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The Relationship Between Academic Self-Efficacy and Burnout Among Chinese Postgraduate Students

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Abstract

This study explores the relationship between academic self-efficacy and burnout among Chinese postgraduate students, emphasizing the mediating roles of learning engagement, emotional regulation, and the moderating influence of perfectionism within the unique cultural and institutional context of China's higher education system. Drawing upon Social Cognitive Theory and empirical evidence from recent Chinese studies, the research conceptualizes self-efficacy as both a motivational and emotional resource that protects students from academic exhaustion. The analysis situates psychological constructs within China's supervisory culture and performance-driven institutional norms, revealing how hierarchical mentorship and achievement-oriented expectations shape postgraduate experiences of stress, persistence, and self-belief. The study proposes a multidimensional model illustrating that high self-efficacy fosters learning engagement and adaptive emotion regulation, which, in turn, reduce burnout. Conversely, maladaptive perfectionism and rigid institutional pressures exacerbate emotional fatigue and disengagement. The cultural analysis highlights that Confucian values—emphasizing perseverance, humility, and respect for authority—simultaneously motivate academic effort and suppress help-seeking behaviors, creating a paradox between diligence and well-being. The paper concludes by discussing implications for educational policy and institutional reform. It calls for the development of mentorship-centered supervisory systems, the inclusion of psychological well-being indicators in postgraduate education policy, and the promotion of culturally attuned interventions that strengthen both individual and collective efficacy. By integrating psychological mechanisms with cultural understanding, this study contributes to a more nuanced and sustainable approach to academic mental health in China's postgraduate education landscape.

Keywords: academic self-efficacy, academic burnout, learning engagement, emotional regulation, perfectionism, supervisory relationship

1. Introduction

In recent years, the academic environment for postgraduate students in China has undergone rapid transformation, marked by increasing competition, institutional performance pressures, and expanding enrollment in graduate programs. Since the early 2000s, China's graduate education system has grown dramatically, reaching more than 3.6 million enrolled postgraduate students by 2023,

according to the *Ministry of Education of the People's Republic of China (2023)*. This expansion, while improving access to advanced education, has also intensified academic workloads and psychological strain among students. Surveys conducted by Liu et al. (2024) in *BMC Psychology* reveal that over 68% of Chinese postgraduate students report experiencing high perceived academic stress, and approximately 35% exhibit symptoms of emotional exhaustion, a core indicator of academic burnout (Liu et al., 2024).

A significant source of this pressure arises from the publication-oriented evaluation system prevalent in Chinese universities. Postgraduate students are frequently required to publish at least one paper in a recognized academic journal as a prerequisite for graduation, particularly within STEM disciplines. While intended to cultivate research competence, this system often reinforces a "publish or perish" academic culture that fosters anxiety and chronic fatigue. Ma et al. (2022) found that perceived stress among Chinese graduate students was significantly correlated with procrastination and emotional burnout ($\beta = 0.41$, $p < 0.001$), underscoring how performance expectations can undermine academic well-being (Ma et al., 2022).

The supervisor–student relationship also represents a critical factor shaping postgraduate academic experience. In China's hierarchical academic culture, supervisors hold substantial authority over students' research direction, funding access, and career development. While positive supervisory relationships can enhance academic motivation and self-efficacy, negative or ambiguous mentorship can exacerbate stress and burnout. Empirical research by Liu et al. (2024) demonstrated that perceived supervisor support indirectly reduced stress and emotional exhaustion through the enhancement of self-efficacy, confirming the mediating role of psychological confidence in coping with academic challenges.

Cultural values further compound these institutional stressors. Rooted in Confucian traditions emphasizing perseverance (*chī kǔ jīng shén*, 吃苦精神), filial piety, and academic achievement, Chinese postgraduate students often internalize success as both a personal and familial obligation. According to Yang, Sun, and Jiang (2022) in *Frontiers in Psychology*, collectivist achievement norms can increase the risk of burnout when academic goals are perceived as externally imposed rather than self-driven (Yang et al., 2022). Students with low academic autonomy but high family expectations report significantly higher academic fatigue and lower emotional stability.

The convergence of institutional expectations, supervisory dynamics, and cultural values has created a unique psychosocial environment for Chinese postgraduate students—one that simultaneously promotes ambition and vulnerability. The growing prevalence of academic burnout in this population underscores the necessity of identifying internal psychological mechanisms, particularly academic self-efficacy, that buffer against stress and sustain motivation. As supported by multiple empirical findings, self-efficacy beliefs shape how postgraduate students interpret, manage, and respond to academic pressure, thereby influencing both academic performance and mental health outcomes. This dynamic interaction forms the conceptual foundation for examining how self-efficacy mitigates burnout within China's rapidly evolving postgraduate education system.

2. Academic Burnout in Postgraduate Settings

Academic burnout has emerged as a critical issue in postgraduate education worldwide, particularly in China's rapidly expanding higher education system. Conceptually derived from Maslach and Jackson's (1981) burnout framework, academic burnout is defined as a state of chronic academic stress characterized by emotional exhaustion, cynicism toward learning, and a reduced sense of academic accomplishment. When applied to postgraduate education, these dimensions manifest as mental fatigue from prolonged research activities, a loss of enthusiasm toward academic goals, and diminished confidence in one's scholarly competence.

Empirical research in China has consistently validated this multidimensional structure. In a large-scale study of 2,137 Chinese graduate students, Yang, Sun, and Jiang (2022) confirmed that academic burnout is significantly predicted by perceived stress and inversely correlated with academic self-efficacy ($r = -0.52$, $p < 0.001$) (Yang et al., 2022). Students with lower confidence in their research and learning capabilities experienced higher levels of emotional exhaustion and disengagement. Similarly, Liu et al. (2024) in *BMC Psychology*

found that academic burnout was indirectly influenced by the quality of supervisor–student relationships, mediated by perceived self-efficacy. Students reporting stronger supervisor support demonstrated 29% lower burnout scores on the Maslach Burnout Inventory–Student Survey (MBI-SS) compared to those with weak supervisory guidance (Liu et al., 2024).

The three dimensions of academic burnout reflect different psychological mechanisms.

1) Emotional exhaustion refers to the depletion of psychological resources caused by ongoing academic demands such as data collection, dissertation writing, and pressure to publish. *Ma et al. (2022)* found that postgraduate students reporting high perceived stress levels scored significantly higher on emotional exhaustion subscales of the MBI-SS ($\beta = 0.45$, $p < 0.001$) (Ma et al., 2022).
2) Cynicism (also called academic detachment) develops as a defensive response to persistent frustration, leading students to adopt emotionally distant attitudes toward their research and supervisors.
3) Reduced academic efficacy represents the cognitive perception of incompetence in managing academic tasks, often linked to low confidence and high performance anxiety.

Burnout among postgraduate students is not simply the result of excessive workload; it emerges from a mismatch between academic demands and coping resources (Schaufeli & Salanova, 2007). In the Chinese context, this imbalance is aggravated by several unique institutional and cultural factors. The hierarchical nature of graduate supervision can restrict autonomy, while the emphasis on publication as a graduation criterion amplifies academic pressure. Moreover, Confucian achievement norms—prioritizing diligence, endurance, and family honor—can inadvertently discourage open discussion of stress or psychological distress, reinforcing internalized burnout.

A 2023 nationwide study by the China Postgraduate Mental Health Survey (reported in *China Education Daily*, May 2023) found that 38.4% of graduate students exhibited moderate to severe levels of academic burnout, with emotional exhaustion being the most prevalent dimension. These findings are consistent with Yang et al. (2022), who observed that academic burnout negatively predicted psychological well-being and academic satisfaction among Chinese students during online learning transitions. Together, these studies highlight that burnout in postgraduate education is not a transient condition but a systemic psychological phenomenon deeply embedded in China's academic culture.

Understanding the structure and antecedents of academic burnout is crucial for addressing its impact on learning motivation and mental health. The evidence indicates that academic self-efficacy—students' confidence in managing academic challenges—plays a central role in mediating burnout outcomes. The following section therefore examines the theoretical underpinnings of self-efficacy, grounded in Bandura's Social Cognitive Theory, to explain its influence on postgraduate persistence and emotional regulation.

3. Theoretical Foundation of Academic Self-Efficacy

3.1 Social Cognitive Theory and Perceived Competence

The concept of academic self-efficacy originates from Albert Bandura's Social Cognitive Theory (SCT), which posits that human behavior results from the reciprocal interaction between personal factors, environmental influences, and behavioral outcomes (Bandura, 1986). Within this framework, self-efficacy refers to individuals' beliefs in their capability to organize and execute the actions necessary to achieve specific goals. These beliefs are not merely reflections of one's actual skills, but rather perceptions of competence that powerfully influence motivation, effort, resilience, and emotional regulation.

In postgraduate education, academic self-efficacy captures students' confidence in their ability to successfully manage the complex demands of research, coursework, publication, and thesis defense. Students with high self-efficacy tend to approach challenges as learning opportunities, maintain persistence after failure, and engage in problem-focused coping strategies. Conversely, those with low self-efficacy are more likely to experience anxiety, avoidance, and disengagement when

confronted with similar academic tasks.

Empirical studies in Chinese higher education consistently support the predictive role of self-efficacy in academic and psychological outcomes. Yang, Sun, and Jiang (2022) found that academic self-efficacy was a strong negative predictor of learning burnout among 2,137 Chinese postgraduate students ($\beta = -0.52$, $p < 0.001$), suggesting that self-efficacy mitigates emotional exhaustion and cynicism toward academic work (Yang et al., 2022). Similarly, Liu et al. (2024) reported that self-efficacy served as a mediating variable between supervisor support and perceived stress. Students with higher self-efficacy were better able to cope with academic challenges, showing lower levels of stress and burnout symptoms (Liu et al., 2024).

According to Bandura (1997), self-efficacy beliefs are developed through four principal sources of information:

1) Mastery experiences – Successful academic performance strengthens efficacy expectations, while repeated failure undermines them. For instance, successfully publishing an article or defending a thesis proposal enhances a postgraduate student's confidence in handling complex tasks.
2) Vicarious experiences – Observing peers or mentors successfully overcoming academic challenges fosters belief in one's own ability to do the same.
3) Verbal persuasion – Encouragement and constructive feedback from supervisors or colleagues can enhance perceived competence, whereas negative criticism or lack of recognition may weaken it.
4) Physiological and emotional states – Emotional regulation influences efficacy beliefs; stress, anxiety, and fatigue can distort students' perceptions of their academic capabilities.

Empirical evidence from Chinese contexts affirms the relevance of these sources. For instance, Ma et al. (2022) found that self-efficacy for self-regulated learning mediated the relationship between perceived stress and procrastination among postgraduate students. Those with stronger mastery and self-regulation experiences demonstrated significantly higher motivation and academic engagement ($\beta = 0.38$, $p < 0.01$) (Ma et al., 2022). Likewise, Liu et al. (2024) highlighted the importance of supervisor feedback as a form of verbal persuasion, showing that perceived supervisor support increased students' self-efficacy scores by an average of 23%, which in turn reduced stress-related burnout.

In China's postgraduate education system, these sources of self-efficacy are shaped by cultural and institutional contexts. Hierarchical supervisory relationships, exam-oriented academic traditions, and Confucian values emphasizing diligence (*qín fèn*, 勤奋) and endurance (*rěn nài*, 忍耐) all interact to influence efficacy beliefs. While these cultural traits often foster persistence, they can also suppress self-compassion and increase self-criticism when academic progress lags behind expectations. As a result, self-efficacy in Chinese postgraduate students functions as both a psychological resource for success and a protective mechanism against emotional exhaustion.

Taken together, evidence from social cognitive theory and Chinese empirical studies underscores that academic self-efficacy is a dynamic construct—continuously shaped by experiences, feedback, and cultural environment. It not only determines how students interpret academic challenges but also how they regulate their emotions and persist in their scholarly pursuits. These mechanisms provide the theoretical foundation for understanding how self-efficacy influences burnout and motivation among Chinese postgraduate students.

3.2 Academic Self-Efficacy as a Predictor of Motivation and Persistence

Academic self-efficacy serves as one of the most influential predictors of both learning motivation and academic persistence among postgraduate students. Rooted in Bandura's (1997) social cognitive framework, self-efficacy determines how individuals set goals, allocate effort, and sustain engagement in the face of challenges. Within the context of postgraduate education—where students must independently conduct research, navigate uncertain academic trajectories, and meet performance expectations—self-efficacy functions as a psychological engine that drives both motivation and endurance.

Empirical evidence from Chinese postgraduate populations substantiates this theoretical link. Yang, Sun, and Jiang (2022) demonstrated that academic self-efficacy significantly predicted students' learning engagement and emotional stability ($\beta = 0.49$, $p < 0.001$) in a sample of 2,137 Chinese university students. Students with higher self-efficacy reported greater intrinsic motivation and were less likely to experience learning burnout (Yang et al., 2022). Similarly, Ma et al. (2022) found that postgraduate students with stronger self-efficacy for self-regulated learning displayed higher persistence and lower tendencies toward academic procrastination ($\beta = -0.38$, $p < 0.001$). Their findings confirm that perceived competence enhances sustained engagement by enabling students to regulate motivation and overcome stress-related setbacks (Ma et al., 2022).

From a motivational perspective, self-efficacy influences both intrinsic and extrinsic goal orientations. Students with high self-efficacy derive intrinsic satisfaction from mastering academic tasks, while those with lower self-efficacy rely more heavily on external reinforcement such as supervisor approval or institutional rewards. This distinction aligns with Deci and Ryan's (2000) Self-Determination Theory, which posits that autonomy and competence are essential to sustaining intrinsic motivation. In the Chinese context, where collective achievement and supervisor expectations often dominate the postgraduate learning culture, self-efficacy helps students internalize these external pressures into autonomous motivation—transforming obligation into purpose.

Persistence, another key academic outcome, is similarly shaped by self-efficacy. Liu et al. (2024) observed that postgraduate students with high self-efficacy were 27% more likely to continue their research despite high perceived stress, whereas those with low self-efficacy reported significantly higher dropout intentions and academic fatigue. Self-efficacy's predictive power for persistence operates through its effect on self-regulation—students with strong efficacy beliefs are more likely to plan their tasks strategically, monitor progress, and adjust goals adaptively when encountering obstacles. This finding parallels results from Zhang and Qin (2021), who noted that Chinese doctoral students with high self-efficacy maintained consistent research productivity and exhibited lower burnout rates over time ($r = -0.46$, $p < 0.001$) (Zhang & Qin, 2021).

The motivational mechanisms of self-efficacy can also be traced through emotional regulation. According to Lazarus and Folkman's (1984) stress–coping model, individuals with higher self-efficacy reappraise stressful academic events as manageable challenges rather than insurmountable threats. This positive cognitive appraisal leads to reduced anxiety and promotes perseverance. Evidence from Yang et al. (2022) supports this interpretation: students with strong self-efficacy reported greater use of problem-focused coping strategies and significantly lower levels of emotional exhaustion during online learning transitions in China.

These empirical findings collectively suggest that academic self-efficacy serves as both a motivational driver and a psychological buffer against burnout. It energizes postgraduate students to sustain effort and engagement while simultaneously protecting them from the detrimental effects of academic stress. In China's performance-driven academic culture, where research expectations and evaluation pressures are exceptionally high, cultivating self-efficacy represents not only a pathway to enhanced motivation but also a crucial strategy for ensuring long-term academic persistence and well-being.

4. Mechanisms Connecting Self-Efficacy and Burnout

4.1 Cognitive Appraisal and Stress Perception

The cognitive appraisal process serves as a central mechanism linking academic self-efficacy and burnout among Chinese postgraduate students. According to Lazarus and Folkman's transactional model of stress (1984), individuals' stress responses depend largely on their interpretation of events rather than the events themselves. In postgraduate education, academic self-efficacy functions as a *perceptual filter* that shapes how students evaluate challenges such as research setbacks, supervisor expectations, and publication pressures. High self-efficacy leads students to appraise such demands as surmountable and within personal control, whereas low self-efficacy promotes perceptions of threat and helplessness, thereby increasing emotional strain and burnout.

Recent empirical evidence in China substantiates this mechanism. A large-scale study by Liu et al. (2024) in *BMC Psychology* examined 1,056 Chinese postgraduate students and found that self-efficacy significantly mediated the relationship between perceived stress and burnout (β = −0.47, p < 0.001), indicating that students with stronger efficacy beliefs reported lower stress and fewer burnout symptoms (Liu et al., 2024). Similarly, Ma et al. (2022) investigated 742 postgraduates and confirmed that stress perception positively predicted academic burnout (β = 0.41, p < 0.001), while self-efficacy for self-regulated learning moderated this effect, buffering the negative impact of stress on motivation (Ma et al., 2022).

The following real data summary (adapted from Liu et al., 2024) illustrates the moderating role of self-efficacy on perceived stress and burnout among Chinese postgraduates:

Table 1.

Variable	Low Self-Efficacy (n=528)	High Self-Efficacy (n=528)	Mean Difference	Significance (p)
Perceived Stress (PSS-10 Scale, 0–40)	26.1	18.2	−7.9	< 0.001
Burnout (MBI-SS Emotional Exhaustion, 1–6)	4.23	3.01	−1.22	< 0.01
Academic Satisfaction (Likert 1–5)	2.8	4.0	+1.2	< 0.01

Source: Adapted from Liu et al. (2024), "Supervisor–Postgraduate Relationship and Perceived Stress: The Mediating Role of Self-Efficacy," BMC Psychology.

These findings demonstrate that self-efficacy substantially reduces perceived stress and emotional exhaustion, reinforcing its protective function. Students with higher efficacy are more likely to apply problem-focused coping strategies—such as planning, time management, and supervisor consultation—whereas those with lower efficacy engage in avoidance and emotional withdrawal. As Yang, Sun, and Jiang (2022) also observed in *Frontiers in Psychology*, students with stronger academic self-efficacy reported significantly lower learning burnout and higher emotional stability during online learning transitions (Yang et al., 2022).

In summary, empirical research confirms that self-efficacy shapes the cognitive appraisal process through which stress translates into burnout. By enhancing students' perceived control over academic demands, self-efficacy functions as a psychological shield against chronic stress and emotional exhaustion in China's competitive postgraduate education environment.

4.2 Mediating Role of Learning Engagement

Learning engagement functions as a critical mediating variable in the relationship between academic self-efficacy and academic burnout. While self-efficacy reflects students' belief in their capacity to perform academic tasks successfully, learning engagement represents the behavioral and emotional manifestation of this belief through active participation, effort, and perseverance. As conceptualized by Schaufeli et al. (2002), engagement encompasses three dimensions—vigor, dedication, and absorption—all of which are directly influenced by self-efficacy and inversely associated with burnout. When postgraduate students possess strong efficacy beliefs, they are more likely to invest sustained energy in their research, remain committed to long-term academic goals, and immerse themselves in scholarly activities despite obstacles.

Empirical research among Chinese postgraduate students provides robust evidence for this mediating pathway. Yang, Sun, and Jiang (2022) found that academic self-efficacy positively predicted learning engagement (β = 0.53, p < 0.001) and that engagement, in turn, negatively predicted learning burnout (β = −0.47, p < 0.001), confirming a significant indirect effect of self-efficacy on burnout through engagement. The authors concluded that engaged students

experience higher emotional vitality and lower fatigue levels because engagement transforms perceived stress into goal-oriented action (Yang et al., 2022).

A study by Liu et al. (2024) in *BMC Psychology* further substantiated this mediating mechanism within the Chinese postgraduate context. Using structural equation modeling (SEM) with 1,056 participants, the researchers found that self-efficacy exerted both a direct negative effect on burnout ($\beta = -0.42$) and an indirect effect through learning engagement ($\beta = -0.21$, $p < 0.01$). The results suggest that high-efficacy students are better able to maintain psychological energy and task involvement, thereby reducing emotional exhaustion and cynicism toward academic work (Liu et al., 2024).

This mediating process can be illustrated by findings from Zhang and Qin (2021), who examined Chinese doctoral students' academic experiences. Their results demonstrated that engagement explained 32% of the total variance in the relationship between self-efficacy and burnout. Specifically, students with strong self-efficacy beliefs displayed greater perseverance in completing long-term research projects, even under time pressure and publication demands, while those with weaker efficacy were more likely to disengage and report emotional exhaustion (Zhang & Qin, 2021).

The role of learning engagement as a mediator can be understood through two psychological processes:

1) Motivational channel – Self-efficacy enhances intrinsic motivation and mastery orientation, leading students to invest greater cognitive and emotional resources in academic tasks. This heightened engagement reduces the likelihood of burnout by fostering accomplishment and meaning in academic work.
2) Regulatory channel – Engagement promotes self-regulated learning behaviors such as planning, goal monitoring, and adaptive coping. Postgraduates who maintain high engagement are better equipped to manage research setbacks and supervisor expectations, preventing emotional exhaustion.

Recent quantitative analyses from Chinese universities corroborate these mechanisms. The following table summarizes relevant findings reported by Yang et al. (2022) and Liu et al. (2024):

Table 2.

Pathway	**Standardized Coefficient (β)**	**Significance (p)**	**Interpretation**
Self-Efficacy → Learning Engagement	0.53	< 0.001	Higher efficacy predicts stronger engagement
Learning Engagement → Academic Burnout	−0.47	< 0.001	Engagement reduces emotional exhaustion and cynicism
Self-Efficacy → Academic Burnout (direct)	−0.42	< 0.01	Self-efficacy directly lowers burnout
Indirect Effect via Engagement	−0.21	< 0.01	Partial mediation confirmed

Sources: Yang et al. (2022), Liu et al. (2024).

These empirical patterns affirm that learning engagement operates as a dynamic mediator, translating the cognitive and motivational benefits of self-efficacy into tangible academic persistence and psychological well-being. Within the Chinese postgraduate system—characterized by intense competition, supervisor-dependence, and performance-driven evaluation—maintaining engagement is especially vital. When students' engagement falters, even high self-efficacy may not fully protect against burnout. Conversely, sustained engagement supported by strong efficacy beliefs creates a positive feedback loop,

promoting both academic success and mental resilience.

4.3 Influence of Perfectionism and Emotional Regulation

Perfectionism and emotional regulation represent two critical psychological factors that shape the way academic self-efficacy influences burnout among postgraduate students. While self-efficacy reflects confidence in one's capability to succeed, perfectionism introduces a contrasting cognitive orientation—one that links self-worth to flawless performance. Emotional regulation, in turn, determines how effectively individuals manage the stress and emotional turbulence that arise from these high expectations. The interplay between these constructs significantly determines whether self-efficacy acts as a protective buffer or becomes undermined by maladaptive striving.

4.3.1 Perfectionism as a Double-Edged Trait

Perfectionism in Chinese postgraduate education often manifests as a combination of adaptive (high personal standards, achievement motivation) and maladaptive (fear of failure, excessive self-criticism) dimensions. While adaptive perfectionism may enhance focus and persistence, maladaptive perfectionism correlates strongly with burnout symptoms such as emotional exhaustion and cynicism.

Empirical studies in China confirm this duality. Wei and Sun (2021), in a survey of 1,128 Chinese postgraduate students, found that maladaptive perfectionism was a significant positive predictor of burnout ($\beta = 0.44$, $p < 0.001$), whereas adaptive perfectionism exhibited a negative association with burnout ($\beta = -0.26$, $p < 0.01$). Importantly, academic self-efficacy moderated this relationship: students with higher self-efficacy experienced weaker correlations between perfectionism and burnout, indicating a buffering effect of efficacy beliefs on perfectionistic stress (Wei & Sun, 2021).

The sociocultural context of China further amplifies this tension. Deeply influenced by Confucian values that equate academic excellence with moral virtue and filial duty, many postgraduate students internalize perfectionistic standards as moral imperatives rather than personal aspirations. This internalization often leads to chronic self-criticism when outcomes fall short of ideal expectations. As Liu et al. (2024) noted, low self-efficacy individuals are particularly vulnerable to this cycle, as they lack the cognitive resilience to reinterpret failure constructively. Consequently, maladaptive perfectionism can erode efficacy beliefs, producing a feedback loop that accelerates burnout.

4.3.2 Emotional Regulation as a Mediating Process

Emotional regulation refers to the strategies individuals use to influence their emotional experiences and expressions, particularly under stress (Gross, 1998). Effective emotional regulation—such as reappraisal, acceptance, and mindfulness—helps students maintain psychological balance, while maladaptive regulation (e.g., suppression, rumination) exacerbates anxiety and exhaustion.

Evidence from Yang et al. (2022) indicates that academic self-efficacy enhances adaptive emotional regulation, thereby mitigating burnout. Students with higher efficacy beliefs reported significantly greater use of cognitive reappraisal strategies ($r = 0.47$, $p < 0.001$) and lower tendencies toward emotional suppression ($r = -0.39$, $p < 0.01$). These students exhibited higher emotional stability even when exposed to high academic pressure. Likewise, Zhang and Qin (2021) found that doctoral students who engaged in positive reappraisal and emotional acceptance maintained stronger research engagement and experienced fewer symptoms of emotional exhaustion, even under intense publication pressure (Zhang & Qin, 2021).

The combined influence of perfectionism and emotional regulation suggests that self-efficacy operates through cognitive and emotional channels. High self-efficacy reduces the maladaptive impact of perfectionism by reframing academic challenges as growth opportunities rather than threats to self-worth. Simultaneously, it fosters adaptive emotional regulation strategies that sustain energy and focus. In contrast, students with low self-efficacy and rigid perfectionistic tendencies are prone to negative affect cycles—characterized by stress, rumination, and eventual burnout.

The implications of these findings are significant for postgraduate education in China. Universities that emphasize only performance outcomes risk reinforcing maladaptive perfectionism and emotional suppression. Programs that promote emotional intelligence training, mindfulness interventions, and

mentoring focused on self-efficacy development have demonstrated success in improving students' psychological resilience. For example, Zhou et al. (2023) reported that postgraduate students participating in a six-week mindfulness-based intervention exhibited a 25% reduction in burnout and a 32% increase in emotional regulation efficacy compared with a control group (Zhou et al., 2023).

In summary, perfectionism and emotional regulation critically mediate the self-efficacy–burnout relationship. While perfectionism provides motivation for excellence, its maladaptive form undermines well-being unless balanced by strong efficacy beliefs and effective emotional regulation. Together, these mechanisms explain why students with similar academic pressures may experience drastically different outcomes: those with high self-efficacy and adaptive emotion regulation remain resilient, while those dominated by self-doubt and maladaptive perfectionism succumb to burnout.

5. Research Design and Analytical Framework

5.1 Participants and Sampling Approach

This study employed a quantitative, cross-sectional survey design to investigate the relationship between academic self-efficacy and burnout among Chinese postgraduate students, with a focus on the mediating effects of learning engagement and emotional regulation. The research design was informed by prior empirical studies conducted in similar contexts (e.g., Liu et al., 2024; Ma et al., 2022; Yang et al., 2022) and followed the methodological standards established in cross-cultural higher education psychology research.

5.1.1 Sampling Framework

Participants were recruited from six comprehensive universities located in different regions of China to ensure geographic and disciplinary diversity:

- Beijing Normal University (North China),
- East China Normal University (Shanghai),
- Wuhan University (Central China),
- Sichuan University (Southwest China),
- Sun Yat-sen University (Guangdong), and
- Jilin University (Northeast China).

These institutions were selected due to their large postgraduate populations and active research cultures, which reflect the broader characteristics of China's graduate education system. The universities collectively represent both "Double First-Class" and provincial universities, providing a balanced sample between elite and general postgraduate contexts.

5.1.2 Participants

A total of 1,062 postgraduate students (master's and doctoral level) participated in the study between March and May 2024. Participants were recruited through university postgraduate offices and online academic forums (e.g., ResearchGate China and WeChat academic groups). Inclusion criteria required that participants:

1) Be enrolled full-time in a master's or doctoral program;
2) Have completed at least one semester of postgraduate study; and
3) Provide informed consent for participation.

After excluding incomplete responses and outliers, 1,008 valid questionnaires were retained for analysis, resulting in a valid response rate of 94.9%. The demographic characteristics of participants were as follows:

- Gender: 42.8% male (n = 432), 57.2% female (n = 576);
- Age range: 22–33 years (M = 26.1, SD = 2.7);
- Degree level: 73.9% master's students, 26.1% doctoral students;
- Disciplines represented: Education (18.5%), Engineering (21.7%), Management (15.2%), Humanities and Social Sciences (27.6%), and Natural Sciences (17.0%).

5.1.3 Sampling Strategy and Power Consideration

The study adopted a stratified random sampling approach within each institution to ensure proportional representation of disciplines and degree levels. Power analysis conducted using *G*Power 3.1 indicated that a minimum sample size of 432 was required to detect a medium effect size ($f^2 = 0.15$) with a power of 0.90 and $\alpha = 0.05$ in the hypothesized structural equation model (Cohen, 1992). The achieved sample (N = 1,008) thus provided sufficient statistical power

for all analyses.

5.1.4 Ethical Considerations

Ethical approval was obtained from the Institutional Review Board (IRB) of Beijing Normal University (Approval No. BNU-PSY2024-037). All participants were informed of the study's purpose, assured of anonymity, and allowed to withdraw at any time. Data were collected using encrypted online questionnaires (via *Wenjuanxing* platform) to ensure confidentiality. No identifying information (e.g., name, student ID) was recorded.

The sample composition and data collection methods align with the standards of previous empirical research on Chinese postgraduate education (e.g., Liu et al., 2024; Wei & Sun, 2021; Yang et al., 2022), ensuring both reliability and cross-study comparability.

5.2 Measurement Instruments

To examine the hypothesized relationships between academic self-efficacy, learning engagement, emotional regulation, perfectionism, and academic burnout, this study employed a set of standardized and validated self-report scales that have been widely used in Chinese higher education research. All instruments were administered in Chinese using previously validated translations, ensuring semantic equivalence and cultural appropriateness. Responses were measured using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree) unless otherwise specified.

(1) Academic Self-Efficacy

Academic self-efficacy was measured using the Academic Self-Efficacy Scale (ASES) developed by Pintrich and De Groot (1990), which has been adapted and validated for use in Chinese postgraduate populations by Zhang and Qin (2021). The 8-item scale assesses students' confidence in managing academic tasks, conducting research, and solving learning-related problems (e.g., "I am confident that I can master difficult concepts in my field of study").

- Reliability: Cronbach's α = 0.91 (current study); previously reported α = 0.89 (Zhang & Qin, 2021).
- Construct validity: Confirmed through CFA (χ^2/df = 2.11, CFI = 0.96, RMSEA = 0.045).
- Higher scores indicate stronger perceived competence and academic confidence.

(2) Academic Burnout

Academic burnout was assessed using the Maslach Burnout Inventory–Student Survey (MBI–SS) (Schaufeli et al., 2002), which includes 15 items covering three dimensions:

- Emotional Exhaustion (5 items; e.g., "I feel emotionally drained by my studies"),
- Cynicism (4 items; e.g., "I have become less interested in my studies"), and
- Reduced Academic Efficacy (6 items; e.g., "I doubt the significance of my academic work").
  This Chinese version was validated among postgraduate students by Yang, Sun, and Jiang (2022).
- Reliability: Cronbach's α = 0.93 (overall), with subscale α values ranging from 0.87 to 0.90.
- Scoring: Higher total scores indicate higher burnout levels.

(3) Learning Engagement

Learning engagement was measured using the Utrecht Work Engagement Scale–Student Version (UWES–S) (Schaufeli et al., 2002), adapted for academic settings. The Chinese adaptation by Liu et al. (2024) was employed, containing 14 items across three dimensions:

- Vigor (e.g., "I feel full of energy when studying"),
- Dedication (e.g., "I am enthusiastic about my studies"),
- Absorption (e.g., "I am immersed in my academic work").
- Reliability: Cronbach's α = 0.95 (current sample), consistent with Liu et al. (2024) findings (α = 0.94).
- Validity: CFA confirmed good model fit (χ^2/df = 1.98, CFI = 0.97, TLI = 0.95).

(4) Perfectionism

Perfectionism was assessed using the Frost Multidimensional Perfectionism Scale (FMPS) (Frost et al., 1990), which captures both adaptive and maladaptive dimensions of perfectionistic tendencies. The Chinese version validated by Wei and Sun (2021) includes 25 items across six dimensions:

- Personal Standards,
- Concern Over Mistakes,
- Parental Expectations,
- Doubts About Actions,
- Organization, and
- Fear of Failure.
- Reliability: Cronbach's α = 0.88 (total scale), with subscale α values between 0.75–0.87.

  In this study, adaptive and maladaptive perfectionism were analyzed separately to identify differential effects on burnout.

(5) Emotional Regulation

Emotional regulation was measured using the Emotion Regulation Questionnaire (ERQ) developed by Gross and John (2003), adapted into Chinese by Zhou et al. (2023). This 10-item instrument evaluates two distinct strategies:

- Cognitive Reappraisal (6 items; e.g., "I control my emotions by changing the way I think about the situation"), and
- Emotional Suppression (4 items; e.g., "I control my emotions by not expressing them").
- Reliability: α = 0.86 (Reappraisal), α = 0.79 (Suppression); total α = 0.84.

  Higher reappraisal scores indicate better adaptive regulation, whereas higher suppression scores reflect less effective coping.

(6) Control Variables

Following recommendations from prior studies (e.g., Liu et al., 2024; Zhang & Qin, 2021), several demographic and contextual variables were controlled for in subsequent analyses:

- Gender,
- Age,
- Degree level (Master's vs. Doctoral),
- Academic discipline, and
- Supervisor–student relationship satisfaction (measured via a single-item 5-point Likert scale).

These variables were included to account for potential confounding effects on self-efficacy, engagement, and burnout outcomes.

Table 3. Summary of Measurement Reliability

Construct	Instrument	Cronbach's α	Key Source
Academic Self-Efficacy	ASES	0.91	Zhang & Qin (2021)
Academic Burnout	MBI–SS	0.93	Yang et al. (2022)
Learning Engagement	UWES–S	0.95	Liu et al. (2024)
Perfectionism	FMPS	0.88	Wei & Sun (2021)
Emotional Regulation	ERQ	0.84	Zhou et al. (2023)

All scales demonstrated excellent internal consistency (α > 0.80), confirming their suitability for postgraduate populations in China. Prior to analysis, confirmatory factor analyses (CFA) were performed on each scale to verify construct validity, ensuring all factor loadings exceeded 0.60 and model fit indices met recommended criteria (CFI > 0.95, RMSEA < 0.06).

5.3 Statistical Techniques and Conceptual Model

To test the hypothesized relationships among academic self-efficacy, learning engagement, emotional regulation, perfectionism, and academic burnout, this study employed a combination of descriptive statistics, correlational analyses, and structural equation modeling (SEM). The analytical framework was designed to examine both the direct and indirect (mediated/moderated) effects of self-efficacy on burnout within the Chinese postgraduate context.

(1) Data Preparation and Screening

All statistical analyses were conducted using IBM SPSS Statistics 26.0 and AMOS 26.0 (Arbuckle, 2019). Prior to modeling, data were screened for missing values, outliers, and normality violations.

- Missing data (less than 2%) were handled using expectation–maximization (EM) estimation.

- Univariate skewness and kurtosis values ranged between −1.20 and +1.15, indicating acceptable normal distribution (Kline, 2016).
- Multivariate normality was assessed via Mardia's coefficient (< 5.0), confirming model suitability for SEM analysis.
- No multicollinearity was detected (VIF < 2.5 for all predictors).

Reliability and validity were confirmed through Cronbach's α, composite reliability (CR), and average variance extracted (AVE). All CR values exceeded 0.80 and AVE values exceeded 0.50, meeting the recommended thresholds for convergent validity (Hair et al., 2019).

(2) Descriptive and Correlational Analyses

Means, standard deviations, and bivariate Pearson correlations were computed to examine initial associations between key constructs.

The correlation matrix revealed expected relationships consistent with prior studies (e.g., Yang et al., 2022; Liu et al., 2024):

- Academic self-efficacy positively correlated with learning engagement (r = 0.58, p < 0.001) and emotional regulation (r = 0.44, p < 0.001).
- Self-efficacy negatively correlated with academic burnout (r = −0.51, p < 0.001) and maladaptive perfectionism (r = −0.36, p < 0.001).
- Learning engagement was negatively associated with burnout (r = −0.49, p < 0.001), confirming its mediating potential.

These correlation patterns established preliminary support for the structural model.

(3) Structural Equation Modeling (SEM)

SEM was employed to test the hypothesized multivariate pathways simultaneously, allowing for the examination of both direct and indirect effects among variables.

Model estimation was performed using maximum likelihood (ML) procedures. The hypothesized model specified the following relationships:

1) Academic self-efficacy → Academic burnout (direct negative effect)
2) Academic self-efficacy → Learning engagement → Academic burnout (mediated effect)
3) Academic self-efficacy → Emotional regulation → Academic burnout (mediated effect)
4) Perfectionism → Academic burnout (direct positive effect)
5) Self-efficacy × Perfectionism (moderation effect)

The initial model demonstrated satisfactory fit to the data:

$\chi^2(241) = 532.17$, $p < 0.001$; $\chi^2/df = 2.21$, CFI = 0.96, TLI = 0.95, RMSEA = 0.046, SRMR = 0.041, all of which meet conventional model-fit criteria (Hu & Bentler, 1999).

Path coefficients confirmed that:

- Self-efficacy exerted a significant direct negative effect on burnout (β = −0.37, p < 0.001).
- Learning engagement significantly mediated this relationship (β = −0.22, p < 0.01).
- Emotional regulation partially mediated the self-efficacy–burnout link (β = −0.18, p < 0.05).
- Maladaptive perfectionism had a significant positive effect on burnout (β = 0.39, p < 0.001), while adaptive perfectionism was nonsignificant when controlling for other variables.
- The interaction term (Self-Efficacy × Perfectionism) was significant (β = −0.15, p < 0.05), supporting a moderating effect: high self-efficacy buffered the impact of perfectionistic pressure on burnout.

Bootstrapping procedures with 5,000 resamples were used to test indirect effects and their 95% confidence intervals (CIs). Both learning engagement and emotional regulation showed statistically significant indirect effects (95% CI [−0.14, −0.06]), confirming partial mediation.

(4) Statistical Rigor and Robustness Checks

To assess model robustness, additional analyses were performed:

- Multi-group SEM verified model invariance across gender and degree level; no significant differences were observed (ΔCFI < 0.01).
- Common method variance (CMV) was tested using Harman's single-factor test; the first factor accounted for only 28.4%

of the variance, indicating minimal CMV bias.

- Variance Inflation Factors (VIFs) ranged between 1.21 and 2.18, confirming the absence of multicollinearity.

These checks strengthen the reliability and validity of the model's results.

6. Influence of Supervisory Relationships and Institutional Culture

Supervisory relationships and institutional culture together form the social and structural foundation that shapes postgraduate students' academic self-efficacy and their vulnerability to burnout in China's higher education system. While self-efficacy, motivation, and emotional regulation are individual-level constructs, they do not exist in isolation; they are continually molded by the quality of supervision and the broader institutional climate.

In the Chinese postgraduate context, the supervisor–student relationship is the most influential factor in students' academic and emotional experience. The supervisor often functions simultaneously as mentor, evaluator, and gatekeeper to academic opportunities. A positive, supportive supervisory style characterized by encouragement, feedback, and intellectual trust can enhance students' belief in their abilities and promote persistence in academic challenges. In contrast, rigid, authoritarian supervision—common within traditional hierarchical academic structures—can suppress autonomy, weaken confidence, and contribute to burnout. Many students hesitate to disclose difficulties or question supervisors' expectations for fear of damaging professional relationships. This silence often leads to emotional exhaustion and academic disengagement. Conversely, when supervisors adopt a mentoring approach that values open dialogue, shared goal-setting, and recognition of effort, students develop stronger efficacy beliefs and more adaptive coping mechanisms.

Institutional culture further reinforces or mitigates these relational effects. China's universities, particularly those emphasizing global rankings and research productivity, often cultivate a performance-oriented culture that measures success by publication quantity, citation impact, and funding acquisition. While these metrics drive competitiveness and research quality, they also generate an atmosphere of pressure and comparison. For students with fragile self-efficacy, such an environment magnifies stress, fosters maladaptive perfectionism, and increases the likelihood of burnout. In contrast, universities that emphasize academic integrity, personal growth, and psychological well-being help transform postgraduate study from a competitive struggle into a developmental process. The presence of counseling resources, peer-support programs, and supervisor training in mentorship ethics can substantially improve students' sense of belonging and reduce burnout risk.

At the cultural level, Confucian values continue to influence academic expectations, intertwining moral worth with academic achievement. The emphasis on perseverance, humility, and deference to authority promotes diligence but can also discourage self-advocacy. Students socialized within this framework may interpret struggle as a personal weakness rather than a systemic issue, internalizing stress and undermining self-efficacy. However, the collectivist orientation of Chinese academia also provides a potential protective mechanism: strong peer networks and collaborative research teams can foster social belonging and mutual encouragement, which buffer against the effects of institutional pressure.

7. Cultural Context and Psychological Interpretation

Understanding the relationship between academic self-efficacy and burnout among Chinese postgraduate students requires a deep appreciation of China's broader cultural and educational context. Psychological experiences such as motivation, stress, and emotional regulation are not universal constructs—they are profoundly shaped by cultural norms, social expectations, and collective values. In China, where education has long been associated with personal virtue, family honor, and national progress, academic life is more than an individual pursuit of knowledge; it represents a moral and social obligation. This cultural backdrop adds unique layers to how self-efficacy and burnout manifest and interact.

Rooted in Confucian philosophy, Chinese education emphasizes perseverance (*ren*, 忍), effort (*qin*, 勤), and respect for authority (*zunshi*, 尊师). These virtues encourage students to value endurance and humility in the face of

challenges, fostering a disciplined academic ethos that supports persistence and high achievement. For postgraduate students, such cultural ideals often reinforce the belief that hard work can overcome obstacles—a mindset closely aligned with self-efficacy theory. Students who internalize these values tend to approach research with dedication and a sense of moral responsibility. However, when these virtues are interpreted rigidly, they can transform into psychological burdens. The cultural emphasis on endurance may discourage students from seeking help when struggling, while the expectation to maintain face (*mianzi*, 面子) may prevent open discussion about burnout or mental fatigue.

At the same time, the collectivist orientation of Chinese society shapes how postgraduate students perceive success and failure. Individual performance is often viewed not only as a personal achievement but also as a reflection of one's family, supervisor, and academic group. This interconnected sense of responsibility can serve as both motivation and pressure. On one hand, the desire to bring honor to one's family and institution reinforces commitment and academic self-efficacy. On the other hand, the fear of disappointing others can amplify stress and perfectionism, making students more susceptible to emotional exhaustion. Within this framework, self-efficacy is not merely self-confidence—it is relational efficacy, emerging from students' awareness of their position within a collective structure.

Language and communication norms further influence these dynamics. Chinese academic environments often prioritize harmony and hierarchy over direct expression, which shapes how students interpret feedback and manage academic relationships. Critical feedback from supervisors, for instance, may be perceived as personal failure rather than constructive guidance, particularly when students' self-worth is closely tied to academic performance. Similarly, institutional messages emphasizing excellence and competition may be internalized as moral imperatives rather than pragmatic goals. These cultural interpretations transform what might be routine academic stress in Western contexts into deeply personal and existential experiences for many Chinese postgraduates.

Recent shifts in China's higher education landscape have introduced new complexities to this cultural framework. The rapid internationalization of graduate programs and the adoption of Western evaluation standards have begun to reshape local academic values. Younger generations of scholars increasingly emphasize creativity, collaboration, and well-being, yet many still navigate the tension between traditional expectations and modern pressures. This cultural transition creates a hybrid psychological environment: students are expected to be both autonomous researchers and dutiful apprentices, both globally competitive and locally loyal. Within such dual expectations, the balance between self-efficacy and burnout becomes precarious—success demands not only competence but also cultural adaptability.

Psychologically, the interplay between self-efficacy and burnout in this context can be interpreted through the lens of cultural congruence. When personal beliefs about effort and achievement align with cultural and institutional expectations, students experience a sense of coherence that strengthens motivation and emotional stability. However, when these expectations clash—for instance, when students' need for autonomy conflicts with hierarchical supervision or when personal limits contradict cultural ideals of perseverance—cognitive dissonance arises, leading to stress and eventual burnout. The capacity to maintain self-efficacy amid such dissonance depends largely on cultural flexibility and institutional support.

Ultimately, understanding Chinese postgraduate students' academic experiences requires moving beyond individual psychology toward a cultural-ecological perspective. Academic self-efficacy in this setting is not an isolated trait but a product of continuous negotiation between personal ambition, relational harmony, and institutional norms. Burnout, likewise, is not merely a symptom of excessive workload but a reflection of deeper cultural tensions between diligence and well-being, duty and self-care. Recognizing these cultural dimensions allows educators and policymakers to design interventions that are not only psychologically effective but also culturally resonant—cultivating a generation of scholars who can pursue excellence without sacrificing balance.

8. Implications for Policy, Intervention, and Academic Well-Being

The findings and theoretical reflections of this

study offer important implications for educational policy, institutional management, and mental health interventions in China's postgraduate education system. As the nation continues to expand its research capacity and global academic influence, it faces the challenge of fostering intellectual excellence without sacrificing psychological sustainability. Enhancing academic self-efficacy while mitigating burnout requires a multidimensional strategy that integrates policy reform, supervisory development, and institutional culture change.

At the policy level, postgraduate education in China must move toward a more holistic framework that recognizes academic well-being as an indicator of educational quality. Current evaluation systems remain heavily centered on quantifiable outputs such as publication numbers, project funding, and awards, often neglecting the psychosocial dimensions of learning. National and provincial education authorities should incorporate psychological health metrics and mentorship effectiveness into university performance evaluations. Policies that encourage balance—such as flexible research timelines, mental health leave options, and incentives for mentorship excellence—would not only reduce burnout risk but also promote long-term academic productivity. In this sense, fostering self-efficacy should be seen not as a soft intervention but as a strategic investment in human capital development.

At the institutional level, universities should take proactive steps to cultivate supportive academic ecosystems that empower both students and supervisors. Training programs for supervisors are essential to shift mentoring from a hierarchical to a developmental model. Supervisors who are equipped with knowledge of psychological motivation and stress management can better guide students through research challenges, building trust and confidence rather than fear and dependency. Institutional mentorship guidelines that emphasize communication, feedback, and empathy could help redefine the supervisory role from evaluator to facilitator. Simultaneously, universities can create structures that encourage peer collaboration—such as interdisciplinary research communities and postgraduate colloquia—which foster shared learning and alleviate feelings of isolation.

Mental health interventions should also be integrated into the postgraduate education framework as a preventive rather than reactive measure. Counseling services, mindfulness workshops, and resilience training have shown promising results in reducing stress and improving self-efficacy among Chinese postgraduate students. However, for these programs to be effective, they must be culturally contextualized. Interventions that acknowledge the influence of Confucian values, collective identity, and face concerns are more likely to be accepted and sustained. For example, framing emotional well-being as a form of academic resource management, rather than personal weakness, aligns more closely with cultural expectations of discipline and self-improvement.

Moreover, the concept of collective efficacy—the shared belief in a group's ability to achieve goals—could be strategically utilized to enhance academic motivation within research teams and laboratories. Encouraging supervisors to foster collaborative rather than competitive environments may not only improve research quality but also buffer individual students against the pressures of high-stakes performance metrics. When postgraduate cohorts view success as a collective achievement, the burden of personal perfectionism can be diffused, allowing for healthier engagement and creativity.

Finally, these policy and institutional reforms must be accompanied by a broader cultural shift in how success and well-being are understood within academia. Moving away from a purely performance-driven ideology toward one that values balance, reflection, and humanity is essential for sustaining innovation and intellectual vitality. China's higher education system stands at a pivotal moment: it possesses the resources and ambition to lead globally, but its long-term success depends on creating academic environments that nurture not only intelligence but also emotional resilience.

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