 18–30 years, selected through a stratified sampling technique from universities in Rawalpindi and Islamabad. Participants completed validated scales measuring self-efficacy (GSE), self-compassion (SCS-SF), psychological well-being (PWB-42), and academic stress (ESSA). The results revealed significant positive relationships between self-efficacy, self-compassion, and psychological well-being. Furthermore, academic stress showed a significant moderating effect on the relationship between self-efficacy and psychological well-being. Gender differences were also observed, with female students reporting higher levels of self-efficacy, self-compassion, and psychological well-being, whereas male students experienced greater academic stress. The findings highlight the importance of addressing academic stress through targeted interventions, such as stress management programs and resilience-building strategies, to enhance students' mental health and academic performance. This research provides valuable insights for educators, mental health professionals, and policymakers in fostering supportive academic environments.

Keywords: *Academic Stress, Self-Efficacy, Self-Compassion, Psychological Well-Being, University Students.*

INTRODUCTION

The relationship between academic stress, self-efficacy, self-compassion, and psychological well-being among university students has gained considerable attention in recent years. However, there is still a gap in understanding how academic stress influences the connections between these variables. Most existing research has explored the direct links between self-efficacy, self-compassion, and psychological well-being, often overlooking the role of academic stress in shaping these relationships (Neff, 2003).

In recent years, the psychological challenges faced by university students have become an increasing concern for educators and mental health professionals. While factors such as self-efficacy and self-compassion have been widely acknowledged as protective mechanisms that enhance psychological well-being, the influence of academic stress as a moderating factor remains less explored, particularly in diverse student populations. This study seeks to investigate how academic stress shapes the relationship between self-efficacy, self-compassion, and psychological well-being among university students. To ensure a holistic understanding of these dynamics, the study considers key demographic variables including age, gender, and socioeconomic status, field of study, employment status, living conditions, educational background, and sleep patterns. By examining how these personal and contextual factors intersect with academic stress and psychological traits, the research aims to uncover nuanced insights that can inform tailored interventions for different student profiles. The inclusion of a wide range of demographic factors also adds depth and uniqueness to the study, allowing for a

more comprehensive analysis that reflects the diverse realities of university life. Research has shown that academic stress significantly impacts students' mental health, highlighting the need to understand its broader effects (Hamaideh, 2011).

Many university students experience significant academic pressure, which can negatively impact their mental health. The stress of achieving academic success, coupled with demanding coursework, can lower their confidence, reduce self-compassion, and affect overall well-being (Bandura, 1997). This study seeks to bridge this research gap by investigating how academic stress moderates the relationships between self-efficacy, self-compassion, and psychological well-being among university students. The central research question guiding this study is: How does academic stress influence the relationships between self-efficacy, self-compassion, and psychological well-being?

This research holds significance as it aims to provide a deeper understanding of the interactions between academic stress, self-efficacy, self-compassion, and psychological well-being. The findings will be useful in developing strategies to enhance students' mental well-being and resilience. By analyzing the moderating role of academic stress, this study offers insights that can inform interventions to support students' psychological health and academic success.

LITERATURE REVIEW

Self-efficacy refers to an individual's belief in their ability to accomplish tasks and achieve goals (Bandura, 1986). Research suggests that self-efficacy plays a vital role in academic motivation, learning, and performance. Students with high self-efficacy are more likely to persist in challenging tasks, exert greater effort, and achieve better academic outcomes. In contrast, students with low self-efficacy often attribute failures to their lack of ability rather than insufficient effort (Bandura, 2012).

Studies indicate that self-efficacy varies across different tasks and situations, meaning an individual may feel confident in one area but not in another (Heslin & Klehe, 2006). High self-efficacy promotes resilience and adaptability, allowing students to learn from their mistakes rather than being discouraged by them (Chemers et al., 2001). In contrast, students with low self-efficacy tend to interpret setbacks as confirmation of their incompetence, leading to decreased motivation and performance (Epton & Harris, 2008).

Self-Compassion

Self-compassion involves treating oneself with kindness and understanding during difficult times, rather than engaging in harsh self-criticism. Research shows that self-compassion enhances mental well-being in both adolescents and adults (Neff & Vonk, 2009). Higher levels of self-compassion are associated with lower stress and improved emotional health (Gilbert & Procter, 2006).

Another study found that self-compassion reduces negative emotions such as anxiety and self-doubt while fostering confidence in handling challenges (Leary et al, 2007).

Self-compassion has been linked to greater academic confidence and a reduced fear of failure (Neff, 2005). It encourages students to focus on learning and growth rather than solely on performance. Research suggests that students with higher self-compassion experience lower levels of academic burnout and greater emotional well-being (Lee, 2013).

Recognizing common humanity understanding that struggles are a shared human experience along with mindfulness, which involves observing emotions without judgment, helps individuals cultivate self-compassion (Adams & Leary, 2007). However, academic stress may weaken self-compassion by increasing self-criticism. Recent studies have differentiated between trait self-

compassion (a stable characteristic) and state self-compassion (which varies depending on circumstances) (Neff, 2021).

Psychological Well-Being

Psychological well-being includes various dimensions such as autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance (Ryff, 1989). It encompasses both positive emotions and the ability to cope with life's challenges (Diener, 2000). Maintaining psychological well-being is crucial for students' success, as it is associated with better physical health, higher academic performance, and improved social relationships (Bowman, 2010). Conversely, poor mental health can lead to negative outcomes such as stress, low self-confidence, and even depression (Chao, 2012).

Studies on international students indicate that adapting to new environments significantly impacts psychological well-being (Ryff, 1989). Research over the past few decades has highlighted the importance of understanding how individuals adjust to academic pressures and personal challenges (Cook, 1959).

The Moderating Role of Academic Stress

While self-efficacy and self-compassion contribute to psychological well-being, the influence of academic stress on these relationships remains underexplored. Some studies suggest that high academic stress can weaken the positive effects of self-efficacy and self-compassion, making it difficult for students to maintain confidence and self-kindness (Pascoe, 2020). Others argue that self-efficacy and self-compassion serve as protective factors that help students manage academic stress more effectively (Lee & Lee, 2020).

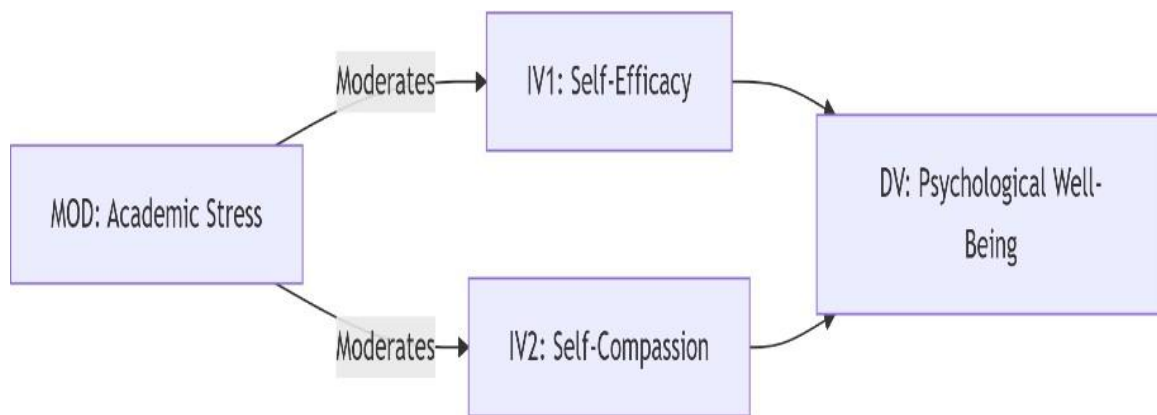
Academic stress is widely recognized as a significant factor affecting students' psychological well-being, with strong links to anxiety, depression, and emotional exhaustion. However, research suggests that self-efficacy and self-compassion can act as buffers against these negative effects. According to (Bandura, 1997), self-efficacy enables students to cope with academic challenges by fostering resilience and adaptive coping strategies. Similarly, (Neff, 2003) emphasized that self-compassion helps students regulate emotions and maintain psychological well-being. Studies indicate that higher self-compassion is associated with lower academic stress and improved mental health outcomes.

Despite extensive research on the individual effects of self-efficacy and self-compassion on academic stress and well-being, few studies have examined how academic stress moderates these relationships. Understanding this moderating role is crucial, as it can reveal whether self-efficacy and self-compassion consistently protect students' well-being under high-stress conditions or if their benefits diminish in such circumstances (Lee, 2020). Addressing this gap can provide valuable insights into supporting students' mental health in demanding academic environments.

Research found that self-efficacy and self-compassion are positively correlated, suggesting that individuals with high self-efficacy tend to show greater self-compassion. This study also revealed that self-efficacy is inversely related to self-judgment and self-doubt. Understanding the interplay between these variables is essential for fostering resilience and well-being in students (Iskender, 2009).

This research focuses on university students, a group facing multiple challenges such as academic pressure, financial concerns, and social adjustments. Developing self-confidence, positive thinking, and self-compassion can help students navigate these challenges successfully (Kessler, 2007). By examining how academic stress influences self-efficacy and self-compassion, this study aims to provide insights into effective strategies for promoting psychological well-being among students.

Conceptual Model



Theoretical Background

Self-efficacy, self-compassion, and psychological well-being are significant psychological constructs that influence students' ability to manage academic stress. Various theoretical perspectives help explain the interconnections among these variables.

Self-Efficacy

Albert Bandura's Social Cognitive Theory serves as the foundation for understanding self-efficacy, which refers to an individual's belief in their ability to succeed in specific situations. (Bandura, 1997) emphasized that self-efficacy influences motivation, persistence, and overall performance. He identified four key sources that shape self-efficacy: personal accomplishments, vicarious experiences (observing others), verbal persuasion (encouragement from others), and physiological and emotional states. In an academic context, self-efficacy plays a crucial role in determining students' confidence in handling educational challenges.

Research suggests that strong self-efficacy beliefs enable students to cope with academic stress more effectively, promoting resilience and adaptive learning strategies (Chemers, 2001). Conversely, high levels of academic stress can weaken self-efficacy, resulting in avoidance behaviors, reduced motivation, and lower academic performance (Chao, 2012).

Self-Compassion

(Kristin Neff, 2003) introduced Self-Compassion Theory, which conceptualizes self-compassion as a way of relating to oneself with kindness, understanding, and acceptance, particularly in times of struggle or failure. Self-compassion consists of three interrelated components: self-kindness, common humanity, and mindfulness. Self-kindness involves treating oneself with care rather than engaging in harsh self-criticism, while common humanity refers to recognizing that failure and suffering are universal human experiences. Mindfulness allows individuals to acknowledge their negative emotions without suppressing or exaggerating them. In an academic setting, self-compassion acts

as a protective factor against academic stress and emotional distress, enabling students to adopt a balanced perspective on their struggles (Iskender, 2009).

Studies have shown that self-compassionate students exhibit lower levels of stress, anxiety, and depression, as they replace negative self-judgment with more constructive coping strategies (Lee, 2013).

Psychological Well-Being

(Carol Ryff, 1989) developed a multidimensional model of psychological well-being (PWB), which conceptualizes well-being as more than just the absence of distress. Instead, PWB involves self-acceptance, personal growth, and purpose in life, environmental mastery, autonomy, and positive relationships. According to Ryff, self-acceptance refers to maintaining a positive attitude

toward oneself, while personal growth signifies continuous self-improvement. Purpose in life provides a sense of direction, and environmental mastery reflects an individual's ability to effectively manage life circumstances. Autonomy entails making independent decisions, and positive relationships emphasize the significance of meaningful social connections. Academic stress can significantly affect psychological well-being by increasing anxiety and reducing overall life satisfaction (Pascoe, 2020). However, self-efficacy and self-compassion serve as buffers against the negative effects of academic stress, allowing students to maintain their emotional well-being and motivation (Neff, 2007).

Academic Stress as a Moderator

Academic stress is a prevalent phenomenon among students, influencing their psychological well-being, self-efficacy, and self-compassion. (Lazarus and Folkman's, 1984) Transactional Model of Stress and Coping serves as a foundational theory in understanding academic stress. This model explains stress as a result of the interaction between an individual and their environment, where stress occurs when perceived demands exceed an individual's coping resources. University students often experience stress due to academic workload, pressure to perform, time constraints, and competition. When students perceive academic challenges as threatening rather than manageable, they may experience heightened stress levels, negatively impacting their mental health, motivation, and overall academic performance.

Research suggests that academic stress is inversely related to self-efficacy and psychological well-being, as students who believe in their ability to handle academic challenges tend to experience lower stress levels. Similarly, self-compassion serves as a protective factor, allowing students to treat themselves with kindness rather than self-criticism during academic struggles. High academic stress, if unmanaged, can lead to burnout, anxiety, and depression, emphasizing the need for effective coping strategies and institutional support systems. Given its significant role in student life, academic stress is a crucial factor in psychological research, particularly in exploring its moderating effects on self-efficacy, self-compassion, and well-being.

Integrating these theories, this research seeks to explore how academic stress modifies the effects of self-efficacy and self-compassion on psychological well-being, providing valuable insights into student mental health and academic success.

METHODS

Objective

1. To examine the relationship between self-efficacy and psychological well-being in university students.
2. To investigate the relationship between self-compassion and psychological well-being in university students.
3. To assess the moderating role of academic stress in the relationship between self-efficacy and psychological well-being.
4. To evaluate the moderating role of academic stress in the relationship between self-compassion and psychological well-being.
5. To explore the impact of demographic variables (age, gender, socioeconomic status, field of study, employment status, living status, educational level, and sleeping patterns) on psychological well-being.
6. To determine whether demographic variables moderate or influence the relationship between academic stress, self-efficacy, and self-compassion

Hypothesis

1. There is a significant relationship between self-efficacy and psychological well-being in university students.

2. There is a significant relationship between self-compassion and psychological well-being in university students.
3. Academic stress significantly moderates the relationship between self-efficacy and psychological well-being.
4. Academic stress significantly moderates the relationship between self-compassion and psychological well-being.
5. There are significant differences in psychological well-being across demographic groups such as gender, socioeconomic status, and field of study.
6. Demographic variables (e.g., age, gender, sleep patterns, and employment status) significantly influence the level of academic stress experienced by university students.
7. The effect of academic stress on psychological well-being is significantly different across levels of socioeconomic status and educational background.

Research Design

Cross sectional research design was used in this study.

Sample

Total sample of ($N=202$) university students including ($N=123$ males) and ($N=79$ females) was selected from different universities of Rawalpindi and Islamabad. Age range was 18 to 30 years. Data was collected through stratified sampling technique. In the stratified sampling process, the target universities were first identified, and then students were categorized into male and female groups. Participants were randomly selected from each group in a way that maintains equal representation. This method helps reduce sampling bias and enhances the generalizability of the results. Data is gathered through structured surveys, with participants being approached in academic environments such as university campuses, libraries, and student centers. Throughout the data collection process, ethical guidelines, including obtaining informed consent and ensuring confidentiality, were strictly upheld.

Inclusion Criteria

1. Only university students were included in the study
2. Participants having age range of 18 to 30 years were included.

Exclusion Criteria

1. Participants having any physical and mental disability were excluded.

Operational definition

Self-Efficacy

Self-efficacy refers to an individual's confidence in their ability to accomplish tasks and overcome challenges (Bandura, 1997). In this study, self-efficacy was assessed using the General Self-Efficacy Scale (GSE) (Schwarzer & Jerusalem, 1995), which evaluates an individual's perceived competence in handling various life situations. Higher scores indicate greater self-efficacy.

Self-Compassion

Self-compassion has been defined as a self-attitude that involves treating oneself with warmth and understanding in difficult times and recognizing that making mistakes is part of being human (Neff, 2003). In present study self-compassion was measured through Self Compassion Scale Short Form (SCS-SF) (Neff, 2011).

Psychological Well-Being

Psychological well-being encompasses an individual's positive mental state, characterized by self-acceptance, life purpose, personal development, autonomy, environmental mastery, and strong interpersonal relationships (Ryff, 1989). This study was utilize Ryff's Psychological Well-

Being Scale (PWB) – 42 Items (Ryff, 1989) to evaluate well-being, with higher scores representing better psychological health.

Academic Stress

The Educational Stress Scale for Adolescents (ESSA), developed by Sun, Dunne, Hou, and Xu (2011), is a 16-item scale designed to measure academic stress among students. It consists of five subscales: Pressure from Study, Workload and Exams, Worry about Grades, Self-Expectation, and Despondency. The ESSA uses a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), with higher scores indicating greater academic stress. It has demonstrated strong reliability (Cronbach's alpha = 0.70–0.85) and validity, making it a widely used tool for assessing the psychological impact of academic stress on students.

Instrument Demographic sheet

General Self-Efficacy Scale (GSE)

General Self-Efficacy Scale (GSE), developed by Schwarzer and Jerusalem (1995), is a widely recognized measure of self-efficacy, assessing an individual's confidence in handling challenges and achieving goals. It consists of 10 items rated on a 4-point Likert scale ranging from 1 (Not at all true) to 4 (Exactly true). Numerous studies have reported high internal consistency for this scale, with Cronbach's alpha values ranging from 0.76 to 0.90, indicating strong reliability. The GSE does not include any reverse-scored items, and the total score is derived by summing all item responses, where higher scores reflect greater self-efficacy. Given its strong psychometric properties, the GSE is considered a reliable instrument for measuring self-efficacy.

Self-Compassion Scale Short Form (SCS-SF)

This scale was developed by Neff (2011). The Self-Compassion Scale - Short Form (SCS-SF) is used to measure their capacity for self-compassion, the ability to hold one's feelings of suffering with a sense of warmth, connection and concern. The Self-Compassion Scale-Short Form is a 12-item on five-point Likert scale (0 = 'Almost never' to 5 = 'Almost always) to record how often you behave kindly and caringly towards yourself in difficult life situations. "The scale consists of six subscales. Items 1, 4, 8, 9, 11, and 12 are reverse-scored. The global SCS-SF score had high internal consistency which is .86(Cronbach's alpha greater than .86) a reliable tool for assessing self-compassion.

Ryff's Psychological Well-Being Scale

The Ryff's Psychological Well-Being Scale (PWB-42), developed by Ryff (1989), and measures six dimensions of psychological well-being: Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. It consists of 42 items rated on a 6-point Likert scale, ranging from 1 (Strongly disagree) to 6 (Strongly agree). Research has demonstrated high reliability for this scale, with Cronbach's alpha values ranging from 0.82 to 0.89, while subscale reliabilities range from 0.70 to 0.85. The PWB-42 contains several negatively worded items that require reverse scoring before analysis. These items include Recode negative phrased items: # 3, 5, 10, 13,14,15,16,17,18,19, 23, 26, 27, 30, 31, 32, 34, 36, 39, and 41. (i.e., if the scored is 6 in one of these items, the adjusted score is 1; if 5, the adjusted score is 2 and so on...)

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reliability (“Cronbach’s alpha ranging from .70 to .85”) and validity, making it a widely used tool for assessing the psychological impact of academic stress on students.

Data Collection

The data collection process involves administering questionnaires to university students using a stratified sampling technique. First, the target population is identified, consisting of university students from Rawalpindi and Islamabad, with an equal representation of males and females. The sample is stratified into two groups based on gender to ensure proportional representation. Within each stratum, participants are selected randomly to minimize selection bias.

Questionnaires are distributed in academic settings, such as university campuses, libraries, and student centers, where students are approached and invited to participate voluntarily. Before filling out the questionnaire, participants are briefed about the purpose of the study, and informed consent is obtained. The questionnaire consists of standardized scales measuring academic stress, self-efficacy, self-compassion, and psychological well-being. Participants are instructed to respond honestly based on their recent experiences. Confidentiality and anonymity are strictly maintained throughout the process to ensure ethical compliance. Once completed, the responses are collected and prepared for statistical analysis.

Table 1: Frequency and percentage of demographic variable (N=202)

<i>Variable</i>	<i>Category</i>	<i>Frequency</i>	<i>Percentage (%)</i>
Gender	Male	123	60.9
	Female	79	39.1
Age	18-21 years	83	41.1
	21-24 years	117	57.9
	25-30 years	2	1.0
SES	Lower	128	63.4
	Middle	59	29.2
	Upper	15	7.4
Field of Study	Arts	2	1.0
	Humanities	16	7.9
	Social Sciences	156	77.2
	Medical	25	12.4
	Engineering	3	1.5
Employment	Full-time student	80	39.6
	Part-time student	64	31.7
	PT student + FT job	58	28.7
Living Status	Hostel	103	51.0
	With family	99	49.0
Education Level	1st year	25	12.4
	2nd year	16	7.9
	3rd year	2	1.0
	4th year	159	78.7
Sleep Pattern	7-9 hours	100	49.5
	<7 hours	3	1.5
	<5 hours	22	10.9
	Night owls	77	38.1

The Table represent a total of 202 university students, with a majority being male (60.9%, n=123) compared to female participants (39.1%, n=79). This gender distribution reflects broader enrollment trends in Pakistani higher education, particularly in the Social Sciences. In terms of age, most participants fell within the traditional university age range: 41.1% (n=83) were between 18–21 years old, while 57.9% (n=117) were aged 21–24. Only a small fraction (1.0%, n=2) were older (25–30 years).

Socioeconomically, the majority of students reported belonging to the lower class (63.4%, n=128), with middle-class (29.2%, n=59) and upper-class (7.4%, n=15) students being significantly underrepresented. This aligns with the typical student demographics at public universities in Rawalpindi and Islamabad.

Academically, the sample was heavily skewed toward Social Sciences majors (77.2%, n=156), with smaller representations from Medical (12.4%, n=25), Humanities (7.9%, n=16), and other fields. Most participants were in their fourth year of study (78.7%, n=159), suggesting a focus on advanced undergraduates. Employment status varied, with 39.6% (n=80) being full-time students, 31.7% (n=64) part-time students, and 28.7% (n=58) balancing part-time studies with full-time jobs.

Living arrangements were nearly evenly split, with 51% (n=103) residing in hostels and 49% (n=99) living with family. Sleep patterns revealed that 49.5% (n=100) maintained a healthy 7–9 hours of sleep, while 38.1% (n=77) identified as night owls. A concerning 10.9% (n=22) reported sleeping fewer than 5 hours, which may indicate high academic stress or workload pressures.

Data Analysis

“Pearson correlation, independent samples t-test, regression analysis, moderation analysis, ANOVA, and item recoding were conducted.”

Practical Implications

The findings of this study are significant for practical implications for educational institutions, mental health professionals, and policymakers aiming to enhance university students' psychological well-being. By examining the moderating role of academic stress in the relationship between self-efficacy, self-compassion, and psychological well-being, this research will provide valuable insights into how students can better cope with academic pressures. Universities can use these findings to design stress management programs, promote self-compassion interventions, and develop academic counseling services that foster resilience among students. Additionally, educators can implement strategies to enhance self-efficacy in students, empowering them to handle academic challenges more effectively. Mental health practitioners can integrate self-compassion and stress-reduction techniques into therapy and counseling sessions to support students struggling with psychological distress. Furthermore, policymakers can utilize the study's findings to introduce policies that prioritize student mental health initiatives and create a more supportive academic environment. Overall, this research will contribute to improving student well-being, reducing the negative impact of academic stress, and promoting a healthier educational experience.

RESULTS

The present study investigated the relationships between self-efficacy, self-compassion, academic stress, and psychological well-being among university students, with particular emphasis on examining academic stress as a moderator. All statistical analyses were performed using SPSS version 26. Initial analyses included descriptive statistics (frequencies and percentages) to summarize demographic characteristics and variable distributions, followed by Pearson correlation analysis to examine bivariate relationships among the key variables. Group differences were assessed using independent samples t- tests (for gender comparisons) and one-

way ANOVAs (for field of study, socioeconomic status, and education level). The core analysis employed hierarchical regression following Hayes' (2018) recommendations to test the moderating effects of academic stress. Three-step models were constructed for each analysis: (1) entering demographic controls, (2) adding main effects of either self-efficacy or self-compassion along with academic stress, and (3) introducing the interaction terms (self-efficacy \times academic stress; self-compassion \times academic stress). Significant interactions were probed using simple slope analysis at high (+1 SD) and low (-1 SD) stress levels. This comprehensive approach enabled rigorous examination of whether academic stress strengthened or weakened the protective relationships of self-efficacy and self-compassion with psychological well-being, while controlling for potential confounding variables. The results of these analyses, presented in the following sections, provide nuanced insights into how academic stress influences these psychological resources in university students.

Table 2

Psychometric Properties of the Scales (N = 202)

Scale (Abbreviation)	No. of Items	Cronbach's α	Mean (SD)	Potential Range	Actual Range	Skewness (SE)	Kurtosis (SE)
General Self-Efficacy (GSE)	10	.986	26.23 (11.74)	10–40	10–40	-0.18 (0.17)	-1.85 (0.34)
Self-Compassion (SCS-SF)	12	.993	36.20 (19.41)	12–60	12–58	-0.18 (0.17)	-1.94 (0.34)
Psychological Well-Being (PWB)	42	.993	152.23 (79.90)	42–252	56–232	-0.18 (0.17)	-1.98 (0.34)
Academic Stress (ESSA)	16	.996	47.74 (26.53)	16–80	18–80	0.16 (0.17)	-1.95 (0.34)

Note. GSE = General Self-Efficacy Scale; SCS-SF = Self-Compassion Scale–Short Form; PWB = Psychological Well-Being; ESSA = Educational Stress Scale for Adolescents.

The psychometric analysis indicated satisfactory internal consistency across all study measures. Descriptive statistics demonstrated adequate variability in participants' responses across the study variables. Skewness and kurtosis values suggested that the data were approximately normally distributed.

Table 3

Correlation Matrix Among Self-Efficacy, Self-Compassion, Psychological Well-Being, and Academic Stress

Variable	1	2	3	4
1. Self-Efficacy (GSE)	1	.979**	.987**	-.977**
2. Self-Compassion (SCS-SF)	.979**	1	.994**	-.982**
3. Psychological Well-Being (PWB)	.987**	.994**	1	-.994**
4. Academic Stress (ESSA)	-.977**	-.982**	-.994**	1

** . Correlation is significant at the 0.01 level (2-tailed).

Note. GSE = General Self-Efficacy Scale; SCS-SF = Self-Compassion Scale–Short Form; PWB = Psychological Well-Being; ESSA = Educational Stress Scale for Adolescents.

Pearson correlation analysis revealed significant relationships among self-efficacy, self-compassion, psychological well-being, and academic stress. Self-efficacy and self-compassion showed positive associations with psychological well-being, whereas academic stress demonstrated a negative association with psychological well-being. These findings support the proposed relationships among the study variables.

Table 4.

Independent Samples t-test for Gender Differences in Study Variables

Variable	F	t	p	Male M (SD)	Female M (SD)	95% CI (Mean Difference)	Cohen’s d
GSE	52.30	-7.40	< .001	21.80 (11.50)	33.00 (8.30)	[-11.10, -7.10]	1.00
SCS-SF	50.10	-7.20	< .001	29.10 (19.00)	47.10 (14.30)	[-18.00, -14.00]	1.00
PWB	44.70	-6.70	< .001	124.60 (78.30)	195.13 (61.49)	[-70.40, -50.40]	0.90
ESSA	32.10	6.10	< .001	56.20 (25.90)	34.49 (21.58)	[21.70, 37.70]	0.80

*Note: $p < .05$

Note. GSE = General Self-Efficacy Scale; SCS-SF = Self-Compassion Scale–Short Form; PWB = Psychological Well-Being; ESSA = Educational Stress Scale for Adolescents.

The findings revealed significant gender differences across all study variables. Female students reported higher levels of self-efficacy, self-compassion, and psychological well-being compared to male students. In contrast, male students experienced higher levels of academic stress. The results suggest that gender plays an important role in students’ psychological functioning and adaptation to academic life. Furthermore, the effect sizes ranged from moderate to large, indicating meaningful differences between male and female students across the examined psychological variables.

Table 5

Regression Analysis Predicting Psychological Well-Being (PWB)

Predictor	Unstandardized B (SE)	Standardized β	t-value	p-value	Tolerance	VIF
GSE	1.17 (0.13)	0.17	9.05	< .001	0.035	28.93
SCS-SF	1.66 (0.09)	0.40	18.73	< .001	0.027	37.36
ESSA	-1.30 (0.06)	-0.43	-20.84	< .001	0.029	34.45

Note. GSE = General Self-Efficacy Scale; SCS-SF = Self-Compassion Scale–Short Form; PWB = Psychological Well-Being; ESSA = Educational Stress Scale for Adolescents.

The regression analysis demonstrated that self-efficacy and self-compassion were significant positive predictors of psychological well-being among university students. This indicates that students with higher levels of self-efficacy and self-compassion tended to experience better psychological well-being. In contrast, academic stress showed a significant negative association with psychological well-being, suggesting that increased academic stress was related to lower levels of psychological well-being. Overall, the findings highlight the important role of psychological resources in promoting students’ mental well-being while emphasizing the adverse impact of academic stress on psychological functioning.

Table 6

Moderation Analysis of Academic Stress on the Relationship Between Self-Efficacy, Self-Compassion, and Psychological Well-Being

Predictors	B	SE	t	p	95% CI (LL, UL)
Self-Efficacy	1.0690	0.0869	12.31	.000	0.90, 1.24
Academic Stress	-0.3880	0.0375	-10.35	.000	-0.46, -0.31
Self-Efficacy × Academic Stress	0.0797	0.0149	5.34	.000	0.05, 0.11
Self-Compassion	1.1706	0.0365	32.04	.000	1.10, 1.24
Academic Stress	-0.1760	0.0223	-7.92	.001	-0.22, -0.13
Self-Compassion × Academic Stress	0.0060	0.0058	1.04	.301	-0.01, 0.02

Note. B = unstandardized coefficient; SE = standard error; t = t value; p = significance level; CI = confidence interval; LL = lower limit; UL = upper limit.

Self-efficacy and self-compassion positively predicted psychological well-being, whereas academic stress negatively predicted psychological well-being. Academic stress significantly moderated the relationship between self-efficacy and psychological well-being; however, the moderating effect on the relationship between self-compassion and psychological well-being was not statistically significant.

Table 7 ANOVA for Socioeconomic Status

Variable	SS	df	MS	F	P
GES	2253.09	2	1126.55	8.80	.000
SCS_SF	7859.43	2	3929.71	11.52	.000
PWB	110941.35	2	55470.68	9.42	.000
ESSA	11104.99	2	5552.49	8.48	.000

Note: GES (General Self-Efficacy), SCS_SF (Self Compassion, short form), PWB (Psychological wellbeing), ESSA (Academic stress for Adolescents)

Note. SS = Sum of Squares; MS = Mean Square; p = significance level.

A one-way ANOVA was conducted to examine the effect of socioeconomic status on psychological variables. Results showed significant group differences in self-efficacy, self-compassion, psychological well-being, and academic stress, all ps < .001. This indicates that socioeconomic background significantly influences students’ psychological functioning.

Table 8 ANOVA for Field of Study

Variable	SS	df	MS	F	P
GES	4484.52	4	1121.13	9.51	.000
SCS_SF	15942.24	4	3985.56	13.13	.000
PWB	289984.79	4	72496.20	14.38	.000
ESSA	39502.94	4	9875.74	19.08	.000

Note: GES (General Self-Efficacy), SCS_SF (Self Compassion, short form), PWB (Psychological wellbeing), ESSA (Academic stress for Adolescents)

Note. SS = Sum of Squares; MS = Mean Square; p = significance level. An ANOVA was performed to assess whether students’ field of study affected their psychological outcomes. The

analysis revealed statistically significant differences in self- efficacy, self-compassion, psychological well-being, and academic stress across fields of study, all ps < .001, suggesting discipline-specific variations in psychological traits.

Table 9 ANOVA for Employment Status

Variable	SS	df	MS	F	P
GES	18893.35	2	9446.67	212.94	.000
SCS_SF	47453.01	2	23726.51	166.98	.000
PWB	785475.77	2	392737.89	156.99	.000
ESSA	78757.43	2	39378.72	124.97	.000

Note: GES (General Self-Efficacy), SCS_SF (Self Compassion, short form), PWB (Psychological wellbeing), ESSA (Academic stress for Adolescents)

Note:SS= Sum of squares; MS = Mean Square; p= Significance level A one-way ANOVA tested the influence of employment status on psychological variables. Significant effects were found for self-efficacy, self-compassion, psychological well-being, and academic stress, all ps < .001. These results suggest that students’ work status is strongly associated with their psychological well-being.

Table 10 ANOVA for Education Level

Variable	SS	df	MS	F	P
GES	4038.66	3	1346.22	11.26	.000
SCS_SF	14737.56	3	4912.52	15.95	.000
PWB	266481.69	3	88827.23	17.30	.000
ESSA	36302.56	3	12100.85	22.78	.000

Note: GES (General Self-Efficacy), SCS_SF (Self Compassion, short form), PWB (Psychological wellbeing), ESSA (Academic stress for Adolescents)

Note. SS = Sum of Squares; MS = Mean Square; p = significance level.

The role of education level in shaping psychological outcomes was examined using ANOVA. The results showed significant differences in self-efficacy, self-compassion, psychological well-being, and academic stress across education levels, all ps < .001, highlighting the psychological impact of academic attainment.

Table 11 Table of ANOVA for Sleeping Pattern

Variable	SS	df	MS	F	P
GES	17756.56	3	5918.85	117.61	.000
SCS_SF	54461.92	3	18153.97	169.01	.000
PWB	917008.17	3	305669.39	165.23	.000
ESSA	101964.68	3	33988.23	170.37	.000

Note: GES (General Self-Efficacy), SCS_SF (Self Compassion, short foam), PWB (Psychological wellbeing), ESSA (Academic stress for Adolescents)

Note. SS = Sum of Squares; MS = Mean Square; p = significance level. A one-way ANOVA evaluated the relationship between sleeping patterns and psychological variables. Findings indicated significant differences in self-efficacy, self-compassion, psychological well-being, and academic stress across sleep groups, all ps < .001. These results underscore the importance of sleep habits for mental health in students.

Discussion

The present study was designed to investigate the moderating role of academic stress in the relationship between self-efficacy, self-compassion, and psychological well-being among university students in Pakistan. The research was grounded in well-established theoretical frameworks including Bandura’s Social Cognitive Theory (1997), Neff’s Self- Compassion Theory

(2003), and the Transactional Model of Stress and Coping by Lazarus and Folkman (1984). These frameworks emphasize the psychological resources that help individuals cope with stress, particularly in challenging academic environments. This chapter elaborates on the findings, their theoretical implications, connections with prior research, acceptance or rejection of the study's hypotheses, and the broader academic and applied significance of these findings. Additionally, it discusses gender and demographic differences, practical applications, limitations, and recommendations for future research.

Summary and Interpretation of Major Findings

The results of this study confirmed significant relationships among the core variables of interest. As hypothesized, self-efficacy and self-compassion both demonstrated strong positive associations with psychological well-being. In contrast, academic stress exhibited a strong negative relationship with psychological well-being, suggesting that higher stress levels are associated with diminished psychological health. Importantly, moderation analysis revealed that academic stress moderated the relationship between self-efficacy and psychological well-being, but not between self-compassion and psychological well-being.

This finding supports Hypothesis 1, which proposed a significant positive relationship between self-efficacy and psychological well-being. As anticipated, students who believed in their ability to manage and overcome challenges reported higher levels of well-being. This aligns with Bandura's Social Cognitive Theory, which emphasizes self-efficacy as a core determinant of behavior, motivation, and emotional outcomes. Bandura (1997) posits that individuals with high self-efficacy are more likely to approach difficult tasks as challenges to be mastered rather than threats to be avoided. This internal belief system contributes to adaptive coping mechanisms, enhanced resilience, and greater academic success, all of which foster psychological well-being. Similarly, the results confirmed Hypothesis 2, which suggested a positive relationship between self-compassion and psychological well-being. Students who reported higher levels of self-compassion also scored higher on measures of well-being. This outcome is consistent with Neff's Self-Compassion Theory (2003), which argues that individuals who treat themselves with kindness and understanding during times of failure or hardship are more likely to experience emotional balance and psychological stability. Self-compassion has been found to reduce negative emotional states such as anxiety, depression, and self-criticism while promoting positive psychological traits such as optimism, happiness, and personal growth (Neff, Rude, & Kirkpatrick, 2007).

Hypothesis 3 was also supported, indicating that academic stress moderates the relationship between self-efficacy and psychological well-being. The interaction analysis revealed that the protective influence of self-efficacy on psychological well-being becomes more pronounced under conditions of high academic stress. This finding provides empirical support for the Transactional Model of Stress and Coping (Lazarus & Folkman, 1984), which suggests that individuals appraise stress in relation to their perceived coping resources. When stress levels are high, students with greater self-efficacy appear to be better equipped to maintain psychological well-being, reinforcing the notion that self-efficacy acts as a psychological buffer against stress-related deterioration in mental health.

In contrast, Hypothesis 4 was rejected as academic stress did not significantly moderate the relationship between self-compassion and psychological well-being. While self-compassion remained a significant predictor of well-being, its effect did not vary with stress levels. This may indicate that self-compassion operates as a more stable, trait-like characteristic that provides consistent benefits regardless of environmental conditions. In other words, the benefits of self-compassion appear to be relatively independent of context, as individuals with high self-

compassion maintain a positive psychological outlook whether they are experiencing high or low levels of stress. This finding aligns with studies suggesting that self-compassion promotes emotional regulation and self-soothing even in the absence of acute stressors (Barnard & Curry, 2011; Neff & Vonk, 2009).

Hypothesis 5: Differences in psychological well-being across demographic groups.

Supported. ANOVA results: Gender, field of study, socioeconomic status, employment, education level, and sleep patterns all showed significant effects (all p values $< .001$) on self-efficacy, self-compassion, psychological well-being, and academic stress.

Hypothesis 6: Demographics significantly influence academic stress. Supported hypothesis. Academic Stress differences by: Gender ($t = 6.1$, $p < .001$) Field of study, SES, employment, education, sleep (all ANOVAs $p < .001$) Suggests academic stress varies based on demographic characteristics.

Hypothesis 7: Hypothesis 7, which proposed that the effect of academic stress on psychological well-being differs across socioeconomic status and education levels, was partially supported. ANOVA findings revealed significant group differences in academic stress and psychological well-being across socioeconomic status and education levels. However, moderation analysis was not directly conducted for these demographic variables; therefore, the results indicate group differences rather than a confirmed moderating effect.

Gender Differences

Significant gender differences were observed in the study. Female students reported higher levels of self-efficacy, self-compassion, and psychological well-being compared to male students, while male students reported significantly higher levels of academic stress. These results suggest that female students may be more emotionally expressive, engage in greater social support, or employ more adaptive coping strategies than their male counterparts. This is consistent with research indicating that women tend to score higher on measures of emotional intelligence, empathy, and help-seeking behaviors (Chao, 2012; Kessler et al., 2007).

Conversely, male students may face cultural and societal pressures that discourage emotional expression and promote stoicism, which can lead to suppressed stress and increased psychological distress. The observed gender differences highlight the importance of considering gender-specific mental health interventions in university settings.

Demographic and Lifestyle Factors

ANOVA analyses revealed significant differences in psychological variables based on socioeconomic status, employment status, field of study, education level, and sleep patterns. These findings underscore the multifaceted nature of psychological well-being, which is influenced not only by internal factors (e.g., self-efficacy and self-compassion) but also by external circumstances and lifestyle behaviors.

Students from lower socioeconomic backgrounds reported lower psychological well-being and higher academic stress, consistent with previous studies that link financial hardship to mental health problems (Pascoe et al., 2020). Employment status was another influential factor; students balancing part-time study with full-time jobs exhibited the highest levels of stress and the lowest well-being scores, likely due to role conflict and time constraints.

Educational level and field of study were also associated with differences in psychological well-being, suggesting that the demands and stressors of certain academic disciplines may be more taxing on students' mental health. Additionally, sleep patterns emerged as a significant predictor of well-being, with students who slept fewer hours experiencing higher academic stress and lower well-being. These results reinforce the need for holistic interventions that address not just

psychological skills but also lifestyle factors such as sleep hygiene, time management, and work-life balance.

Theoretical Integration and Comparison with Previous Research

This study's findings support and extend the body of literature on the roles of self-efficacy and self-compassion in mental health. Numerous studies have demonstrated that self-efficacy correlates with academic motivation, persistence, and reduced stress (Chemers et al., 2001; Pajares, 1996). Similarly, self-compassion has been consistently linked to reduced anxiety, increased emotional resilience, and better overall mental health (Gilbert & Procter, 2006; Neff et al., 2007). This study adds to existing knowledge by examining these relationships in a South Asian university context and highlighting how academic stress moderates these effects.

Interestingly, the interaction effect was present for self-efficacy but not for self-compassion. This contrast may be explained by the different mechanisms through which these constructs operate. Self-efficacy involves a cognitive appraisal of one's ability to succeed, which may be more sensitive to contextual stress. In contrast, self-compassion reflects a more affective and dispositional tendency that may remain stable across varying levels of external stress.

Implications for Practice

The findings have important implications for educational institutions, counselors, and mental health practitioners. Firstly, there is a need for self-efficacy enhancement programs, such as skills training, goal setting, and mastery experiences, particularly for students facing high academic pressure. Secondly, self-compassion interventions, including mindfulness training and compassion-focused therapy, can be integrated into university counseling services to promote emotional resilience.

Educational policies should aim to reduce academic stress through curriculum reform, flexible deadlines, and accessible mental health support. Institutions can offer tailored programs for male students, working students, and students from disadvantaged socioeconomic backgrounds, who are at greater risk for psychological difficulties. Additionally, promoting healthy sleep hygiene and encouraging balanced lifestyles through awareness campaigns and support services can improve students' overall well-being.

Limitations of the Study

Despite its strengths, the study has several limitations. The cross-sectional design limits causal inference: longitudinal studies are needed to determine the directionality of relationships. The use of self-report instruments introduces the possibility of response bias, particularly social desirability bias. The sample was not fully representative, with an overrepresentation of social science students and underrepresentation of students from disciplines such as engineering and business.

Moreover, the moderation effects, while statistically significant, were relatively small in magnitude. This suggests that while academic stress plays a role in shaping the impact of self-efficacy on well-being, other unmeasured variables (e.g., personality traits, social support, or institutional factors) may also contribute to this relationship.

Recommendations for Future Research

Future research should employ longitudinal and experimental designs to establish causality and evaluate the effectiveness of interventions targeting self-efficacy and self-compassion. Researchers could also explore the role of additional moderators and mediators, such as perceived social support, academic engagement, and personality characteristics. Given the cultural context, it would be valuable to examine how collectivist vs. individualist orientations affect relationships among self-efficacy, self-compassion, and well-being.

Furthermore, qualitative research could provide deeper insights into students lived experiences of academic stress and the coping strategies they employ. Including physiological indicators of stress, such as cortisol levels or heart rate variability, could add an objective dimension to future studies.

Conclusion

This study contributes to the growing literature on psychological resilience among university students by examining the complex interplay between self-efficacy, self-compassion, academic stress, and psychological well-being. The findings confirm that self-efficacy and self-compassion are vital psychological strengths that promote well-being. Moreover, academic stress was found to moderate the efficacy-well-being relationship but not the compassion-well-being relationship, suggesting different mechanisms of action for these constructs.

From a theoretical standpoint, the study integrates multiple frameworks to explain how psychological resources influence students' mental health in the face of academic challenges. Practically, the results highlight the need for comprehensive, multifaceted interventions that build psychological strengths and address lifestyle and demographic vulnerabilities. With increasing academic demands and mental health concerns in university settings, such interventions are not just beneficial—they are essential.

In summary, fostering both self-efficacy and self-compassion, while simultaneously addressing academic stress, holds great promise for enhancing the psychological well-being of university students. Future research should continue to explore these relationships in diverse cultural and academic contexts, using robust methodologies and inclusive samples.

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