ISSN: 3049-3277

International Journal of Integrative Studies (IJIS)

Journal homepage: www.ijis.co.in

RESEARCH ARTICLE

Mental Health and Academic Stress among University Students: A Review of Risk Factors and Intervention Strategies

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ABSTRACT

University life is a specific time of life that can be very challenging and formative, as students have to deal with academic challenges while navigating life's developmental, social and financial challenges as well. The present review was conducted to compile the empirical findings pertaining to the model of linking academic stress with the mental health of University students; the sources of literature used were mainly systematic and meta-reviews published between 2015 and 2026, as well as empirical studies. Results have shown a high prevalence of depression (around 41% of the students), anxiety (34-38%), and psychological distress (up to 58%) among students, with significant variation depending on the measurement instruments, disciplines, and world regions [1,3,4]. Stress risk factors encompass academic (increased workload, pressure as shown by exams or competition), psychological (low self-efficacy, perfectionist tendencies), social (family expectations, low social support), financial and lifestyle factors, with sleep disturbances and problematic technology use being especially consistent stress risk factors [2,6,8,10]. The implications reach beyond just personal suffering, to a quantifiable drop in performance in schoolwork, increased drug and alcohol consumption and, in extreme situations, suicidal thoughts [3,9]. Intervention research shows that structured, skills-focused interventions are associated with small-to-moderate decreases in stress, anxiety and depressive symptoms, including digital interventions, which can be an effective addition to in-person interventions [13–20]. Stigma, lack of mental health literacy, and also structural constraints like long waiting times and lack of awareness of mental health services, however, continue to discourage seeking help despite its availability [21–30]. The review concludes that there is a need to move forward, and a layered stepped-care approach (universal prevention, low-intensity broadly accessible interventions and specialist care and institutional policy change) is the most promising way, although there are some methodological limitations in the field, predominance of cross-sectional design and geographical irregularity of evidence, which hamper causal understanding.

Keywords: *academic stress, university students, mental health, risk factors, intervention strategies, higher education, psychological wellbeing.*

INTRODUCTION

The age range of transitioning into and through higher education is in line with a developmental window – emerging adulthood – that is of a critical age for the onset of most mental disorders [5]. They have to care for themselves and deal with extended, difficult coursework, high-stakes assessments, financial responsibilities, and social network reorganisation—the accompanying loss of the familiar social support that often occurs when leaving home—all of which occur while the students are becoming more independent. The World Health Organisation (WHO) International College Student Project, which encompassed surveys of university students around the world, suggested that 20-31% would warrant a diagnosis for at least one mental illness [5] and recent syntheses indicated that the incidence of clinically significant stress levels in university students has increased over the past decade [1]. However, academic stress, the psychological and physiological stress reaction as a result of an individual's perception of academic demands that they feel they are unable to cope with, is now acknowledged as a different, and significant, form of mental ill-health among students, and not just a normal aspect of university life [1, 2].

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DOI: https://doi.org/10.63856/ijis/v2i8/00004

How to cite this article: Kumar, R., (2026). Mental Health and Academic Stress among University Students: A Review of Risk Factors and Intervention Strategies. *International Journal of Integrative Studies*, 2(8), 30-36.

Source of support: Nil

Conflict of interest: None.
Received: 25//072026 **Revised:** 05/08/2026 **Accepted:** 15/08/2026
Published: 19/08/2026

It has been associated with internalizing problems like depression and anxiety, but also with sleeping disturbances, eating disorders, substance use and abstinence from drugs & alcohol, as well as decreased concentration and level of achievement and staying in school [2]. During that time, there has also been a considerable amount of intervention research assessing interventions ranging from individual psychotherapy and mindfulness training to stepped care for the whole institution and digital mental health platforms.

The two purposes of this review are: first, to integrate empirical knowledge on risk factors for academic stress and impaired mental health among university students, classified into five domains: academic, psychological, social, financial, and lifestyle. Secondly, it seeks to assess the evidence base for individual, digital and institution level intervention strategies, as well as ongoing barriers that affect their translation into real-world settings (such as stigma, mental health literacy, and structural barriers to access). The review concludes with a discussion of issues that need to be addressed in the evidence base, as well as recommendations for future research and institutional practice.

2. Review Approach

This paper is presented as a narrative review that integrates recent systematic reviews, meta-analyses, and empirical (primary) research on academic stress and mental health among university student populations. There was a mix of systematic reviews and meta-analyses published within the last 9 years (2015–2026) as these items were identified from sources that were typically indexed by Google Scholar including PubMed/PMC, Science Direct, Frontiers and Taylor & Francis with the exclusion of earlier foundational work unless it remained the primary reference for a specific finding. Search terms included academic stress, various constructions of university (or college) students, mental health, risk factors, interventions, and forms of academic stress such as sleep, financial stress, and help-seeking. In synthesis and critical appraisal the goal is not an exhaustive systematic coverage, so we do not follow a PRISMA protocol – the risk factor/prevalences given below must thus be interpreted as indicative of documented patterns in the literature as a set of risk factors and does not represent a single pooled estimate.

3. Mental health difficulties among university students

The studies estimating the prevalence of psychological distress among students vary widely in sample, instrument and historical period of data collection, but indicate that a considerable minority (and in some samples, a majority) of students suffer symptoms of distress at any time. The overall prevalence of depression, anxiety, stress, sleep disorder, general psychological distress, post-traumatic stress symptoms, suicidal ideation and burnout among undergraduate participants in a large systematic review and meta-analysis were 41%, 38%, 34%, 52%, 58%, 34%, 15% and 38% respectively [3]. The prevalence of Overall (non-specific) anxiety among the undergraduate population as estimated by a separate meta-analysis was around 37%, with the earlier estimates fluctuating around 40% — would indicate that high prevalence of anxiety were not only due to the COVID pandemic but also existed before the pandemic with the reduced prevalence in the current study likely stemming from reduced economic and job stress around this time.A separate meta-analysis that only focussed on Non-specific anxiety found that prevalence was around 37% in the under-graduate population which was closer to 40% at some previous times prior to the COVID pandemic, indicating that high prevalence of anxiety is not a unique occurrence of the time of pandemic and the reduced prevalence in this study may also be due to the reduction in economic stress or reduced job stress at this time. In Africa, a meta-analysis of perceived stress in the university student population gave a prevalence value of 64.72%, and a meta-analysis of perceived stress in the academic population worldwide stated a high prevalence value of 46.6% of the studies conducted over the last 15 years, indicating an increase in the prevalence of academic stress [1].

All of this was an indicator that psychological morbidity in student cohorts is ubiquitous, and not limited to those in high-stress professions like medicine – and it was also a reassurance that anxiety, in particular, does not only afflict medical students, but, with pooled anxiety prevalence of 21%, the undergraduate population in general, and thus would seem to have structural roots in the current life of the university [4].

4. Factors Contributing to Academic Stress and Poor Mental Health

Risk-factor literature has been reviewed frequently and, in each case, the author-classifications in the various papers overlap in a few domains: academic, psychological, social-interpersonal, financial and lifestyle/behavioural factors; contextual and demographic aspects also influence the level of exposure and vulnerability in each domain [1,2].

4.1 Academic Factors

An intense workload, exam pressure, academic competition, and uncertainty about future careers have been identified as the most common causes of academic stress [1,12]. The changes in sleep and stress responses that accompany measurable language differences in instruction, insufficient time to process material, difficulty following what is being learned, and inadequate feedback from instructors have each been reported among medical undergraduates in cross-sectional studies [17]. Modern academic demands, along with the increased use of digital monitoring and assessment to track student progress continuously, have been identified as an additional, more recent form of stress—brought on by a feeling of

"technostress" [12] or psychological resource depletion.

4.2 Psychological Factors

The same demands and objectives in the academic domain will be experienced as stressful, depending on individual differences in self-concept, self-efficacy, and self-esteem [1]. For similar workloads, students with less confidence in their academic skills and/or those who are perfectionistic or tend to be negative in their self-evaluation are at risk of experiencing higher levels of stress. In addition, psychological vulnerability factors interact with previous mental health problems: meta-analytic study revealed that students with a mental health history or a physical illness were a high-risk group throughout the whole spectrum of students [3].

4.3 Social and Interpersonal Factors

Lower expected family and lecturer expectations, and a lack of perceived social support are consistent social-interpersonal factors contributing to academic stress [1]. Loneliness and a perceived lack of time with friends and family (which students independently identified as a major source of stress in and of itself) are examples of how fulfilment of academic duties can influence the ability to maintain relationships, a buffer against stress. International and first generation students might experience double jeopardy in interpersonal relations – limited access to informal peer networks which can help them navigate the "social world of university" [1] and/or language barriers.

4.4 Financial Factors

Financial stress is ubiquitous and significant among higher-education students and has increased over the past few years following the COVID-19 pandemic [8]. Financial difficulty has been found to interact with lifestyle factors: the link between financial stress and reduced healthy eating behaviour was completely mediated by sleep problems and sleep restriction in a large sample of Americans [8], which suggests that financial situation often impacts wellbeing indirectly by disrupting important healthy living habits, and not in isolation. Also, financial issues are among the most frequently reported motivators for students considering dropping out of college [8].

4.5 Sleep and Lifestyle Factors

The relationship between sleep disturbance and the experience of academic stress is bidirectional, with sleep disturbance also being a risk factor for experiencing academic stress, and the reverse; a number of studies try to delimit the relationship. One meta-analyses of African university students identified that students who reported stress were 2.4 times more likely to feel they were sleeping poorly (AOR = 2.39), that students spending time on an electronic device prior to going to sleep had an almost fourfold increased risk for poor sleep (AOR = 3.97), and that 2nd year students had more than three times increased odds than other year students (AOR = 3.10) [6]. Similar results were obtained with a German university sample, which revealed different sleep-quality profiles, with females and higher stress scores being more likely to be part of the "insomnia risk" sleep-quality profile, and higher ages and state-examination programmes being more likely to be part of a medicated sleepiness sleep-quality profile with increased academic workload [11]. Poor sleep, in turn, has been found to lead to poor attention and concentration, poor memory, and downstream metabolic and immunological costs, which can further affect health and academic performance [6].

4.6 Using technology and social media

Excessive technology use is a new and prevalent risk factor that partly affects sleep. An increased proportion of social media addiction [10] and social media fatigue [10] as well as greater fear of missing out [10] have each been linked to worse sleep quality behaviours within the university setting. In a large sample of more than 5000 Chinese college students, mobile phone addiction and sleep quality identified as mediators between perceived academic stress levels and depressive symptoms and that the pathway of mobile phone addiction and sleep quality serially mediated the path from perceived academic stress to depressive symptoms, indicating that overuse of mobile phone is not merely a coping mechanism of academic stress, but it is also an active pathway in which academic stress is transformed into depression [9]. These findings bring digital self-regulation into the frame as a potentially viable target for “more traditional” stress-management as well.

4.7 Demographic and Vulnerability Factors

Several sub-groups of students are at higher risk of mental health issues, namely female students, those in junior/pre-clinical years in school, students with psychiatric or physical illness, those in significant financial hardship and students who feel alone or are worrying about how their education is disrupted affects them [3]. Learners with pre-existing disabilities, including mental health conditions, are at a heightened risk of attaining lower grades [22] and of not attending school as often as they should [21] and of enrolling at a lower rate for the disability-related accommodations which could help reduce these risks [21].

5. Consequences of Unaddressed Academic Stress

Academic stress has impacts that go beyond just the subjective suffering. There have been correlational studies that have shown that an increase in stress, depression, and anxiety directly correlates with a decrease in academic performance, with stress showing the most significant pathway (r = -0.25), followed by depression (r = -0.20) and anxiety (r = -0.18) [3]. In addition to its impact on academic performance, chronic psychological distress among students has been linked to higher alcohol and substance consumption [4,5], decreased empathy, higher

academic dishonesty, relationship instability, decreased self-confidence and, in its most extreme manifestation, thoughts of suicide (which pooled estimates in a meta-analysis put at around 15% among university students [2,3]). These downstream consequences illustrate why academic stress can not be thought of simply in terms of an individual or transient phenomenon; instead, academic stress is collection worthy, cost-worthy, and worthy of a target for institutional and clinical efforts—all while conferring measurable downsides for student retention and wellbeing as well as student functioning downstream from school.

6. Intervention Strategies

The intervention literature can be classified into three broad, complementary categories: structured psychological and/or skills-based interventions delivered one-on-one or in groups; digital versions and online adaptations of these interventions; and institutional or system-wide interventions. A recent meta-synthesis of 74 meta-analyses found that all of these interventions (exercise, CBT, mindfulness, and ACT) are effective in promoting mental health in HEC, but with varying effect sizes and durability [15].

6.1 Cognitive-Behavioural and Skills-Based Interventions

Cognitive-behavioural therapy (CBT) has one of the more robust evidence bases regarding its effectiveness for students. A study by RL Baldwin from the University of Kansas that was published in a meta-analysis of RCTs using more than 3000 college and university students showed significant results of standardized reductions in depression for CBT, mindfulness based interventions, and attention/perception-modification interventions, respectively, with the CBT-related interventions being most effective (-0.59 vs. -0.52 and -0.46) [17]. Skills-training programs that included supervised practice – including cognitive-behavioral therapy (CBT), mindfulness, relaxation and meditation-based programs – appeared to be more successful in reducing depression, anxiety, stress and overall psychological distress, while similarly formatted programs without supervised practice had the significantly weaker effects, suggesting that supervised skills acquisition may be a key active component in these programs [17].

6.2 Mindfulness- and Self-Compassion-Based

Major and separate meta-analyses have been conducted of mindfulness based interventions (MBIs) — such as mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), or MBIs that include an acceptance and commitment therapy (ACT) or dialectical behaviour therapy (DBT) component — showing efficacy in reducing stress in student populations [13,14]. One of the latest meta-analyses indicated that the eight-week intervention format might be optimal for decreasing depressive symptoms and that specifically mindfulness-based cognitive therapy might have a strong effect on the reduction of students' anxiety [18]. A related meta-analysis of mindfulness- and self-compassion-based interventions concluded that they could have a meaningful effect on psychological distress, but that methodological differences limited the applicability of the interventions as potential clinical stand-alone treatments, stating that none of the included studies showed low risk of bias, and that of the included outcomes, heterogeneity was ‘moderate to high' [15].

6.3 Digital/online interventions

Digital and online interventions are of particular interest in research due to the difficulties students face in accessing face-to-face services. A study of randomised controlled trials of online provision of mindfulness-based interventions has yielded significant results for depression (-0.27), anxiety (-0.47), and stress (-0.58), but not for general wellbeing [16]. The results of a follow-up meta-analysis (of 19 experimental studies) comparing stress-reduction methods indicated that online delivery did not differ significantly from face-to-face delivery in terms of efficacy; therefore, there is no need to sacrifice effectiveness when using an online delivery method [19]. An example of this is an eight-week program to disseminate mindfulness material with some CBT elements—via videos, discussion forums and videoconferencing—that was evaluated in a randomized controlled trial with undergraduates at a Canadian university as an accessible and scalable way to increase provision of evidence-based support beyond geographical limitations and available counselling capacity [20].

6.4 Institutional and Structural Interventions

Institution-level strategies are not so much about any one therapeutic approach and are more about rethinking the processes and systems through which students meet with and/or do not meet with support(s). Some of these approaches have growing evidence of effectiveness and include universal prevention programmes, stepped-care models (matching the intensity of the intervention to expressions of need) and mental health literacy initiatives integrated into orientation and curricula. Anti-stigma interventions with also educational content on depression and information on help-seeking, plus direct contact with a person with depression, have been linked to statistically significant reductions in attitudes towards seeking help, while the so-called peer-led mental health promotion programmes have been used to increase help-seeking behaviour, for example, in a Hong Kong university environment [27]. Orientation period programming might be a high leverage point for institutional action as attitudes toward help-seeking are more positive and stigmatizing beliefs are less prevalent among later-year students as

compared with first-year students [27].

6.5 Barriers to Help-Seeking

But when effective interventions are available, their impact is limited by low uptake. Professional help-seeking has been mentioned most often in the literature on student mental health, both in terms of public stigma (fear of stigma from peers, faculty, or future employers) and self-stigma (students' doubts that their problem and/or situation warrants professional help) [22,23,26,28]. This issue is compounded by low mental health literacy which means that a significant minority of students are not aware of the services available to them, or how to access them, with some studies finding that some students do not know mental health counselling is on campus [25]. Structural challenges are compounded by a shortage of appointments, a maximum number of sessions allowed, waiting lists, fees for service and, in some facilities, a general lack of trust in the counselling staff or confidentiality issues [22,24,30]. Notably, few (<20%) of those who screened in school health settings reported stigma; magnitude, practical and structural barriers were much more prominent, indicating that increasing awareness and dissuading stigmas alone is likely insufficient and that multi-layered programmes addressing multiple barriers simultaneously may be more effective than those with a single focus on stigma [29].

Limitations and Future directions

So many limitations exist that only a few conclusions can presently be drawn from this literature. Firstly, the vast majority of risk factor studies are cross-sectional, limiting the possibility of causal inference, and longitudinal/experimental designs are relatively uncommon; thus, for some variables, the causal direction (e.g., stress influences sleep or the reverse) can be assumed but not proven. Second, measurement across studies included the use of different measures for depression, anxiety and stress, as well as varied "caseness" thresholds, and different sampling frames, making it hard to know how prevalence for different types of depression, anxiety and stress compare directly across studies. Third, while the evidence base is growing in low- and middle-income settings (as summarised in many papers throughout this review from Africa and China), a large proportion of intervention studies, especially randomised controlled trials of digital interventions, are still conducted in high-income English-speaking countries, resulting in limited generalisability. Finally, meta-analyses of mindfulness- and self-compassion-based interventions specifically report that only a few included trials had a low risk of bias, and few had follow-up periods longer than 6 months [15] to determine whether any improvement seen during the intervention window continues into the follow-up period.

These gaps suggest several priorities for future research: the need for more longitudinal and/ or experimental designs to determine directionality, especially between headstone risk factors like sleep and stress; the need for more accurate and standardized outcome measures, particularly for more syntheses across the various studies; the need for more pervasive testing of interventions in under-represented areas and types of institutions; and the need for research that goes beyond testing single interventions in isolation to testing more stepped-care systems, in which the universal-plus-digital self-help-plus-steps of peer support plus-specialist referral care pathway is evaluated as a whole to assess low real world uptake in line with the help-seeking literature.

8. Conclusion

Academic stress is ubiquitous and impactful in present-day university life, and is correlated with increased rates of anxiety, depression, sleep disturbance, and – at its worst – suicidal ideation; and has been correlated with actual reductions in academic performance and persistence. This stress is not limited to the academic arena and includes psychological factors, social and family stressors, financial strains, and a growing technological factor that disrupts sleep. Analogue-to-digital interventions are an encouraging strand of development in the evidence base, as experience suggests that online interventions can be just as effective as face-to-face interventions and may be more cost-effective. A welcome development in the evidence is the ‘analogue-to-digital’ route of interventions: cognitive-behavioural therapy and mindfulness-based therapy, in particular, have been shown to consistently yield moderate benefits, with digital delivery forms offering a viable means of providing access, which has been a major limitation in the face-to-face provision from campus mental health services. It remains unclear, however, why there are so few discrepancies between evidence of what works and the implementation of these practices, which suggests that technique cannot be the only answer. Laid-up, multi-layered and readily available approaches to mental health support in universities, combined with a reduction in the stigma of mental health, and building mental health literacy will be most likely to lead to meaningful progress, rather than individual approaches to mental health coping or stand-alone clinical services.

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