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Academic Stress and Suicidal Risk among Senior Health Science Students in Ho Chi Minh City, Vietnam: A Moderated Mediation Analysis of Psychological Distress and Social Support

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ABSTRACT

Background: *Senior health science students face a unique "clinical shock" as they transition from theoretical pedagogy to high-stakes clinical accountability. While academic strain is a recognized stressor, the structural mechanisms leading to suicidal ideation within the specific cultural and educational context of Vietnam remain under-explored.*

Objective: *This study examined the relationship between perceived academic stress and suicidal risk, investigating whether this pathway is mediated by psychological distress and if multidimensional social support acts as a protective buffer.*

Methods: *A stratified cross-sectional study was conducted among 800 senior students (Years 3 and 4) majoring in Nursing, Psychology, and Medical Laboratory Science across multiple universities in Ho Chi Minh City. Validated psychometric instruments included the Perceived Academic Stress (PAS) scale, the Depression Anxiety Stress Scale (DASS-21), the Multidimensional Scale of Perceived Social Support (MSPSS), and the Suicidal Behaviors Questionnaire-Revised (SBQ-R). Data were analyzed using moderated mediation modeling.*

Results: *Findings revealed a concerning psychiatric profile, with mean suicide risk scores ($M = 9.42$, $SD = 3.18$) significantly exceeding clinical thresholds. Academic stress exhibited a potent positive correlation with suicide risk ($r = .65$, $p < .001$). Mediation analysis indicated that psychological distress partially mediated this relationship, accounting for approximately 64.6% of the total effect, suggesting that academic pressure acts as a distal trigger that deteriorates mental health before manifesting as suicidal vulnerability. Furthermore, moderation analysis confirmed the "buffering hypothesis"; perceived social support significantly attenuated the deleterious impact of academic stress on psychological distress ($\beta = -0.18$, $p < .001$), effectively decoupling the stress–distress link for students with robust interpersonal resources.*

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Conclusions: *The senior year of health science education represents a period of acute psychiatric risk. Institutional interventions should prioritize the mobilization of social support systems and the integration of mental health literacy into clinical curricula to provide a resilient buffer against the inevitable pressures of healthcare training.*

Keywords: Academic stress; Suicidal risk; Psychological distress; Social support; Health science students; Moderated mediation; Ho Chi Minh City.

1. Introduction

1.1. Background and Problem Statement

The paradox of the healer—where those trained to sustain life are themselves uniquely vulnerable to psychological collapse—has become a critical focal point in global psychiatric discourse. Within the rigorous ecosystem of health science education, students are subjected to a confluence of stressors that transcend the typical academic burden. Beyond the "massive knowledge acquisition" common to higher education, students in disciplines such as Nursing, Psychology, and Medical Laboratory Science navigate a high-stakes clinical environment where they are prematurely exposed to human suffering, terminal illness, and the finality of death.

As Rotenstein et al. (2016) highlighted in their landmark meta-analysis, the prevalence of depressive symptoms and suicidal ideation among medical and health students significantly outstrips that of the general population. In the specific context of Ho Chi Minh City, a rapidly urbanizing metropolitan hub in Vietnam, these stressors are further compounded by socioeconomic competitiveness and high familial expectations. For third- and fourth-year students, this period marks a volatile transition from theoretical learning to clinical clerkships. It is during this "clinical shock" that academic stress (PAS) often transitions from a motivational catalyst to a pathological driver, potentially culminating in suicidal behaviors (SBQ-R).

The underlying mechanism of this transition remains complex. According to the Interpersonal Theory of Suicide (Joiner, 2005), suicidal desire is not a spontaneous event but a progressive erosion of psychological resilience. In this study, we posit that academic stress does not merely "trigger" suicidal ideation directly; rather, it acts as a distal factor that operates through the proximal mediator of psychological distress—comprising depression, anxiety, and stress (DASS-21).

Furthermore, the "Buffering Hypothesis" (Cohen & Wills, 1985) suggests that the presence of social resources can alter the functional relationship between environmental stress and internal distress. In Vietnamese culture, where interpersonal connectivity and familial support (MSPSS) are central to individual identity, the degree of perceived social support may serve as a critical

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moderator. Understanding whether these social buffers can "decouple" the link between academic strain and suicidal risk is essential for developing targeted institutional interventions.

1.2. Research Objectives

The present study seeks to map the structural architecture of mental health risks among senior health science students in Ho Chi Minh City. Specifically, we aim to:

1. Quantify the current prevalence of perceived academic stress (PAS) and its correlation with suicidal risk (SBQ-R).
2. Elucidate the mediating role of psychological distress (DASS-21) in the stress–suicide pathway.
3. Evaluate the moderating capacity of multidimensional social support (MSPSS) in mitigating the deleterious effects of academic strain on mental well-being.

1.3. Research Question

Central to this inquiry is the question: Does academic stress exert a direct path to suicidal ideation, or is this relationship inherently indirect, necessitating a detour through the deterioration of the student's mental health state (Depression/Anxiety)? Additionally, we ask to what extent social support can act as a "shock absorber" in this pathological progression.

2. Literature Review and Conceptual Framework

2.1. The Architecture of Academic Stress in Medical and Health Pedagogy

Academic stress within health science disciplines is not merely an accumulation of pedagogical requirements but a multifaceted construct deeply embedded in the "socialization" of healthcare professionals. Unlike general higher education, medical and health training imposes a unique set of "professionalizing" stressors. Bedasso et al. (2020) argue that the rigorous examination schedules, combined with the inherent "clinical shock" of early patient exposure, create a chronic state of heightened cortisol levels. Specifically, factors such as mandatory night shifts and the constant fear of medical errors introduce a level of accountability that is psychologically taxing. This environment fosters what researchers describe as a "culture of endurance," where seeking help is often stigmatized as a sign of clinical incompetence, thereby intensifying the perceived burden of academic stress (PAS).

2.2. Mental Health and Suicidal Ideation: An Interpersonal Perspective

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The transition from academic strain to suicidal ideation is best elucidated through the Interpersonal Theory of Suicide (Joiner, 2005). Within this framework, the psychological distress measured by the DASS-21—specifically depression and anxiety—acts as a catalyst for two critical interpersonal states: *thwarted belongingness* and *perceived burdensomeness*. For a senior health student, the isolation resulting from intense study schedules may lead to a sense of social disconnection, while the high cost of education and the pressure to succeed may foster the belief that one's failure would be a burden to their family.

Current literature suggests that psychological distress is the "engine" of this pathological progression. When academic stress remains unmanaged, it deteriorates the student's cognitive and emotional regulation, facilitating a shift from "distress" to "hopelessness," which is the primary driver of suicidal risk as measured by the SBQ-R (Rotenstein et al., 2016).

2.3. The Buffering Mechanics of Social Support

The Buffering Hypothesis (Cohen & Wills, 1985) remains the gold standard for understanding how social resources mitigate the toxic effects of environmental strain. In the context of health science students, Perceived Social Support (MSPSS) functions as a systemic protective factor. It is not merely the *presence* of a social network, but the *subjective perception* of being supported by family, friends, and significant others that provides a "psychological shock absorber." High levels of social support can interrupt the negative appraisal of academic stressors, preventing them from escalating into clinical depression or anxiety. Consequently, MSPSS acts as a vital moderator that decouples the direct link between pedagogical overload and psychological breakdown.

2.4. Research Framework and Hypotheses

The conceptual model for this study integrates mediation and moderation paths to map the structural vulnerability of health science students. The proposed relationships are visualized in the figure below.

Hypotheses Synthesis:

- H1: Academic Stress (PAS) is positively and significantly associated with Suicide Risk (SBQ-R). This hypothesis posits that higher levels of perceived pedagogical strain directly increase the likelihood of suicidal ideation and behavior.
- H2: Psychological Distress (DASS-21) serves as a mediator (either partial or full) between PAS and SBQ-R. We hypothesize that academic stress precipitates a state of depression and anxiety, which in turn facilitates the progression toward suicidal ideation.

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- H3: Perceived Social Support (MSPSS) moderates the relationship between PAS and DASS-21. This "Buffering Effect" suggests that for students with high social support, the impact of academic stress on their mental health will be significantly attenuated compared to those with low support.

Table 1. Summary of Variable Roles and Operational Framework

Construct	Operational Scale	Theoretical Role	Core Function	Construct
Academic Stress	PAS	Independent Variable (X)	The primary environmental trigger/stressor.	Academic Stress
Psych. Distress	DASS-21	Mediator (M)	The internal psychological pathway/mechanism.	Psych. Distress
Suicide Risk	SBQ-R	Dependent Variable (Y)	The terminal outcome/behavioral risk.	Suicide Risk
Social Support	MSPSS	Moderator (W)	The external protective buffer/resource.	Social Support

3. Methodology

3.1. Research Design and Philosophical Framework

To empirically evaluate the structural relationships within the proposed moderated mediation model, this study employed a quantitative, cross-sectional research design. This approach was selected for its efficacy in capturing a "snapshot" of psychological prevalence and associations during the critical final year of health science education. While longitudinal designs offer deeper causal insights, the cross-sectional method allows for a high-powered analysis of the current mental health landscape in Ho Chi Minh City's medical universities, providing the necessary evidence base for immediate institutional intervention. The study adheres to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines to ensure methodological transparency and rigor.

3.2. Participants and Stratified Sampling Strategy

The target population comprised senior students (Years 3 and 4) enrolled in health science programs, specifically Nursing, Psychology, and Medical Laboratory Science. To ensure a representative distribution that reflects the diverse clinical pressures across these disciplines, a

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stratified random sampling technique was utilized. From a total calculated sample of n=800, participants were recruited from multiple universities across Ho Chi Minh City to mitigate institutional bias. The strata were defined by major—Nursing (40%), Psychology (30%), and Medical Laboratory (30%)—and further divided by academic year to account for the escalating stressors associated with terminal graduation requirements. Inclusion criteria required participants to be active students currently engaged in clinical clerkships or internships, as these represent the primary sources of environmental strain.

3.3. Measurement Instrumentation

The measurement strategy utilized four psychometrically validated scales, adapted and translated for the Vietnamese student population.

- **Perceived Academic Stress (PAS):** This 18-item instrument measures the cognitive and emotional burden of pedagogical requirements. Items are scored on a 5-point Likert scale, assessing domains such as academic expectations, workload, and fear of failure.
- **Depression, Anxiety, and Stress Scale (DASS-21):** Serving as the mediator in our model, the DASS-21 provides a tripartite assessment of psychological distress. Developed by Lovibond and Lovibond (1995), this scale is renowned for its ability to differentiate between the core symptoms of depression, physical arousal (anxiety), and non-specific tension (stress).
- **Multidimensional Scale of Perceived Social Support (MSPSS):** To evaluate the buffering role of interpersonal resources, the 12-item MSPSS (Zimet et al., 1988) was employed. This scale segments support into three distinct sources: Family, Friends, and Significant Others, allowing for a nuanced analysis of which social network provides the most effective psychological protection.
- **Suicide Behaviors Questionnaire-Revised (SBQ-R):** The terminal dependent variable was measured using the SBQ-R (Osman et al., 2001). This 4-item screening tool is highly sensitive in identifying suicidal risk, covering lifetime ideation, the frequency of suicidal thoughts over the past year, and the self-reported likelihood of future suicidal behavior.

3.4. Ethical Considerations and Crisis Protocol

Given the sensitive nature of investigating suicidal ideation, the study was conducted with strict adherence to the Declaration of Helsinki. Informed consent was obtained from all participants, emphasizing anonymity and the right to withdraw without academic repercussion. Central to the ethical framework was the "Safety and Crisis Protocol." Recognizing the potential for the survey

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to trigger distress, a real-time referral system was integrated. Any participant whose SBQ-R score exceeded the clinical threshold (≥7) was immediately provided with a digital "Resource Package," which included direct contact information for university counseling centers and 24/7 mental health hotlines in Ho Chi Minh City. This non-maleficence approach ensured that the research process itself served as a conduit for help-seeking behavior.

4. Results

4.1. Descriptive Statistics and Reliability Analysis

The initial assessment of the data focused on the descriptive profile and the internal consistency of the measurement scales. As summarized in **Table 2**, all latent constructs exhibited high reliability, with Cronbach's alpha (α) coefficients ranging from .826 to .912, confirming that the instruments are robust for this specific cohort of health science students.

The descriptive data presents a concerning clinical snapshot. The mean score for **Suicide Risk (SBQ-R)** was 9.42 (SD = 3.18), which notably exceeds the established clinical cut-off of 7.0. This elevation, coupled with high levels of **Academic Stress** (M = 61.24, SD = 8.52), reflects a significant psychological burden during the final stages of the students' professional training. These figures suggest that the transition from clinical clerkships to graduation is a period of heightened psychiatric vulnerability.

Table 2. Descriptive Statistics and Reliability of the Study Scales (n=800)

Variable	Items	Range	M	SD	Cronbach's α
Academic Stress (PAS)	18	18–90	61.24	8.52	.885
Social Support (MSPSS)	12	12–84	58.60	10.15	.912
Psychological Distress (DASS-21)	21	0–63	28.45	7.30	.894
Suicide Risk (SBQ-R)	4	3–18	9.42	3.18	.826

4.2. Bivariate Associations and Disciplinary Homogeneity

The zero-order correlation matrix (**Table 3**) established the foundational pathways for the structural model. Academic stress demonstrated a potent positive association with suicide risk (r

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= .65, p < .001), identifying pedagogical strain as a distal predictor of suicidal ideation. Parallel to this, the strongest correlation was observed between academic stress and psychological distress (r = .72), suggesting that the students' mental health status is deeply intertwined with their academic environment.

This stress-suicide pathway appears remarkably consistent across different health disciplines. As visualized in **Figure 1**, the regression lines for Nursing, Psychology, and Medical Laboratory students overlapped significantly, with no substantial deviations in the slope. This disciplinary homogeneity indicates that the psychological impact of academic pressure is a systemic phenomenon within health science education, rather than an anomaly limited to a specific field. Conversely, the protective role of social support was evident through its significant negative correlations with both psychological distress (r = -.45) and suicide risk (r = -.38).

Figure 1: Association between academic stress and suicide risk across health science disciplines.

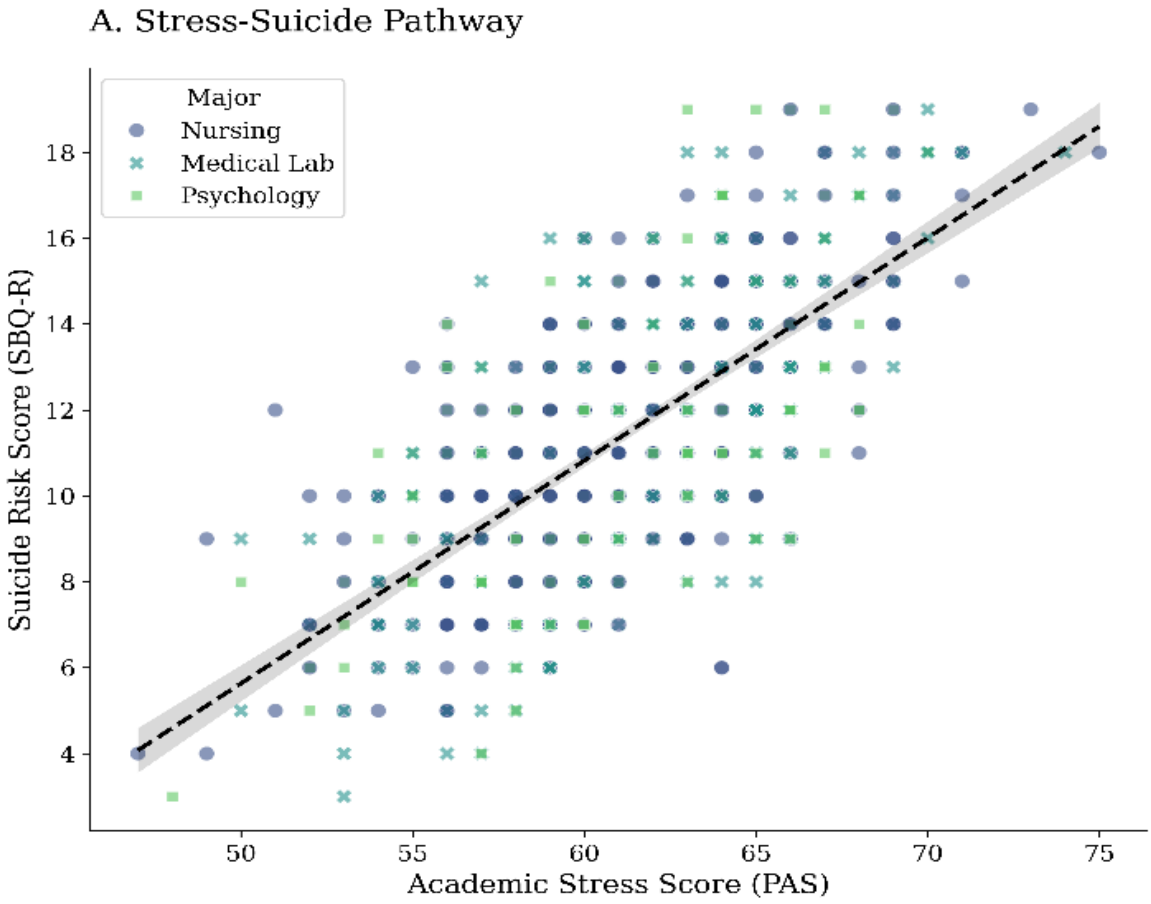

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Table 3. Inter-correlations Among Study Variables

Variables	Academic Stress	Social Support	Psychological Distress	Suicide Risk
Academic Stress	—			
Social Support	-.32**	—		
Psychological Distress	.72**	-.45**	—	
Suicide Risk	.65**	-.38**	.68**	—
**p < .05, **p < .01.*				

4.3. Mediation Analysis of Psychological Distress

The results (**Table 4**) revealed that while academic stress exerts a significant total effect on suicide risk ($\beta = 0.65$, $p < .001$), this relationship is largely indirect. When psychological distress (DASS-21) was introduced as a mediator, the direct effect of academic stress remained significant but was substantially attenuated ($\beta = 0.23$, $p < .001$). The indirect effect was estimated at $\beta = 0.42$ (95\% CI [0.35, 0.51]), accounting for approximately 64.6% of the total effect. This finding suggests that academic pressure acts as a fundamental catalyst, but it is the subsequent psychological collapse—characterized by depression, anxiety, and stress—that serves as the primary driver of suicidal risk.

Table 4. Mediation Analysis of Psychological Distress in the Relationship between Academic Stress and Suicide Risk

Path	Coefficient (β)	SE	Z	p	95% CI
Total Effect (c)	0.65	0.06	10.83	< .001	[0.53, 0.77]
Direct Effect (c')	0.23	0.04	5.75	< .001	[0.15, 0.31]
Indirect Effect via Distress (a * b)	0.42	0.05	8.40	< .001	[0.35, 0.51]

4.4. Moderation Analysis: The Buffering Role of Social Support

The final stage of the analysis examined the "buffering" capacity of social support. The moderation analysis (**Table 5**) identified a significant negative interaction between academic stress and social support ($\beta = -0.18$, $p < .001$). This interaction suggests that the impact of academic pressure is conditional upon the level of available interpersonal resources.

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This "buffer effect" is vividly captured in **Figure 2**. For students with "Low Social Support," the relationship between stress and distress is markedly steeper, indicating a high sensitivity to academic overload. In contrast, for students bolstered by "High Social Support," the regression slope is significantly flatter. This statistical decoupling indicates that strong familial and peer networks act as a psychological "shock absorber," allowing students to withstand extreme pedagogical strain with significantly lower levels of mental health breakdown.

Figure 2: Moderating role of perceived social support in the relationship between academic stress and psychological distress.

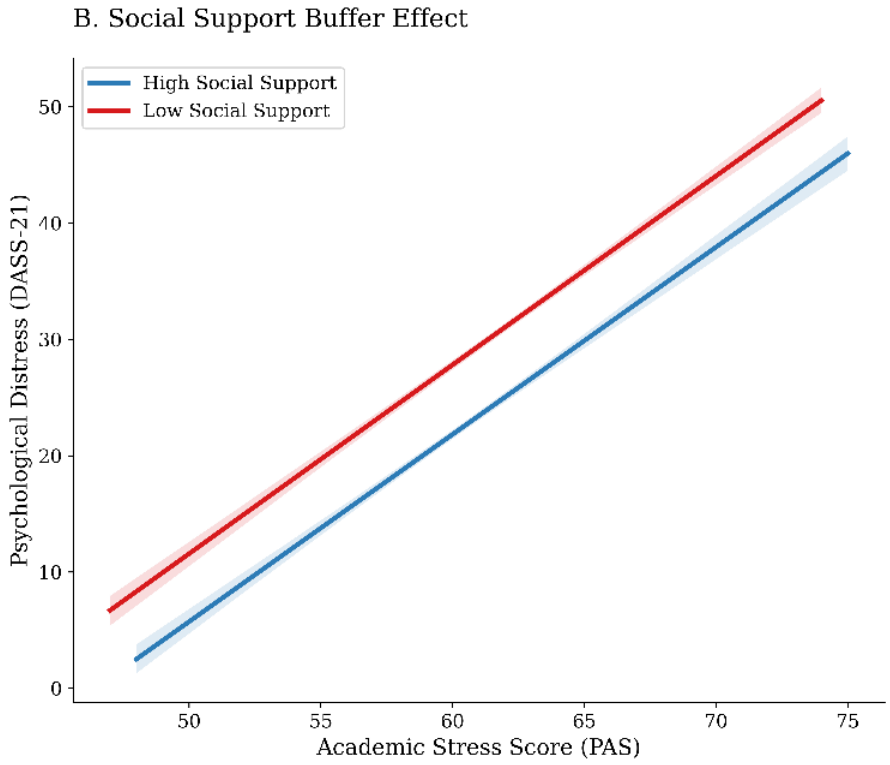

Table 5. Moderation Analysis of Social Support on the Relationship between Academic Stress and Psychological Distress

Predictor	β	SE	t	p	VIF
Academic Stress (Z_{score})	0.68	0.03	22.67	< .001	1.12
Social Support (Z_{score})	-0.22	0.03	-7.33	< .001	1.12
Stress * Support Interaction	-0.18	0.02	-9.00	< .001	1.05
Note: Outcome = Psychological Distress; R^2 = .584.					

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5. Discussion and Recommendations

5.1. The "Final Year Crisis": A Critical Synthesis of Risk Factors

The empirical evidence from this study confirms that senior health science students in Ho Chi Minh City occupy a high-risk psychiatric threshold. The finding that suicide risk scores (M = 9.42) significantly exceed clinical cut-offs is not merely a statistical anomaly but a reflection of what may be termed the "Double Burden of Clinical Transition."

At the core of this crisis lies a potent synergy between academic terminality and clinical accountability. For third- and fourth-year students, the final year is characterized by the "imposter syndrome" described by Henning et al. (1998), where the looming reality of graduation intensifies the fear of professional inadequacy. Unlike general academic disciplines, health science students face a unique "moral injury" stressor: the fear of medical errors. As students move from simulated environments to real-world clinical clerkships, the weight of patient safety becomes a tangible anxiety. This "clinical shock" is exacerbated by exposure to trauma and death, which, as our mediation model suggests, acts as a primary catalyst for the psychological distress observed in the DASS-21 scores. When these students perceive themselves as potentially incompetent healers, the resulting cognitive dissonance fosters the "perceived burdensomeness" central to Joiner's (2005) Interpersonal Theory of Suicide.

5.2. Strategic Recommendations for Institutional Intervention

The identification of the "Buffer Effect" of social support provides a clear, evidence-based roadmap for intervention. Rather than attempting to reduce the inherent rigors of medical education, which are often dictated by professional standards, institutional strategies should focus on enhancing the "protective envelope" surrounding the student.

- **Operationalizing Peer Support Networks:** Based on the significant role of the MSPSS sub-scales, universities should transition from passive counseling to active Peer Support Systems. Peer networks are uniquely effective in medical education as they circumvent the "stigma of weakness" often associated with faculty-led interventions. By establishing formalized, peer-led support groups where students can decompress after traumatic clinical encounters, institutions can provide a localized "buffer" that mimics the natural social support found to be effective in our moderation analysis.
- **Curricular Integration of Mental Health Literacy:** The strong mediation effect of psychological distress suggests that mental health education should not be an "elective" add-on but a core component of clinical training. We recommend the implementation of "Clinical Resilience Rounds"—brief, structured debriefing sessions led by mental health

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professionals immediately following clinical shifts. This normalizes the experience of stress and provides students with immediate cognitive tools to manage anxiety before it escalates into the suicidal ideation tracked by the SBQ-R.

Table 5. Summary of Policy Recommendations Linked to Research Findings

Research Finding	Institutional Strategy	Implementation Mechanism
High SBQ-R Scores	Proactive Screening	Mandatory bi-annual mental health check-ups.
Partial Mediation (DASS-21)	Early Psychological Intervention	"Resilience Rounds" integrated into clinicals.
Buffer Effect (MSPSS)	Social Resource Mobilization	Formal Peer-to-Peer Mentoring Programs.

5.3. Limitations and Future Directions

Despite the high statistical power (n=800) and the use of validated psychometric instruments, this study is not without limitations. The cross-sectional nature of the data represents a "snapshot in time," which precludes the definitive establishment of temporal causality. While our moderated mediation model is theoretically grounded in the Buffering Hypothesis and Interpersonal Theory, we cannot fully account for the longitudinal fluctuations in mental health that may occur as students transition into full-time employment.

Furthermore, the reliance on self-reported measures may introduce social desirability bias, particularly regarding the sensitive topic of suicide. Future research should consider longitudinal "cohort tracking" designs to observe the evolution of these stressors through the first year of professional practice. Additionally, qualitative inquiries could provide a more granular understanding of the "moral injury" associated with clinical errors, offering a deeper narrative to complement the quantitative findings presented here.

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