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ORIGINAL RESEARCH

Harnessing Research Pressure: A Dual Chain Mediation Effects of Achievement Motivation and Research Anxiety on Innovative Behavior Under Challenge-Hindrance Research Stressors

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Purpose: As high-caliber innovative talents in the era of China's new quality productivity, researchers often face substantial pressures in their academic work. However, a critical question arises: does research pressure influence their innovative behavior, and if so, through what mechanisms? Despite its significance, few scholars have addressed these issues in depth. Grounded in the cognitive transactional theory of stress and adopting a "perception → psychology → behavior" research framework, this study develops a dual chain mediation model to explain the association between challenge-hindrance research stressors and researchers' innovative behavior.

Patients and Methods: A two-wave survey was conducted, collecting 887 valid responses from researchers across 30 provinces in China. To evaluate the proposed hypotheses, structural equation modeling (SEM) was employed alongside a bootstrap analysis conducted via SPSS and M-PLUS. These methods provided rigorous validation of the relationships and mechanisms underpinning the dual chain mediation model.

Results: The findings reveal that challenge research stressors positively and significantly influence researchers' innovative behavior, mediated by achievement motivation and research anxiety. Conversely, hindrance research stressors negatively and significantly impact innovative behavior through the same dual mediating paths. Additionally, achievement motivation exerts a negative effect on research anxiety, while the dual chain mediation of achievement motivation and research anxiety plays a pivotal role in linking both challenge-hindrance research stressors to innovative behavior.

Originality: This study reveals that challenge- and hindrance-oriented research stressors shape researchers' innovative behavior through intertwined psychological pathways of achievement motivation and research anxiety. Notably, we identify that achievement motivation both mitigates anxiety and functions as a chain mediator linking stressors to innovative outcomes. These findings advance knowledge on fostering creativity during the era of New Quality Productivity, offering evidence-based guidance for research-oriented organizations and managers in China seeking to enhance innovative performance.

Keywords: challenge-hindrance research stressors, achievement motivation, research anxiety, new quality productivity, innovative behavior

Background

The development of New Quality Productivity constitutes a pivotal requirement for advancing China's agenda of high-quality economic growth.[1] With innovation as its central characteristics and quality as its ultimate goal, As one of the fundamental elements of the productive forces, labourers ought to be developed into top-tier employees with exceptional knowledge, creativity, and abilities in order to meet the demands of the modern producing forces, Therefore, the development of new

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quality productivity can not be separated from high-quality innovative talents.[2,3] Empirical evidence underscores that employees embodying core traits of innovation and creativity are instrumental in driving the advancement of new quality productivity.[4] Key contributors within this ecosystem—such as universities, research institutions, and technology-focused enterprises—provide the foundational resources and support essential for technological innovation, talent development, and creative productivity. Within this context, researchers employed by research-oriented organizations occupy a dual role: they serve as both critical enablers of technological advancement and dynamic agents driving the growth of new quality productivity.[5] Analyzing researchers' supinnovative behavior not only offers a lens for assessing the innovation potential of high-caliber professionals within the framework of new quality productivity but also yields valuable theoretical and practical insights in china. Such studies inform policymaking efforts aimed at nurturing talent, promoting technological breakthroughs, and accelerating the evolution of new quality productivity.[5]

Recent investigations into the antecedents of researchers' innovative behavior in China have largely emphasized two dimensions: external leadership styles and internal psychological resources. For instance, existing literature has explored the detrimental impact of adverse leadership practices, including exploitative leadership,[6] as well as the role of intrinsic psychological factors, such as a strong sense of professional purpose.[7] These studies highlight the intricate association between external leadership contexts and internal psychological dynamics in shaping researchers' innovative behavior. However, From an organizational management perspective, the design of research evaluation systems in research-intensive institutions significantly influences innovative behavior by bolstering researchers' self-efficacy.[8] Moreover, differences in research performance appraisal methods yield varied impacts on innovative output, demonstrating the critical role of tailored evaluation strategies.[9]

To advance new quality productivity, universities and research institutions have increasingly adopted competitive personnel management policies. Rising demands for high-caliber researchers and strict age limits for employment (eg, a cap of 35 years in research-focused organizations) have driven the introduction of mechanisms such as "last-place elimination" and "up-or-out" policies.[10] These policies have intensified research pressure, a challenge likely to persist in the foreseeable future. Research suggests that elevated research pressure can lead to adverse outcomes, including diminished job performance,[11] academic misconduct,[12,13] and reduced voice behavior.[14] Conversely, moderate levels of work pressure have been shown to stimulate individual innovation[15] and enhance creative potential.[16]

A critical question thus arises: Does research pressure invariably influence researchers' innovative behavior, and if so, through which mechanisms? Given the multifaceted stressors prevalent in research-oriented organizations, this study adopts a perspective grounded in perceived work stress. Specifically, it conceptualizes research stressors as antecedent variables to explain how different types of research stressors influence researchers' innovative behavior within the context of China's new quality productivity.

Stress in academic research can be classified into two distinct categories: Challenge Research Stressors (CRS), which are linked to opportunities for growth and achievement, and Hindrance Research Stressors (HRS), which are associated with obstacles that hinder progress.[17] Grounded in the cognitive transactional theory of stress, individuals' psychological responses to external pressures are shaped by their subjective interpretations of these stressors.[18] CRS are associated with problem-focused coping strategies,[19] which stimulate intrinsic motivations such as self-fulfillment and achievement satisfaction. These motivations subsequently enhance work efficiency and encourage proactive behavior.[20] In contrast, HRS typically activate emotion-focused coping strategies,[16] often leading to negative emotional states, including anxiety triggered by external pressures.[21]

Building on this theoretical framework, the present study employs a "perception → psychology → behavior" model, positioning achievement motivation and research anxiety as key psychological mediators linking research stressors to researchers' innovative behavior. Furthermore, it examines the interaction between achievement motivation and research anxiety, extending traditional mediation models. By investigating the chain mediation roles of these psychological variables, this research provides fresh insights into how different research stressors influence innovative behavior within the context of new quality productivity.

This study argues that researchers' perceptions of their organizational work environment—encompassing performance evaluation systems and institutional requirements—provoke distinct internal stress responses. These perceptions subsequently shape their innovative behavior through critical psychological mediators. By constructing a dual-chain mediation model, the research elucidates the divergent pathways through which CRS and HRS influence researchers' innovative behavior. This

study identifies the antecedents of individual innovation in research organizations, expands the literature on research stress, and outlines its impact pathways, offering insights from both positive and negative psychological perspectives.

Currently, research on organizational-level stress primarily focuses on the impact of individual stress perception on organizational performance, such as the negative effect of peer pressure on organizational innovation output.[22] Additionally, studies have examined how institutional pressure influences technological and managerial innovation.[23] At the individual level, existing research has explained how external hazardous work environments induce job stress, thereby affecting innovative behavior. For example, in the context of a pandemic, job stress has been found to increase employees' innovative behavior.[24,25] However, empirical research on research-related stress, its two-dimensional differences, and its impact on individual innovative behavior remains insufficient and requires further exploration. From the perspective of organizational stress perception, this study seeks to "unlock the black box" of how different types of research stressors shape researchers' innovative behavior. By empirically testing and validating these mechanisms, it offers both theoretical contributions and actionable insights for enhancing researchers' innovative capacity and fostering innovation within research-oriented organizations. These findings have significant implications for the advancement of China's new quality productivity in the current era.

Theoretical Foundations

The Cognitive Transactional Theory of Stress

Individuals' work stress varies due to their different perceptions of the organizational environment. The cognitive transactional theory of stress posits that stress results from the interaction between external environmental stimuli and individual characteristics.[26] Based on these cognitive differences, stress appraisal can be classified into a two-dimensional model: challenge stressors and hindrance stressors.[17] Research indicates that when facing stress, individuals adjust their internal psychological emotions according to the characteristics of the stressors.[26] Additionally, individual behavior is a response to emotional reactions triggered by workplace events. Challenge stressors and hindrance stressors are events related to specific individual goals; thus, when encountering stressful events, individuals exhibit emotional responses that further influence their behavior.[27]

Challenge-hindrance stressors, as the cognitive product of individuals' perception of organizational stress, significantly influence their psychology and behavior. Empirical studies have shown that organizational stressors affect individuals' psychological capital and mental health.[28–30] As an intrinsic manifestation of psychological indicators, individuals' positive or negative emotions significantly impact their innovative behavior. For instance, workplace mindfulness positively moderates the relationship between workload and innovative behavior,[31] while work engagement enhances innovation by stimulating coping strategies.[32] Moreover, cognitive appraisal theory also posits that individuals' psychological emotions stem from their subjective evaluation of external environments, which subsequently shapes their behavioral trajectories. This framework explains the relationship between environmental stimulus perception, individual psychology, and behavior.[33]

Therefore, we propose that challenge-hindrance research stressors, as researchers' cognitive responses to organizational stress environments, influence their innovative behavior through the psychological dimension of emotional indicators, specifically achievement motivation and research anxiety. To elucidate the impact pathways in this study, we adopt the "perception→psychology→behavior" research framework as the foundation for our investigation.

Research Pressure and Innovative Behavior

Research pressure, a distinct form of work-related stress, refers to the psychological and physiological strain researchers experience in response to demanding work environments.[21] According to the dual-classification framework, research pressure can be divided into CRS and HRS.[17]

CRS are constructive pressures, such as high workloads, ambitious goals, and significant responsibilities, that drive intrinsic motivation, personal growth, and professional achievement.[15] CRS can also significantly increase an individual's work fighting spirit,[34] perceived work engagement,[35] work resilience.[36] In contrast, HRS stem from obstacles like bureaucratic inefficiencies, role ambiguity, or restrictive institutional policies that hinder goal attainment and career progression, thereby impairing performance.[37] Besides, HRS can prompt individuals to develop negative resistance, increased emotional exhaustion,[38] which reduces their ability to create.[39]

Innovative behavior involves proactive actions where individuals generate, implement, and share novel ideas within organizations,[40] demonstrates that the individual takes the initiative to come up with and implement novel and useful ideas.[41,42] This behavior is influenced by organizational factors such as work climate[7] and leadership styles,[43] as well as individual characteristics like proactive personality[44] and self-efficacy.[19] At an organizational level, innovative behavior enhances performance and drives innovation,[45] this is critical for organisations operating in dangerously competitive environments to improve their success and competitiveness.[46] While at a personal level, it fosters fulfillment and professional growth. However, insecurity in the organisational environment can also increase an individual's exposure to stressors and prevent efficient individual work behavior,[47] so it is crucial to effectively deal with the negative impacts of stressors and enhance individual innovative behavior.[48]

The association between research pressure and innovative behavior is complex and varies by stressors type. CRS enhance learning performance,[49] task proficiency,[21] and creativity through positive emotions like enthusiasm and positive well-being.[50] They also promote problem-focused coping strategies, enabling researchers to address challenges and generate novel ideas or creative solutions.[51] For example, ambitious goals can activate intrinsic motivation, encouraging creative problem-solving, enrich and enhance individual work experience and work skills,[52] because such stressors can motivate employees to offset the negative effects of stress and achieve higher levels of workplace outcomes.[53] In contrast, HRS negatively impact work outcomes by increasing psychological strain and fostering counterproductive behaviors.[17,49] These stressors trigger negative emotions such as frustration and anxiety,[54] impairing cognitive function and suppressing creativity.[48] Examples include excessive administrative burdens or unclear roles, which reduce enthusiasm and shift focus from innovation to stress mitigation. Over time, this leads to routine, mechanical behaviors and diminished innovative behavior.[55]

The dual effects of CRS and HRS highlight the intricate interaction between stress perceptions and innovative behavior. While CRS foster creativity and proactive problem-solving, HRS inhibit innovation and reduce engagement. Based on these insights, the following hypotheses are proposed:

H1a: CRS positively influence researchers' innovative behavior.

H1b: HRS negatively influence researchers' innovative behavior.

Achievement Motivation: The Missing Link in Stress-Innovation Dynamics

Achievement motivation, an intrinsic psychological characteristic, reflects an individual's internal drive to achieve ambitious goals, overcome challenges, and succeed through sustained effort.[56] Individuals with high levels of achievement motivation actively embrace challenges, demonstrate goal-oriented determination, and derive satisfaction from accomplishing demanding objectives.[21]

Research suggests that CRS are often perceived as meaningful and manageable by individuals with strong achievement motivation.[44] Grounded in the cognitive transactional theory of stress, challenging tasks are interpreted as opportunities for growth, motivating individuals to invest time and effort to overcome obstacles.[16] Such stressors activate intrinsic achievement motivation, fostering persistence, problem-solving skills, and sustained effort.[19] In contrast, HRS create adverse environments that erode work motivation and self-confidence. These stressors, by inducing frustration and reducing enthusiasm, weaken individuals' sense of purpose and engagement in their tasks.[21,57]

As a pivotal intrinsic driver, achievement motivation shapes individuals' responses to external stressors, enhancing their creative capacities, innovative performance and fostering innovative behavior.[58] It promotes innovative thinking, facilitates the implementation of novel ideas, and encourages proactive skill development to address challenges.[59,60] High achievement motivation amplifies the positive effects of CRS by transforming external pressures into opportunities for innovation. Simultaneously, it buffers against the detrimental effects of HRS, mitigating their impact on engagement and creativity.

When faced with CRS, researchers with elevated achievement motivation view these pressures as constructive and surmountable.[44] Their intrinsic drive to overcome obstacles and achieve objectives fosters heightened motivation, enabling sustained effort and the development of creative solutions.[19,57] Conversely, HRS suppress achievement motivation, diminishing researchers' willingness to invest effort in innovative thinking. These stressors hinder academic

progress and creativity by diminishing enthusiasm and reducing proactive engagement, thereby lowering contributions to innovative behavior.[21]

Achievement motivation emerges as a pivotal mediator, connecting organizational stress environments to researchers' innovative behavior.[61] Building on these theoretical insights, the following hypotheses are proposed:

H2a: Achievement motivation mediates the association between CRS and innovative behavior.

H2b: Achievement motivation mediates the association between HRS and innovative behavior.

Research Anxiety: A Mediator Between Pressure and Performance

Research anxiety encompasses complex emotional responses, including tension, fear, frustration, and uncertainty, that arise when individuals face ambiguous tasks, high-stakes challenges, or perceived professional threats.[62] Research indicates that excessive pressure reduces psychological efficacy and heightens anxiety levels, negatively impacting behavior and performance.[19] As a mediating factor, research anxiety links research pressure to performance outcomes and work behaviors.[21] Anxiety driven by organizational factors undermines behavior by increasing counterproductive work behaviors and reducing organizational citizenship behaviors.[45] Elevated research anxiety suppresses innovative behavior by lowering risk tolerance and discouraging creative or experimental activities.[63]

While CRS often enhance achievement motivation, they can also elevate anxiety due to uncertainties surrounding ambitious goals and complex tasks. High performance expectations intensify this anxiety, particularly under tight deadlines and demanding innovation requirements, which impair creative problem-solving and risk-taking.[13,21] In contrast, HRS are closely tied to negative psychological outcomes, evoking emotion-focused coping strategies and leading to emotional exhaustion.[14] These stressors, compounded by inadequate resources, funding, or institutional support, heighten anxiety and diminish motivation.[64,65] Ambiguity and unpredictability in such environments further amplify research anxiety, discouraging knowledge sharing and fostering behaviors that inhibit creativity and innovation.[16]

By linking research stressors to innovative behavior, research anxiety emerges as a critical mediator. CRS, despite their constructive nature, generate anxiety through performance uncertainties and demanding expectations. HRS, on the other hand, amplify anxiety through resource inadequacy and emotional exhaustion, creating significant barriers to innovation and team performance.[66,67]

H3a: Research anxiety mediates the association between CRS and innovative behavior.

H3b: Research anxiety mediates the association between HRS and innovative behavior.

The Chain Mediation Role of Achievement Motivation and Research Anxiety

Extensive research underscores the distinct mediating roles of achievement motivation and research anxiety in influencing work behaviors and outcomes. Within the context of digital transformation, achievement motivation enhances work engagement, drives productivity, and fosters innovation.[61] Conversely, research anxiety, particularly in environments characterized by abusive leadership, hinders creativity by intensifying stress and triggering emotional exhaustion.[68]

While these studies highlight the independent effects of achievement motivation and research anxiety, limited attention has been given to their interplay. Existing evidence suggests a significant negative correlation between the two variables. Individuals with high levels of achievement motivation often exhibit enthusiasm for learning and work, which helps to alleviate anxiety associated with academic or professional challenges. Reducing research anxiety has been linked to improved learning outcomes and enhanced work performance.[69] Individuals with strong achievement motivation often demonstrate greater psychological resilience, which serves as a protective buffer under high-pressure conditions. This resilience helps regulate anxiety and mitigates its negative effects on both performance and well-being.[19] By suppressing research anxiety, heightened achievement motivation fosters a psychological environment more conducive to creativity and innovation.

CRS enhance researchers' perceptions of scientific value and task feasibility, instilling a sense of confidence and purpose. These positive effects drive researchers to approach their work with heightened enthusiasm and a stronger sense of achievement. The resulting boost in achievement motivation not only sustains effort but also mitigates research anxiety associated with task progress and outcomes.

A reduction in research anxiety allows researchers to allocate their cognitive and emotional resources more effectively toward generating innovative ideas and solutions. This facilitates proactive problem-solving and enhances innovative behavior. Consequently, achievement motivation and research anxiety are proposed to operate sequentially, forming a chain mediation mechanism that links CRS to innovative behavior. Based on this theoretical reasoning, the following hypothesis is proposed:

H4a: Achievement motivation and research anxiety jointly mediate the association between CRS and innovative behavior.

Unlike CRS, which often stimulate growth and innovation, HRS create significant barriers that impede researchers' progress by consuming valuable time and restricting access to critical resources.[21] For instance, intense competition for research funding can demoralize researchers, reducing their motivation and enthusiasm for their work. Similarly, the substantial time and energy devoted to administrative tasks—such as grant writing and project management—leaves researchers emotionally drained, resulting in a marked decline in achievement motivation.

The erosion of achievement motivation diminishes researchers' confidence in achieving their objectives, while simultaneously amplifying research anxiety in the face of mounting challenges and delays. These compounded stressors foster frustration and uncertainty, which in turn suppress innovative behavior. Anxiety arising from such adverse experiences undermines cognitive flexibility and risk tolerance—both essential for promoting creativity and innovation.

By imposing emotional and psychological burdens, HRS suppress researchers' capacity and willingness to generate novel ideas or pursue creative solutions. The sequential interaction between achievement motivation and research anxiety thus constitutes a critical pathway through which HRS adversely affect innovative behavior. Drawing on the above analysis, the corresponding hypothesis is formulated as follows:

H4b: Achievement motivation and research anxiety jointly mediate the association between HRS and innovative behavior.

Based on the above analysis, the study develops a comprehensive research conceptual model (Figure 1).

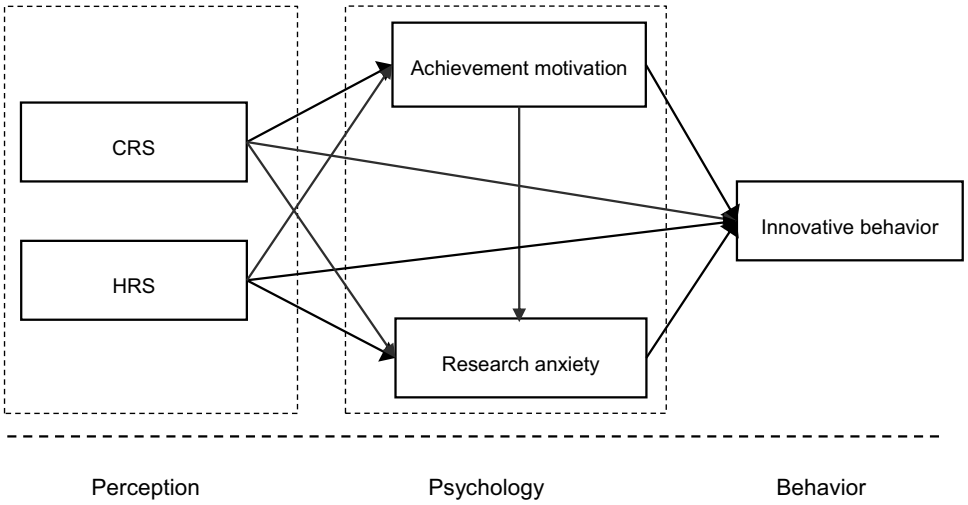

Figure 1 Conceptual Model. This figure illustrates the proposed conceptual framework, which examines the effects of Challenge Research Stressors (CRS) and Hindrance Research Stressors (HRS) on innovative behavior. The model includes two psychological mediators: achievement motivation and research anxiety. CRS and HRS influence innovative behavior both directly and indirectly through these mediators. The framework is structured across three stages: perception (CRS and HRS), psychology (achievement motivation and research anxiety), and behavior (innovative behavior).

Research Design

Sample

This study focused on researchers from various scientific organizations across China to examine the relationships among CRS, HRS, achievement motivation, research anxiety, and innovative behavior. Participants were drawn from 30 provinces, including Guangdong, Shanghai, and Chongqing, encompassing researchers employed in universities, research institutions, and R&D departments within enterprises. To ensure the relevance of the sample, all participants were verified to hold research-related positions in their respective organizations.

Given the nationwide scope of the study, data were collected via the Credamo online survey platform. As an internationally recognized third-party research platform, Credamo has been acknowledged by leading academic journals.[70] With over 3 million registered samples across China, covering a wide range of industries, researchers can incorporate suitable participants into customized sample pools for multi-wave tracking studies based on their research needs. Given that this study focuses on R&D personnel in Chinese research-oriented organizations, we set the industry category of the sample to include three types: universities, research institutions, and corporate R&D departments. Additionally, we categorized job positions into two groups—R&D and non-R&D—to facilitate sample screening. Since we did not have specific requirements for age or gender, we only restricted the educational background, setting the minimum qualification at a bachelor's degree. To enhance sample quality, we imposed criteria requiring participants to have a response count and a credibility score of at least 70, ensuring quality control in the sampling process.

In order to reduce common method bias and avoid potential interference from an excessively long survey interval, we followed the recommendations of Podsakoff (2003)[71] and conducted a two-wave survey with a one-month interval. During the T1 phase (September 2024), a preliminary questionnaire was distributed via Credamo to individuals in R&D-related roles. Of the 1600 questionnaires distributed, 1090 valid responses were retained after excluding ineligible samples based on job title and industry. This resulted in a response rate of 68.12%. The T1 phase primarily collected demographic information (control variables) and data on CRS and HRS. During the T2 phase (October 2024), follow-up surveys were sent to the 1090 participants from the T1 phase to collect data on achievement motivation, research anxiety, and innovative behavior. After discarding incomplete and invalid responses, a total of 887 questionnaires were deemed valid, resulting in an effective response rate of 81.38% for this stage of the study.

Regarding gender, female researchers represented the majority (51.97%, 461 participants). In terms of age distribution, the largest group was between 31 and 40 years old, accounting for 48.93% of the sample (434 participants). Educational attainment was highest among master's degree holders, who constituted 55.13% of the sample (489 participants). In terms of marital status, 56.93% of the participants were married (505 participants). Finally, 44.31% of respondents (393 participants) had five or fewer years of research experience. Detailed demographic characteristics are presented in Table 1.

Measures

All constructs in this research were assessed using a 7-point Likert scale, with 1 indicating "strongly disagree" and 7 signifying "strongly agree". The reliability and validity of each scale were thoroughly evaluated to ensure their appropriateness for the research context.

The measurement of Research Pressure was adapted from the instrument developed by Cavanaugh et al[17] and localized for the Chinese context by Zhang Yi et al.[72] This scale includes two subdimensions: CRS and HRS. CRS were measured using six items, such as "The amount of time I dedicate to research tasks", with a Cronbach's α value of 0.885, indicating strong internal consistency. HRS were measured using five items, such as "The cumbersome procedures I must navigate to complete my work". This scale exhibited high reliability, achieving a Cronbach's α of 0.851.

The achievement motivation (AM) scale, developed by Wang Lijian et al[73] to reflect the distinctive traits of Chinese researchers, includes five items, such as "I am willing to take on more challenging tasks". This scale exhibits robust reliability, with a Cronbach's α of 0.869.

To assess anxiety specific to research activities, the research anxiety (RA) scale was adapted from Rodell and Judge's (2009)[74] general anxiety scale and further localized by Wang Xianya et al.[37] The RA scale consists of four items,

Table 1 Sample Characteristics

Variable	Category	Sample Size	Proportion (%)
Gender	Female	461	51.97%
	Male	426	48.03%
Age	≤30 years	345	38.90%
	31–40 years	434	48.93%
	41–50 years	89	10.03%
	≥50 years	19	2.14%
Education	Bachelor's	315	35.51%
	Master's	489	55.13%
	Doctorate	83	9.36%
Marital Status	Married	505	56.93%
	Single	382	43.07%
Work Experience	≤5 years	393	44.31%
	6–10 years	341	38.44%
	≥11 years	153	17.25%

Notes: sample size = 887.

including "I frequently feel frustrated when my research tasks remain incomplete", and demonstrates excellent internal consistency, with a Cronbach's α of 0.910.

This study assessed creativity and innovation using the innovative behavior (IB) scale, originally introduced by Scott and Bruce (1994).[40] The scale comprises six items, such as "I often propose creative ideas and suggestions", and demonstrates strong reliability, with a Cronbach's α of 0.863.

Control Variables: A range of control variables was incorporated to address potential confounding effects, drawing on prior studies related to innovative behavior.[75] These variables included demographic factors such as gender, age, marital status, educational attainment, and years of professional experience, as these characteristics are widely recognized as influencing creativity and innovation in organizational contexts.

Data Analysis and Results

Statistical Analysis Strategy

To measure the causal relationships between the variables proposed in this study, we employed structural equation modeling for model construction and statistical analysis.[76,77] Specifically, SPSS was used to examine the main effects, mediation effects, and chained mediation effects, while the PROCESS macro was utilized to validate the mediation effects using the bootstrap method. Additionally, Mplus was applied to conduct confirmatory factor analysis, assess model fit, and perform related analyses.

Reliability and Validity Testing

This study employed SPSS 26.0 and M-PLUS 8.3 to assess the robustness and consistency of the collected data. The Kaiser-Meyer-Olkin (KMO) statistic yielded a value of 0.924, significantly exceeding the recommended threshold of 0.6, which validates the sample's appropriateness for factor analysis. Additionally, Bartlett's test of sphericity returned a highly significant result ($p < 0.001$), verifying that the dataset was suitable for subsequent analytical procedures.

As detailed in Table 2, the Standardized loading coefficients for all variables ranged from 0.611 to 0.877, indicating satisfactory measurement precision. The composite reliability (CR) values exceeded 0.850, comfortably above the commonly accepted benchmark of 0.7. In addition, the extracted average variance (AVE) values surpassed 0.521, exceeding the recommended threshold of 0.5. These findings collectively demonstrate that the constructs in this study exhibit strong composite reliability and convergent validity, thereby ensuring robust and reliable measurement properties.

Table 2 Analysis of Factor Loadings and Validation of Convergent Reliability

Variables	Order	Loading Factor	CR	AVE
CRS	CRS1	0.809	0.889	0.573
	CRS2	0.778		
	CRS3	0.762		
	CRS4	0.748		
	CRS5	0.717		
	CRS6	0.724		
HRS	HRS1	0.701	0.850	0.532
	HRS2	0.684		
	HRS3	0.732		
	HRS4	0.768		
	HRS5	0.757		
AM	AM1	0.734	0.871	0.575
	AM2	0.749		
	AM3	0.749		
	AM4	0.832		
	AM5	0.721		
RA	RA1	0.827	0.911	0.718
	RA2	0.824		
	RA3	0.861		
	RA4	0.877		
IB	IB1	0.744	0.866	0.521
	IB2	0.763		
	IB3	0.691		
	IB4	0.677		
	IB5	0.611		
	IB6	0.824		

Notes: CRS refers to Challenge-Related Research Pressure, HRS refers to Hindrance-Related Research Pressure, AM represents achievement motivation, RA indicates research anxiety, and IB denotes innovative behavior. The same abbreviations apply throughout the paper.

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The confirmatory factor analysis (CFA) findings demonstrated that the five-factor model provided the optimal fit compared to alternative models. As presented in Table 3, the fit indices satisfied the established benchmarks ($\chi^2/df = 2.809$, RMSEA = 0.045, SRMR = 0.041, CFI = 0.958, TLI = 0.953). Specifically, the χ^2/df value was below 3, both RMSEA and SRMR were under the threshold of 0.08, while CFI exceeded 0.90, and TLI was above 0.80. These results collectively confirm that the proposed model demonstrated strong discriminant validity.[78]

Common Method Bias Assessment

To mitigate potential issues related to common method bias (CMB), this study adopted several widely accepted methodological approaches.

First, Harman's single-factor analysis was performed in accordance with established protocols.[79,80] The analysis revealed that the variance explained by the first unrotated factor was 30.21%, which is well below the widely accepted threshold of 40%. This finding suggests that the influence of common method bias on the dataset is likely negligible.

Second, the unmeasured latent method construct (ULMC) approach was employed to further evaluate CMB.[71,81] As summarized in Table 3, introducing a common method factor (CMV) resulted in negligible changes in model fit indices when comparing the six-factor model with the five-factor model. Specifically, the RMSEA and SRMR differences were below 0.05, and increases in CFI and TLI were under 0.01. These findings provide robust evidence that common method bias does not significantly compromise the validity of this study.

Finally, the variance inflation factor (VIF) was calculated for all variables to evaluate potential multicollinearity issues. The highest VIF value observed was 1.7, which is well below the commonly accepted threshold of 10. This finding provides further evidence that the proposed model is not significantly affected by multicollinearity or common method bias.

Summary Statistics and Variable Correlations

Table 4 summarizes the results of the descriptive analysis and correlation matrix for the study variables. Significant associations were observed among the key variables:

CRS exhibited positive correlations with AM ($r=0.164$, $p<0.01$), RA ($r=0.072$, $p<0.05$), and IB ($r=0.159$, $p<0.01$). Conversely, HRS demonstrated significant negative correlations with AM ($r=-0.332$, $p<0.01$) and IB ($r=-0.354$, $p<0.01$), while showing a strong positive correlation with RA ($r=0.508$, $p<0.01$).

Furthermore, AM was negatively associated with RA ($r=-0.506$, $p<0.01$) but positively associated with IB ($r=0.580$, $p<0.01$). RA, in turn, displayed a significant negative correlation with IB ($r=-0.438$, $p<0.01$). Collectively, these findings provide preliminary evidence supporting the hypotheses proposed in this study.

Table 3 Fit Statistics Derived From Confirmatory Factor Analysis

Measurement Model	χ^2/df	RMSEA	SRMR	CFI	TLI
Single factor (CRS+HRS+AM+RA+IB)	22.880	0.157	0.156	0.471	0.425
Two factor (CRS+HRS, AM+RA+IB)	16.834	0.134	0.166	0.619	0.584
Three factors (CRS, HRS, AM+IB+RA)	10.652	0.104	0.084	0.769	0.747
Four factors (CRS, HRS, AM+IB, RA)	5.490	0.071	0.053	0.894	0.882
Five factors (CRS, HRS, AM, RA, IB)	2.809	0.045	0.041	0.958	0.953
Six factors (CRS, HRS, AM, RA, IB, CMV)	2.624	0.043	0.034	0.965	0.957

Notes: CMV refers to Common Method Variance, "+" indicates the combination of two different variables into one.

Abbreviations: $\chi 2/df$, chi-square/degrees of freedom; RMSEA, root mean square error of approximation; SRMR, Standardized root mean square residual; CFI, Comparative fit index; TLI, Tucker Lewis index.

Table 4 Descriptive Overview and Intervariable Correlations

Variables	1	2	3	4	5	6	7	8	9	10
Gender										
Age	−0.054									
Education	0.009	0.072*								
Marital Status	0.002	−0.199**	−0.034							
Work Experience	−0.034	0.193**	−0.028	−0.462**						
CRS	−0.056	0.003	−0.003	0.015	0.005	**0.757**				
HRS	−0.071*	−0.064	−0.038	0.007	0.015	0.185**	**0.729**			
AM	0.009	0.060	0.023	0.016	−0.008	0.164**	−0.332**	**0.758**		
RA	0.025	−0.091**	0.011	0.025	−0.047	0.072*	0.508**	−0.506**	**0.848**	
IB	−0.038	0.080*	0.011	0.005	0.008	0.159**	−0.354**	0.580**	−0.438**	**0.722**
M	1.520	2.100	1.740	1.430	1.860	5.438	3.529	5.771	3.507	5.546
SD	0.500	1.236	0.617	0.495	1.094	0.944	1.324	0.896	1.556	0.847

Notes: **p <0.01, *p <0.05. All coefficients are presented in standardized form. The diagonal entries, displayed in bold, represent the square root of the AVE for each variable.
Abbreviations: *M*, mean; *SD*, the standard deviation.

Hypothesis Testing

This study employed hierarchical regression analysis using SPSS 26.0 to examine the relationships between variables and utilized the PROCESS macro (Version 4.0) to conduct bootstrap tests for mediation effects.

Main Effect Testing of Challenge-Hindrance Research Stressors on Innovative Behavior

After accounting for relevant control variables, the findings from Model 4 (Table 5) reveal that CRS exerts a significant positive influence on IB (β = 0.157, p <0.001). Accordingly, Hypothesis 1a is confirmed.

Table 5 Mediation Effects of Achievement Motivation and Research Anxiety on the Relationship Between CRS and Innovative Behavior

Variables	AM	RA		IB			
	M1	M2	M3	M4	M5	M6	M7
Gender	0.021	0.023	0.034	−0.025	−0.037	−0.015	−0.030
Age	0.066	−0.087*	−0.052	0.082*	0.045	0.043	0.034
Education	0.019	0.016	0.026	0.006	−0.005	0.013	0.001
Marital Status	0.023	−0.009	0.003	0.019	0.006	0.015	0.007
Work Experience	−0.010	−0.034	−0.039	0.000	0.005	−0.015	−0.003
CRS	0.165***	0.074*	0.161***	0.157***	0.064*	0.190***	0.098***
AM			−0.530***		0.567***		0.455***
RA						−0.449***	−0.211***
R^2	0.032	0.015	0.287	0.033	0.344	0.231	0.376
F	4.881***	2.278*	50.642***	4.967***	65.852***	37.701***	66.099***

Notes: ***p <0.001, *p <0.05. All coefficients are presented in standardized form.
Abbreviations: R^2, coefficient of determination; *F*, *F*-test statistic.

The results from Model 11 (Table 6) reveal that HRS has a significant negative effect on IB (β=−0.355, p <0.001). Thus, Hypothesis 1b is supported.

Mediation Effect Testing

The analysis from Model 1 (Table 5) reveals that CRS significantly enhances AM (β=0.165, p<0.001). When AM is included in the regression model (Model 5, Table 5), both CRS (β=0.064, p<0.05) and AM (β=0.567, p<0.001) exhibit significant positive impacts on IB. These results indicate that AM serves as a mediator between CRS and IB, thereby supporting Hypothesis 2a.

Similarly, Model 8 (Table 6) shows that HRS has a significant negative influence on AM (β=−0.330, p<0.001). When AM is added to the regression model (Model 12, Table 6), both HRS (β=−0.185, p<0.001) and AM (β=0.517, p<0.001) significantly affect IB, with HRS exerting a negative effect and AM contributing positively. This finding confirms that AM mediates the association between HRS and IB, supporting Hypothesis 2b.

Model 2 (Table 5) demonstrates that CRS positively affects RA (β=0.074, p<0.05). When RA is incorporated into the regression analysis (Model 6, Table 5), CRS (β=0.190, p<0.001) maintains a significant positive effect on IB, while RA (β=−0.449, p<0.001) shows a significant negative effect on IB. These results suggest that RA mediates the association between CRS and IB, validating Hypothesis 3a.

Finally, Model 9 (Table 6) indicates that HRS has a significant positive effect on RA (β=0.511, p<0.001). When RA is included in the regression model (Model 13, Table 6), both HRS (β=−0.180, p<0.001) and RA (β=−0.343, p<0.001) negatively influence IB. These findings further confirm that RA mediates the association between HRS and IB, providing support for Hypothesis 3b.

Chain Mediation Effect Testing

The results of Model 3 (Table 5) indicate that when both CRS and AM are regressed on RA, AM exhibits a significant negative effect on RA (β=−0.530, p<0.001), while CRS has a significant positive effect on RA (β=0.161, p<0.001). Further, the results of Model 7 (Table 5) reveal that when AM and RA are both included in the regression analysis alongside CRS, CRS (β=0.098, p<0.001), AM (β=0.455, p<0.001), and RA (β=−0.211, p<0.001) all significantly

Table 6 Mediation Effects of Achievement Motivation and Research Anxiety on the Relationship Between HRS and Innovative Behavior

Variables	AM	RA		IB			
	M8	M9	M10	M11	M12	M13	M14
Gender	−0.012	0.056	0.052*	−0.060	−0.054*	−0.041	−0.047
Age	0.043	−0.051	−0.034	0.057	0.035	0.040	0.031
Education	0.009	0.032	0.035	−0.005	−0.010	0.006	−0.005
Marital Status	0.028	−0.010	0.001	0.025	0.010	0.021	0.010
Work Experience	0.002	−0.047	−0.046	0.012	0.011	−0.004	0.005
HRS	−0.330***	0.511***	0.386***	−0.355***	−0.185***	−0.180***	−0.135***
AM			−0.377***		0.517***		0.469***
RA						−0.343***	−0.128***
R^2	0.113	0.268	0.394	0.133	0.370	0.219	0.380
F	18.605***	53.622***	81.574***	22.466***	73.794***	35.163***	67.309***

Notes: ***p <0.001, *p <0.05. All coefficients are presented in standardized form.
Abbreviations: R^2, coefficient of determination; *F*, *F*-test statistic.

influence IB. These findings, in combination with Hypotheses 2a and 3a, suggest that AM and RA jointly mediate the association between CRS and IB in a sequential manner, supporting Hypothesis 4a.

The results of Model 10 (Table 6) indicate that when both HRS and AM are regressed on RA, AM demonstrates a significant negative effect on RA (β=−0.377, p<0.001), while HRS shows a significant positive effect on RA (β=0.386, p<0.001). Similarly, the results of Model 14 (Table 6) reveal that when AM and RA are included in the regression analysis alongside HRS, HRS (β=−0.135, p<0.001), AM (β=0.469, p<0.001), and RA (β=−0.128, p<0.001) all significantly influence IB. Together with Hypotheses 2b and 3b, these results confirm that AM and RA sequentially mediate the association between HRS and IB, supporting Hypothesis 4b.

To further validate the sequential mediation effect of AM and RA, this study employed the PROCESS macro in SPSS to conduct Bootstrap testing with 5000 resamples. The results, presented in Tables 7 and 8, provide robust support for the hypothesized sequential mediation effects.

The results presented in Table 7 demonstrate the sequential mediation effects of CRS on IB through AM and RA. First, the indirect effect of CRS on IB through AM is significant, with an effect size of 0.067 and a 95% confidence interval (CI) of (0.034, 0.014), which excludes zero. This finding validates the mediating role of AM in the association between CRS and IB, thereby supporting Hypothesis 2a. Second, the indirect effect of CRS on IB through RA is also significant, with an effect size of −0.031 and a 95% CI of (−0.045, −0.018), which similarly excludes zero. This result confirms the mediating role of RA, providing strong support for Hypothesis 3a. Finally, the chain mediation effect of CRS on IB through both AM and RA is established. The effect size for this pathway is 0.017, with a 95% CI of (0.008, 0.027), which also excludes zero. These findings robustly support Hypothesis 4a, highlighting the combined mediating roles of AM and RA in linking CRS to IB.

Table 7 Bootstrap Test Results for Chain Mediation (With the Facet of CRS)

Path	Effect Size	Boot LCI	Boot UCI
Total effect	0.141	0.083	0.200
Direct effect	0.088	0.039	0.136
Total indirect effect	0.053	0.012	0.098
CRS→AM→IB	0.067	0.034	0.104
CRS→RA→IB	−0.031	−0.045	−0.018
CRS→AM→RA→IB	0.017	0.008	0.027

Abbreviations: Boot LCI, Bootstrap lower confidence interval; Boot UCI, Bootstrap upper confidence interval.

Table 8 Bootstrap Test Results for Chain Mediation (With the Facet of HRS)

Path	Effect Size	Boot LCI	Boot UCI
Total effect	−0.227	−0.267	−0.188
Direct effect	−0.086	−0.125	−0.047
Total indirect effect	−0.141	−0.175	−0.109
HRS→AM→IB	−0.099	−0.126	−0.074
HRS→RA→IB	−0.032	−0.052	−0.013
HRS→AM→RA→IB	−0.010	−0.017	−0.004

Abbreviations: Boot LCI, Bootstrap lower confidence interval; Boot UCI, Bootstrap upper confidence interval.

The results presented in Table 8 demonstrate the sequential mediation effects of HRS on IB through AM and RA. First, the indirect effect of HRS on IB via AM was significant, with an effect size of −0.099 and a 95% confidence interval (CI) of [−0.126,-0.074], which does not include zero. This result confirms the mediating role of AM in the link between HRS and IB, providing support for Hypothesis 2b. Second, the indirect effect of HRS on IB through RA was also significant, with an effect size of −0.032 and a 95% CI of [−0.052,-0.013], again excluding zero. This finding offers robust evidence for the mediating role of RA, thereby supporting Hypothesis 3b. Third, the sequential mediation effect of HRS on IB through both AM and RA was established. The effect size for this pathway was −0.010, with a 95% CI of [−0.017,-0.004], which likewise excludes zero. This provides strong evidence for Hypothesis 4b, underscoring the combined mediating roles of AM and RA in elucidating the negative influence of HRS on IB.

To further clarify these relationships, path analysis diagrams were generated using MPLUS 8.3. The results are illustrated in Figures 2 and 3, providing a visual representation of the tested mediation pathways and their respective effect sizes.

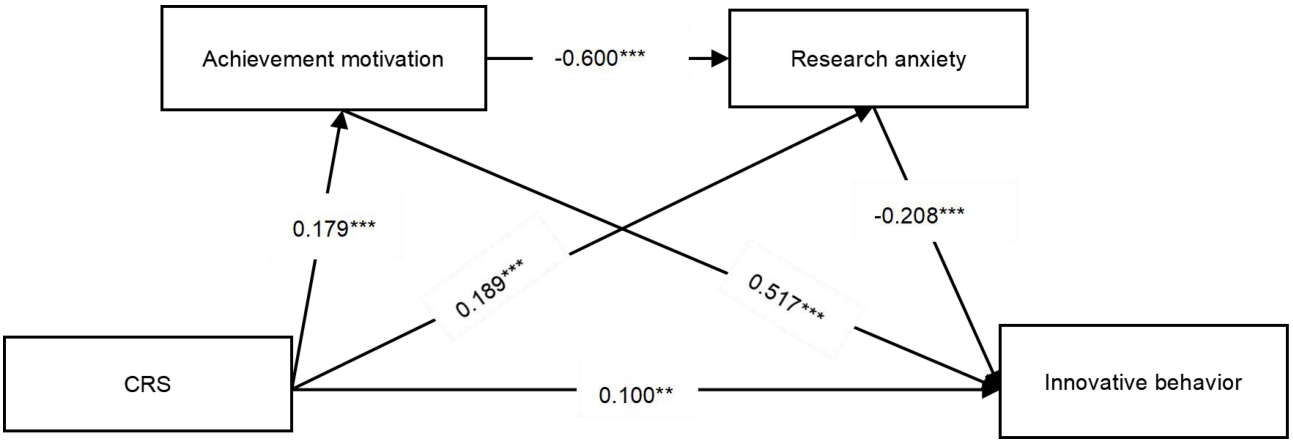

Figure 2 Pathways Linking achievement motivation and research anxiety to the Impact of CRS on innovative behavior. The image presents a structural equation model (SEM) path analysis diagram, illustrating the chained mediation effect of achievement motivation and research anxiety in the impact of corporate social responsibility (CSR) on innovative behavior. Path coefficients are reported with significance levels (**p < 0.01, ***p < 0.001).

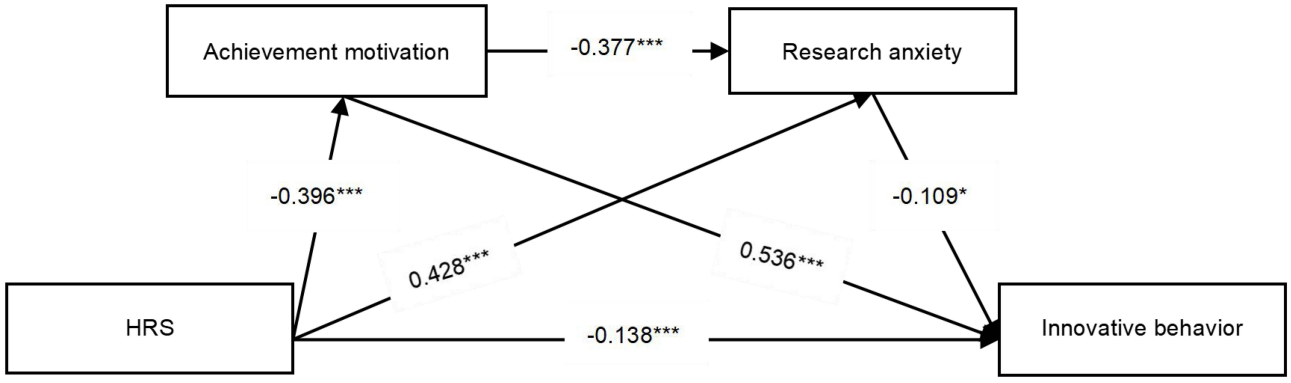

Figure 3 Pathways Linking achievement motivation and research anxiety to the Effects of HRS on innovative behavior. The image presents a structural equation model (SEM) path analysis diagram, illustrating the chained mediation effect of achievement motivation and research anxiety in the impact of HRS on innovative behavior. Path coefficients are reported with significance levels (*p < 0.05, ***p < 0.001).

Research Findings and Discussion

Research Findings

In the context of China's evolving new quality productivity, the nation's economic, social, and technological progress is deeply intertwined with the contributions of highly skilled, innovative talent and their innovative behavior. This study explains the mechanisms through which CRS and HRS impact researchers' innovative behavior within research-focused organizations in China. The key findings are summarized as follows:

First, CRS exert a positive influence on researchers' innovative behavior, emphasizing their role in stimulating creativity and problem-solving when demands are challenging yet supportive. Conversely, HRS have a detrimental effect, impeding innovative behavior by fostering emotional exhaustion and creating obstacles that inhibit creativity.

Second, achievement motivation serves as a constructive mediator, enabling researchers to transform CRS into enhanced innovative outcomes. Conversely, research anxiety mediates the link between HRS and innovative behavior, amplifying the negative effects of stress by reducing cognitive flexibility and limiting risk-taking.

Third, achievement motivation and research anxiety form a dual-chain mediation pathway, emphasizing the complex interplay between motivational and emotional factors in the context of research stressors and innovative behavior. This dynamic illustrates how positive psychological states can alleviate the adverse emotional impacts of stress, while negative emotional states may undermine the motivational benefits of stressors.

Theoretical Contributions

The impact of work pressure on individual innovative behavior has been empirically tested.[24] However, the antecedent conditions of researchers' innovative behavior remain largely unexplained. In the Chinese context, challenge-hindrance stressors can exert differential effects on the innovative behavior of medical postgraduates.[82] Among employees, challenge stressors have been found to positively influence their innovative behavior.[83] Therefore, existing research on individual innovative behavior primarily focuses on students or employees, lacking a broader scope in terms of organizational and job contexts. This study not only responds to the relationship between stress and individual innovative behavior but also expands the research scope by incorporating a wider range of organizations and job positions.

First, this study provides significant theoretical contributions by deepening the understanding of the antecedents of researchers' innovative behavior and expanding the application of the Challenge-Hindrance research stressors framework. While prior studies in China have largely focused on how these stressors affect employees' intrinsic psychological states, such as creativity[84] and job satisfaction,[85] or their work outcomes, such as job performance,[21] limited research has explained the specific mechanisms through which these stressors influence innovative behavior. However, building on the cognitive transactional theory of stress, this study adopts a nuanced perspective to explain how varying perceptions of stress influence researchers' innovative behavior. Existing research highlights that workplace stress can simultaneously enhance work motivation and foster adaptive coping strategies that support creativity.[86] Building on this foundation, the study investigates the dual roles of CRS and HRS, identifying distinct pathways that link these stressors to researchers' innovative capacities. By broadening the antecedent framework of innovative behavior, it offers new insights into how researchers cognitively process research-specific stressors.

Second, this research contributes to ongoing debates regarding the association between workplace stress and innovation. While some argue that stress enhances creativity and innovation,[86] others contend that it suppresses creativity and reduces the willingness to innovate.[87,88] To address these divergent perspectives, this study categorizes workplace stressors into CRS and HRS and examines their distinct effects on innovative behavior through two psychological pathways: achievement motivation (a positive psychological state) and research anxiety (a negative psychological state). By employing a dual-pathway mediation framework, this study advances beyond traditional single-perspective models.[24,87] It uncovers the mechanisms linking Challenge-Oriented and Hindrance-Oriented Stressors to innovative behavior, shedding light on the "black box" of this relationship. These findings contribute to the literature on workplace stress and individual innovation, offering a more integrative framework for future research.

Third, this study further highlights the chain mediation effects of achievement motivation and research anxiety in linking Challenge-Hindrance Stressors to innovative behavior. Unlike prior research, which often examines these

psychological states in isolation—focusing on their separate links with work stressors and outcomes[21] or analyzing their independent interactions[19] —this study integrates them into a cohesive model. It expands on earlier findings that explained indirect pathways, such as problem-focused reflection[89] or affective rumination,[90] to provide a more nuanced understanding of their combined effects. Building on Khalaila's (2015)[69] perspective, this study underscores how achievement motivation and research anxiety jointly shape the association between work stressors and innovative behavior. The findings reveal a dynamic interplay where heightened achievement motivation alleviates research anxiety, establishing a chain mediation effect that links Challenge-Hindrance Stressors to innovative behavior. By constructing a dual-pathway mediation model, this study enhances the understanding of how Challenge-Hindrance research stressors influence innovative behavior. The findings underscore the indirect role of achievement motivation in reducing research anxiety, offering a comprehensive explanation of how work stressors impact innovation. This framework provides a robust theoretical basis for future research.

Practical Implications

First, Differentiating the Impact of research stressors. Understanding the distinct effects of CRS and HRS is critical for promoting researchers' innovative behavior. Challenge-Oriented Stressors boost creativity and innovation, whereas Hindrance-Oriented Stressors hinder these efforts by exacerbating emotional exhaustion and anxiety. Addressing these contrasting dynamics is essential for creating innovation-conducive environments. Enhancing the Benefits of Challenge-Oriented Stressors. To harness the advantages of Challenge-Oriented Stressors, organizations should grant researchers greater autonomy, streamline deliverables, and clarify roles. Highlighting the social and economic significance of researchers' contributions can enhance their intrinsic motivation and sense of purpose, fostering greater innovation. Reducing the Negative Effects of Hindrance-Oriented Stressors. Mitigating the adverse impact of Hindrance-Oriented Stressors requires addressing bureaucratic inefficiencies, such as excessive reporting and cumbersome approval processes. Transitioning to performance-based evaluation systems instead of rigid metrics like academic qualifications can alleviate perceived hindrances and foster a more supportive, innovation-friendly environment.

Second, strengthening achievement motivation. Achievement motivation is pivotal in translating Challenge-Oriented Stressors into innovation outcomes. Organizations can cultivate this motivation by fostering an engaging research environment with clear and attainable objectives. Structured, predictable goals can enhance researchers' confidence and sense of accomplishment, driving sustained innovation. Managing research anxiety: a dual perspective. This study highlights the dual role of research stressors in shaping research anxiety. Moderate anxiety from Challenge-Oriented Stressors can enhance productivity,[45,62] while Hindrance-Oriented Stressors drive debilitating anxiety. To address this, organizations should establish transparent career progression pathways, improve job security, and provide resources for stress management. These measures can foster a psychologically supportive environment, enhancing both well-being and innovation. Reframing stressors through training and communication. The perception of stressors significantly influences their impact on innovative behavior.[91] Training programs and effective communication can help researchers reinterpret stressors as growth opportunities, strengthening resilience and innovation. Providing cognitive tools for stress reframing, proactive stress monitoring, and team-building initiatives can further promote positive stress perceptions and team resilience. Enhancing achievement motivation to Alleviate Anxiety. To amplify the benefits of achievement motivation, organizations should recognize researchers' achievements, provide constructive feedback, and increase the visibility of their contributions. High achievement motivation reduces anxiety and enhances job satisfaction.[61] By fostering a sense of value and purpose, institutions can cultivate a motivated and innovative workforce.

Limitations and Perspectives

This study acknowledges certain limitations, which simultaneously offer opportunities for future research. First, while examining various organizational research stressors, the assessment of core variables was confined to the perspectives of individual researchers. This reliance on self-reported data raises the potential for common method bias. To overcome this limitation, future studies could incorporate multi-level data, such as organizational-level evaluations or peer assessments, to enrich data diversity and mitigate biases in analyzing researchers' innovative behavior. Second, although this study examines the dual pathways through which research stressors influence innovative behavior via both positive and negative psychological

states, it does not account for the role of work resources. Future research could adopt a resource-based perspective to explain how stressors interact with access to critical resources, such as funding, mentorship, or institutional support. This approach could uncover additional mechanisms influencing innovative behavior and offering a more comprehensive perspective of stressor dynamics in research-driven contexts. Third, constrained by time and resources, this study did not incorporate external boundary conditions into its model. Future work could expand the framework by examining moderators such as leaders' political skills, organizational climate, or team dynamics. These factors could provide deeper insights into how research stressors, psychological states, and innovative behavior interact across diverse organizational settings, enhancing the generalizability of the proposed model.

Conclusion

Our study uses extensive research and empirical analysis to investigate the relationship between challenge-hindrance oriented research stresses and researchers' innovative behavior. It explains how research stressors affect innovative behavior via the two psychological pathways of achievement motivation and research anxiety. Furthermore, we are the first to propose that achievement motivation not only reduces research anxiety but also operates as a chain mediator, connecting research stresses to researchers' innovative behavior. This study provides useful insights for research-oriented organizations and their managers in China to better understand the routes by which research stressors influence innovative behavior, especially in the period of advancing New Quality Productivity.

Data Sharing Statement

The raw data supporting the findings of this study can be obtained from the corresponding author upon reasonable request. For inquiries, please contact via email: lupinghu2024@163.com.

Informed Consent Statement

All participants in the survey were informed about the study and provided consent for their questionnaire data to be used for research purposes.

Institutional Review Board Statement

This study was carried out strictly in compliance with the Declaration of Helsinki and was approved ethically by Zhejiang Technician Institute of Electromechanics' Institutional Review Board.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflicts of interest regarding the publication of this study.

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