International Journal of Educational Research and Development
www.allinnovationjournal.com
Online ISSN: 2664-7095
Received: 28-07-2026, Accepted: 27-08-2026, Published: 11-09-2026
Volume 8, Issue 3, 2026, Page No. 1-4

Non-formal education: An antidote for curbing illicit drugs in Anambra state Nigeria

Dr. Jatin Gupta
Assistant Professor, Department of Education, Banaras Hindu University, Uttar, Pradesh, India

Abstract
Academic stress is one of the most consistently reported psychological challenges among university students worldwide, and a growing body of post-pandemic research has examined how it shapes learning and achievement. This paper reviews theoretical, physiological, and intervention-based literature published between 2023 and 2026 to synthesize current understanding of the relationship between academic stress and learning performance in higher education. Drawing on systematic reviews, meta-analyses, and cross-sectional studies, the paper outlines the major conceptual models used to explain academic stress, summarizes emerging biological and cognitive mechanisms linking stress to reduced academic functioning, and examines the main categories of coping strategies and institutional interventions, including stress-management programs, mindfulness-based interventions, and physical-activity programs. The review finds that moderate levels of academic stress are associated with measurable declines in working memory, concentration, and course performance, while structured interventions produce small-to-moderate improvements in stress, anxiety, and depression outcomes, with more limited and inconsistent evidence for direct gains in grades. Persistent barriers to implementation include low help-seeking behavior, heterogeneous outcome measures, uneven access to services in lower-resource settings, and limited integration of stress-reduction programming into academic structures. The paper concludes that effective responses to academic stress require coordinated, multi-level strategies that combine individual coping skills with institutional and curricular reform, rather than relying on any single intervention type.

Keywords: Academic stress, learning performance, university students, coping strategies, stress management interventions, higher education

Introduction

Higher education is widely recognized as a demanding transitional period marked by heightened academic, social, and financial pressures. Within this context, academic stress has emerged as one of the most frequently studied psychological experiences among university students, consistently ranked among the leading mental-health concerns reported in campus surveys across income settings (Brata *et al*., 2025) [4]. Academic stress refers to the psychological strain that arises when the perceived demands of coursework, assessment, and academic competition exceed a student's perceived capacity to cope with them. Unlike general life stress, academic stress is closely tied to specific institutional structures such as workload, grading systems, and time constraints, which makes it a particularly tractable target for educational policy and support services.

Interest in this topic has intensified since the COVID-19 pandemic, which disrupted established routines, increased uncertainty about academic and career trajectories, and, according to several recent studies, elevated baseline stress levels among student populations well beyond the immediate crisis period (Pérez-Jorge *et al*., 2025) [9]. At the same time, researchers have increasingly turned attention to how academic stress interacts with learning outcomes rather than treating stress purely as a mental-health concern in isolation. This shift reflects growing recognition that stress does not simply coexist with poor academic performance but may actively contribute to it through cognitive, behavioral, and physiological pathways (Granada-Granada *et al*., 2025) [6].

This paper synthesizes recent literature, concentrated primarily in 2023–2026, on the relationship between academic stress and learning performance among university students. It aims to (a) outline the main theoretical frameworks used to conceptualize academic stress in higher education, (b) summarize evidence on the cognitive and biological mechanisms through which stress may affect learning, (c) review the major categories of coping strategies and institutional interventions that have been evaluated, (d) assess the strength of the evidence for their effectiveness, and (e) identify the principal barriers that limit the real-world implementation of stress-reduction efforts on campuses.

Review Approach

This paper adopts a narrative review approach informed by recent systematic reviews and meta-analyses rather than a full independent systematic search, reflecting its purpose as a synthesis for an educational-psychology audience rather than a primary evidence report. Sources were identified through targeted searches of academic databases and search engines indexing peer-reviewed journals (including Frontiers in Psychology, Frontiers in Digital Health, Humanities and Social Sciences Communications, Health Promotion International, and Clinical Psychology: Science and Practice), using combinations of terms such as "academic stress," "university students," "academic performance," "coping strategies," "stress management intervention," and "mindfulness." Priority was given to systematic reviews, meta-analyses, and empirical studies published between 2023 and 2026 involving university or college student populations. Earlier foundational studies were retained selectively where they underpin widely used theoretical models or measurement tools. Studies focused exclusively on primary or secondary school populations were excluded unless directly relevant to a theoretical

framework applied to higher education. Because this is a narrative synthesis rather than a PRISMA-guided systematic review, findings should be read as an illustrative map of the current literature rather than an exhaustive or statistically pooled account.

Major Approaches and Models in the Literature

Conceptualizing Academic Stress: Theoretical Frameworks

Contemporary reviews describe academic stress as a multidimensional phenomenon shaped jointly by individual characteristics, institutional demands, and social context, rather than a single unitary construct (Brata *et al*., 2025) [4]. Commonly cited sources of academic stress include workload volume, assessment pressure, time constraints, competitive grading environments, and difficulty balancing academic and personal responsibilities (Pérez-Jorge *et al*., 2025) [9]. Several reviews frame academic stress through a bio-psycho-social lens, which situates stress responses at the intersection of biological reactivity, cognitive appraisal, and the social and institutional environment in which learning takes place (Granada-Granada *et al*., 2025) [6]. This framing has encouraged researchers to move beyond purely psychological accounts of stress toward models that also incorporate physiological stress markers and structural features of academic programs, such as curriculum intensity in health-science disciplines.

Physiological and Cognitive Mechanisms Linking Stress to Learning

A parallel strand of research has sought to clarify the biological pathways through which academic stress may translate into reduced academic performance. A recent systematic review organized around the PRISMA framework identified several converging biological mechanisms, including neurocognitive changes in attention and memory, neurophysiological stress responses, and emerging evidence on epigenetic and genetic factors that may moderate individual vulnerability to stress-related performance decline (Brata *et al*., 2025) [4]. This review noted that although physiological markers of stress, including cortisol and salivary alpha-amylase, have been linked to broader indicators of student well-being, the specific biological chain connecting stress exposure to measurable declines in academic achievement remains only partially understood and represents an active area of ongoing research. At the cognitive level, elevated stress has been associated with impairments in working memory, a core resource for tasks such as problem-solving, reading comprehension, and exam performance, suggesting a plausible mechanism by which chronic academic stress could erode learning capacity over time even when motivation remains intact.

Coping Strategies and Resilience-Based Approaches

A substantial portion of recent literature has focused on how students themselves attempt to manage academic stress. A large scoping review synthesizing 165 international studies found that research on student coping is heavily concentrated in health-related disciplines and in a narrow set of geographic regions, and that studies vary widely in how they define and measure coping, which complicates efforts to generalize findings across contexts (Waterhouse & Samra, 2025) [11]. Commonly identified coping strategies include problem-focused approaches such as planning and time management, emotion-focused approaches such as seeking social support, and avoidance-based strategies that are generally associated with poorer outcomes. Separately, survey research conducted with several thousand students found that the use of adaptive coping strategies was positively associated with academic satisfaction, and that patterns of coping differed by gender and by socioeconomic circumstances, with women more often reporting emotion-focused strategies (Barbé *et al*., 2025) [3].

Related work on academic resilience, defined broadly as the capacity to sustain effort and recover from academic setbacks, has linked higher resilience to stronger academic performance and engagement, with teacher support identified as a mediating factor that helps translate resilience into measurable achievement gains (Cai & Meng, 2025) [5]. Together, this body of work suggests that coping and resilience are not fixed traits but are shaped by relational and institutional supports available to students, which points toward intervention points beyond the individual level.

Institutional and Psychoeducational Interventions

A distinct and rapidly growing literature evaluates structured interventions designed to reduce academic stress and its downstream effects. Three intervention categories dominate recent systematic reviews and meta-analyses: general stress-management programs, mindfulness-based interventions, and physical-activity interventions.

Stress-management interventions typically combine cognitive-behavioral techniques, relaxation training, and psychoeducation delivered in group or individual formats. A meta-analysis restricted to low- and middle-income country contexts, drawing on 28 randomized controlled trials, found that such interventions were effective in reducing self-reported stress levels among university students, extending evidence previously concentrated in high-income settings (Juniar *et al*., 2025) [8]. An earlier but frequently cited meta-analysis of stress-management interventions among college students more broadly found moderate effects on stress and anxiety and smaller effects on depression, with stronger benefits observed among students who began the intervention with elevated stress levels and among interventions grounded in cognitive-behavioral theory (Amanvermez *et al*., 2023) [1].

Mindfulness-based interventions represent a second major intervention category. A 2026 systematic review and meta-analysis comparing online and in-person mindfulness formats found that both delivery modes reduced stress relative to control conditions, with some evidence that online formats performed comparably to, or in specific subgroups better than, traditional in-person delivery, a finding with practical implications for scaling access on large or geographically dispersed campuses (Wang *et al*., 2026) [10].

Physical-activity interventions form a third category with a substantial and growing evidence base. A systematic review and meta-analysis of 59 studies found that structured physical-activity programs produced meaningful reductions in anxiety, depression, and stress symptoms among undergraduate students, although the authors cautioned that most included studies showed a high risk of bias and inconsistent use of behavior-change theory in intervention design (Huang *et al*., 2024) [7].

Sleep, Burnout, and the Learning Environment

A further strand of recent research links academic stress to sleep disruption and academic burnout, both of which appear to function as intermediate pathways connecting stress to impaired learning. Cross-cultural research comparing students in Tokyo and London found that poorer sleep quality was associated with reduced cognitive functioning relevant to academic tasks, suggesting that sleep may partially mediate the relationship between stress and performance across different educational and cultural contexts (Ampofo *et al*., 2025) [2]. Academic burnout, commonly characterized by emotional exhaustion, cynicism toward studies, and reduced sense of academic efficacy, has similarly been associated with poorer sleep and, by extension, with weaker academic functioning, reinforcing the view that stress-related outcomes in higher education are best understood as an interconnected cluster of psychological, behavioral, and physiological factors rather than isolated variables.

Evidence on Effectiveness

Taken together, the intervention literature indicates that structured programs can meaningfully reduce psychological distress among university students, though the strength of that evidence varies by intervention type and outcome measured. Meta-analytic effect sizes for stress-management and mindfulness interventions generally fall in the small-to-moderate range for reductions in perceived stress, anxiety, and depressive symptoms (Amanvermez *et al*., 2023; Juniar *et al*., 2025; Wang *et al*., 2026) [1, 8, 10]. Physical-activity interventions show similarly moderate effects on these same psychological outcomes (Huang *et al*., 2024) [7]. However, direct evidence linking these interventions to improved grades, retention, or other academic-performance indicators is considerably thinner than evidence for psychological outcomes; most reviewed studies measure stress, anxiety, or well-being as primary endpoints and treat academic performance, when included at all, as a secondary or exploratory measure.

Where academic performance has been measured directly, findings tend to support an inverse association between stress and achievement rather than establishing a fully specified causal mechanism. A cross-sectional study of first-year health-science students found that students reporting high levels of academic stressors were substantially more likely to underperform academically than their less-stressed peers, even after accounting for gender differences in emotional and behavioral stress responses (Granada-Granada *et al*., 2025) [6]. This pattern is broadly consistent with resilience research showing that students with stronger coping resources and greater perceived teacher support tend to report both lower stress-related impairment and better academic outcomes (Cai & Meng, 2025) [5]. Overall, the evidence base is more mature for stress- and well-being-related outcomes than for hard academic-performance outcomes, and the mechanisms proposed to link the two, including working-memory impairment, sleep disruption, and burnout, remain more theoretically plausible than fully empirically confirmed (Brata *et al*., 2025; Ampofo *et al*., 2025) [2, 4].

Barriers and Challenges to Implementation

- Low help-seeking and stigma: even where campus mental-health and stress-management services exist, many students underuse them, and reviews note that research on coping and help-seeking remains concentrated in a narrow set of disciplines and countries, limiting understanding of barriers in other contexts (Waterhouse & Samra, 2025) [11].
- Inconsistent measurement across studies: wide variation in how academic stress, coping, and performance are defined and measured makes it difficult to compare results across studies or to build a cumulative evidence base for policy decisions (Waterhouse & Samra, 2025) [11].
- Resource and access disparities: most rigorous intervention trials have historically been conducted in high-income settings, and although recent work has begun to extend stress-management evaluation to low- and middle-income contexts, availability of trained providers, funding, and infrastructure continues to limit scale-up in many regions (Juniar *et al*., 2025) [8].
- Weak integration with academic structures: interventions are frequently delivered as optional, stand-alone wellness programming rather than being embedded within curricula, assessment design, or academic advising, which may reduce both uptake and their potential impact on academic outcomes specifically.
- Methodological limitations in the evidence base: several meta-analyses caution that included trials often show high risk of bias, inconsistent use of behavior-change theory, and limited reporting of intervention fidelity, which constrains confidence in effect-size estimates (Huang *et al*., 2024) [7].
- Gaps in biological understanding: reviewers note that although physiological stress markers are increasingly studied, the precise biological pathway from academic stress exposure to measurable performance decline is still not fully mapped, which limits the design of mechanism-targeted interventions (Brata *et al*., 2025) [4].

Discussion and Implications

The literature reviewed here suggests that academic stress is best understood as a systemic feature of the higher-education environment rather than a purely individual vulnerability. This has several implications for both practice and future research. First, because coping and resilience appear to be shaped significantly by relational supports such as teacher engagement, institutions may achieve broader impact by strengthening everyday academic relationships and feedback practices rather than relying solely on stand-alone counseling or wellness services (Cai & Meng, 2025) [5]. Second, the comparable effectiveness of online and in-person mindfulness delivery formats suggests that digital and hybrid interventions could help institutions extend reach to commuter students, part-time students, and students in under-resourced regions without necessarily compromising effectiveness (Wang *et al*., 2026) [10].

Third, the persistent gap between evidence on psychological outcomes and evidence on academic-performance outcomes points to a clear direction for future research: intervention trials that explicitly track grades, retention, or validated learning measures alongside stress and well-being indicators would help clarify whether reducing stress reliably translates into improved learning, or whether additional academic-skills components are needed alongside stress

reduction. Fourth, the biological and cognitive mechanisms proposed in recent theoretical reviews, particularly around working memory and sleep, offer promising but still underdeveloped targets for intervention design; programs that explicitly address sleep hygiene alongside stress management may address two intertwined risk factors simultaneously (Ampofo *et al*., 2025) [2].

Finally, given the disproportionate concentration of existing research in specific disciplines, such as health sciences, and specific regions, institutions and researchers should be cautious about generalizing findings across very different academic programs, student populations, and cultural contexts without local validation (Granada-Granada *et al*., 2025; Waterhouse & Samra, 2025) [6, 11]. Policy responses that combine individual-level coping support, teacher and institutional relational support, and structural adjustments to workload and assessment design are likely to be more effective and equitable than interventions that target students in isolation from the academic systems that generate much of the stress in the first place.

Conclusion

Academic stress remains a pervasive feature of university life with documented links to cognitive functioning, sleep, burnout, and, in several recent studies, direct measures of academic performance. Structured interventions, including stress-management programs, mindfulness-based approaches, and physical-activity programs, show consistent small-to-moderate benefits for stress, anxiety, and depression, though evidence connecting these interventions directly to improved grades and learning outcomes remains comparatively limited. Coping resources and relational supports such as teacher engagement appear to play an important mediating role in whether stress translates into impaired performance. Meaningful progress in this field will likely depend on more standardized measurement across studies, broader geographic and disciplinary representation in research, and closer integration of stress-reduction efforts with the academic structures, workloads, and assessment practices that generate stress in the first place, rather than treating stress management purely as an auxiliary wellness service.

References

1. Amanvermez Y, Rahmadiana M, Karyotaki E, de Wit L, Ebert DD, Kessler RC, *et al*. Stress management interventions for college students: A systematic review and meta-analysis. Clinical Psychology: Science and Practice,2023:30(4):423-444. [https://doi.org/10.1111/cpsp.12342]
2. Ampofo J, Sun B, Bentum-Micah G, Qinggong L, Changfeng W, Guoan L, *et al*. Investigating the impact of sleep quality on cognitive functions among students in Tokyo, Japan, and London, UK. Frontiers in Sleep, 2025:4:Article 1537997. [https://doi.org/10.3389/frsle.2025.1537997]
3. Barbé AD, Casas DG, Cisneros LVD, Viejo JMP. Impact of coping strategies on the academic satisfaction of university students and their association with socioeconomic variables. Psicología Educativa, 2025:31(1):1-10. [https://doi.org/10.5093/psed2024a12]
4. Brata WWW, Susanto H, Zubaidah S. Theoretical underpinnings and future research on academic stress in biological and educational perspectives. Humanities and Social Sciences Communications, 2025:12:Article 484. [https://doi.org/10.1057/s41599-025-04484-w]
5. Cai Z, Meng Q. Academic resilience and academic performance of university students: The mediating role of teacher support. Frontiers in Psychology, 2025:16:Article 1463643. [https://doi.org/10.3389/fpsyg.2025.1463643]
6. Granada-Granada F, Valencia-Narbona M, Lizana PA, González-Rojas A. Academic stress and performance in first-year health sciences students in Chile: A cross-sectional study. Frontiers in Psychology, 2025:16:Article 1662109. [https://doi.org/10.3389/fpsyg.2025.1662109]
7. Huang K, Beckman EM, Ng N, Dingle GA, Han R, James K, *et al*. Effectiveness of physical activity interventions on undergraduate students' mental health: Systematic review and meta-analysis. Health Promotion International,2024:39(3):Article daae054. [https://doi.org/10.1093/heapro/daae054]
8. Juniar D, van Ballegooijen W, Kleygrewe G, van Schaik A, Passchier J, Riper H. Stress management interventions for university students in low- and middle-income countries: A systematic review and meta-analysis. Frontiers in Digital Health, 2025, 7.Article 1603389. [https://doi.org/10.3389/fdgth.2025.1603389]
9. Pérez-Jorge D, Boutaba-Alehyan M, González-Contreras AI, Pérez-Pérez I. Examining the effects of academic stress on student well-being in higher education. Humanities and Social Sciences Communications, 2025:12:Article 698. [https://doi.org/10.1057/s41599-025-04698-y]
10. Wang Y, Qu W, Liu H, Peng Z, Hu Y. Online and traditional mindfulness-based interventions for stress in university students: A systematic review and meta-analysis versus control conditions. Frontiers in Psychology, 2026, 17.Article 1755245. [https://doi.org/10.3389/fpsyg.2026.1755245]
11. Waterhouse P, Samra R. University students' coping strategies to manage stress: A scoping review. Educational Review,2025:77:127-167. [https://doi.org/10.1080/00131911.2024.2438888]