

ACADEMIC STRESS INTERVENTIONS IN INTERNATIONAL HIGHER EDUCATION: GLOBAL INSIGHTS AND CHALLENGES FOR CHINESE UNIVERSITIES

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Abstract: *Academic stress has become a critical issue in higher education, significantly affecting students' mental health, academic performance, and overall well-being. While international research has structured and empirically supported interventions, such as mindfulness training and Cognitive Behavioral Therapy (CBT), practical challenges remain in Chinese universities. These challenges include the lack of targeted interventions specifically addressing academic stress, insufficient mental health resources, a lack of culturally grounded and empirically supported intervention programs, limited integration of technological tools, and consistently low levels of student engagement. This narrative review analyzes and compares empirical studies published between 2020 and 2025 on academic stress interventions in both international and Chinese higher education contexts. It identifies the main types and strategies of academic stress interventions and highlights the key challenges encountered in their implementation within the context of Chinese higher education. Based on the findings, this paper proposes five key recommendations for academic stress intervention in Chinese universities: (1) establishing academic stress as a distinct focus of intervention; (2) enhancing investment and improving regional coordination of mental health resources; (3) integrating culturally relevant elements into intervention design; (4) promoting the application of digital technologies for stress management; and (5) fostering a supportive, stigma-free campus environment. These strategies aim to support Chinese universities in developing proactive, preventive, and culturally responsive systems for managing academic stress, thereby promoting students' mental well-being and academic success.*

Keywords: *academic stress, Chinese university students, higher education, intervention strategies*

Introduction

Academic stress is a significant concern in higher education, profoundly affecting students' psychological, emotional, and physical well-being, thereby exerting a substantial impact on their academic performance and overall quality of life. Research has demonstrated that excessive academic stress is closely linked to decreased motivation, an increased risk of dropout, and long-term health complications (Adom et al., 2020; Pascoe et al., 2020; Singh et al., 2023). For instance, McVeigh et al. (2021) reported dropout rates as high as 33% in some undergraduate nursing programs, calling for further exploration of mindfulness-based interventions to alleviate academic stress in this population. In the Chinese context, Ning, Luo, and Guo (2024) conducted focus group interviews with 61 students in Zhuhai and found that post-pandemic psychological concerns, such as sleep difficulties, anxiety, and stress, were largely attributed to academic overload, peer comparison, and uncertainties brought about by public health policies. However, when properly managed, academic stress can also serve as a positive driving force, enhancing student engagement and contributing to desirable academic outcomes (Adom, Chukwuere, & Osei, 2020; Singh, Bhushan, & Shukla, 2023).

In response to the increasing burden of academic stress among university students, scholarly attention to the effectiveness of stress management interventions has grown significantly. Amanvermez, Rahmadiana, Karyotaki, de Wit, Ebert, Kessler, and Cuijpers (2023) found that such interventions may effectively alleviate psychological distress in college populations. Similarly, in their narrative review, Pascoe, Hetrick, and Parker (2020) emphasized that academic stress is a pervasive issue at both the secondary and tertiary levels. Persistent academic stress has been shown to impair learning capacity, academic performance, employment prospects, sleep quality, and overall physical and mental health, while also contributing to increased substance use. Consequently, enhancing students' coping capacities has become a central aim in current intervention research.

Despite growing global attention, empirical studies specifically focused on academic stress interventions remain limited (McCarthy, Trace, O'Donovan, Brady-Nevin, Murphy, O'Shea, & O'Regan, 2018), particularly within Chinese universities. International research has increasingly explored structured intervention models, program design, and implementation strategies, while in China, studies have largely centered on the factors and sources contributing to academic stress, with fewer investigations addressing intervention efficacy. Globally, researchers have identified common sources of academic stress among university students, including heavy course loads, monotonous teaching methods, frequent assessments, anxiety about academic performance, and poor work-life balance (McCarthy et al., 2018). These stressors are particularly salient in high-pressure disciplines such as medicine and nursing, where students must cope simultaneously with demanding coursework and clinical responsibilities. Further studies have clarified the mechanisms through which academic stress affects mental health. For example, Zhang, Coid, Liu, Zhang, Sun, Li, and Li (2022) surveyed 1,309 Chinese university students and found that academic stress directly predicted depressive symptoms and indirectly influenced them via mediators such as anxiety and hopelessness, with indirect pathways accounting for 62% of the total effect. This underscores the importance of addressing intermediary psychological factors in academic stress interventions. On the intervention front, stress management strategies are increasingly being integrated into university mental health systems. A growing body of research supports the effectiveness of evidence-based approaches such as cognitive-behavioral therapy (CBT), mindfulness training, and time management techniques in reducing psychological distress among university students (Buizza, Ciavarrà, & Ghilardi, 2020; Salas Sánchez, Castillo Saavedra, Carbonell

García, & López Robles, 2022; Chust Hernández, López-González, & Senent Sánchez, 2024; Jagiello, Belcher, Neelakandan, Boyd, & Wuthrich, 2024). However, as McCarthy et al. (2018) noted, structured and targeted intervention programs for undergraduates remain scarce, and systematic evaluations of coping strategies are often lacking. Depending on their perceived control over stressors, students tend to adopt either adaptive strategies (e.g., problem-solving, optimism) or maladaptive ones (e.g., avoidance, self-blame) (McCarthy et al., 2018).

In summary, despite an expanding body of research on academic stress, particularly regarding its sources and contributing factors, the development and empirical evaluation of targeted intervention programs remain limited, especially within the context of Chinese higher education. While international studies often regard academic stress as a direct intervention target and have developed empirically validated strategies accordingly, Chinese research has produced relatively few interventions specifically aimed at academic stress. Moreover, existing reviews in China, such as Qu, Wen, Cheng, Zhu, Wu, Che, and Chen (2024), tend to focus on general psychological well-being rather than academic stress per se, revealing issues such as regional disparities and fragmented implementation approaches. As a result, there remains a notable lack of literature reviews and evidence-based research specifically dedicated to academic stress interventions in Chinese higher education.

Therefore, there is a pressing need to conduct a focused literature review on academic stress interventions in Chinese higher education. By comparing Chinese practices with international approaches, this review aims to identify the key limitations and challenges in China's current intervention efforts, draw on global practices, and provide evidence-based, contextually relevant recommendations to guide the development of more effective academic stress interventions within Chinese universities.

Methodology

This study employs a narrative review approach to synthesize recent literature on academic stress interventions in higher education. Relevant peer-reviewed publications from 2020 to 2025 were identified in both English and Chinese using Web of Science (WOS), China National Knowledge Infrastructure (CNKI), and Google Scholar. The search was guided by keywords such as “academic stress,” “student stress,” “intervention,” “mental health,” “coping,” and “Chinese university students,” and further expanded through reference tracking (snowballing).

Studies were selected based on the following criteria: (1) the participants were undergraduate or postgraduate students; (2) the research was situated in Chinese or international higher education settings; and (3) various study types—including empirical studies, intervention programs, and literature reviews—were included to ensure a broad understanding of intervention practices.

Drawing on this body of literature, the review categorizes key types of academic stress interventions, summarizes their implementation and outcomes, compares approaches adopted in Chinese and international contexts, identifies major challenges in China's current intervention landscape, and offers practical and theoretical insights for developing more contextually responsive strategies in Chinese universities.

Literature Review

To facilitate a deeper understanding of the current research, it is essential to review the prevailing intervention practices for academic stress at the global level. The following section outlines key approaches in the international and Chinese contexts that have been employed to intervene in academic stress among university students.

Overview of Major Intervention Practices for Academic Stress in International Higher Education

In recent years, research on interventions addressing academic stress among university students has become increasingly abundant, particularly within the context of international higher education. Numerous non-pharmacological intervention strategies have been systematically applied and evaluated. Chust Hernández, López-González, and Senent Sánchez (2023) conducted a structured review of 27 intervention studies, covering diverse approaches such as mindfulness training, Cognitive-Behavioral Therapy (CBT), psychoeducation, relaxation techniques, skills training, physical exercise, and alternative therapies. Despite methodological limitations in many studies, such as small sample sizes, weak research designs, and a lack of long-term follow-up, most interventions showed positive effects in alleviating academic stress, indicating considerable practical potential.

Psychotherapy-Based Intervention Strategies

Mindfulness-Based Interventions (MBIs) are among the most widely implemented strategies, particularly within medical student populations. Buizza et al. (2020) reviewed 17 studies involving medical students and highlighted the effectiveness of the Mindfulness-Based Stress Reduction (MBSR) program, adapted from Kabat-Zinn, in reducing stress and enhancing mindfulness. Common components of MBSR programs include sitting meditation, body scanning, and Hatha yoga, with some programs also incorporating gratitude practices and loving-kindness meditation. In addition, several MBSR-based interventions have been integrated into medical curricula to promote mind-body awareness and lifestyle balance (Buizza et al., 2020).

A systematic review by Haberlin and Bradshaw (2025) of 44 meditation-based interventions demonstrated consistent improvements in attention and anxiety among university students, although evidence regarding academic performance was mixed. The authors emphasized the strong cultural adaptability of meditation and its suitability as a psychological support strategy within higher education contexts. However, further clarification is needed regarding appropriate intervention dosage and specific implementation protocols.

Cognitive-Behavioral Therapy (CBT) has likewise been validated in numerous studies as an effective stress-reduction method (Kim et al., 2016; Salas et al., 2022; Jagiello et al., 2024). Alongside mindfulness, CBT is one of the most frequently employed and empirically supported intervention modalities (Chust-Hernández et al., 2023). A multimodal intervention developed by Shearin, Wang, Reisch, and Brewer-Mixon (2024), which integrates CBT, mindfulness, and healthy lifestyle practices, demonstrated significant advantages in alleviating psychological distress among university students.

Acceptance and Commitment Therapy (ACT) has also shown strong cultural adaptability. Xu, O'Brien, and Chen (2020) found that ACT interventions targeting Chinese international students significantly reduced school-related stress, depression, and anxiety. A meta-analysis by Amanvermez et al. (2023) further revealed that CBT and third-wave therapies (such as

MBSR and ACT) were more effective than general skills training, particularly for high-stress populations. Interventions of medium duration (5–8 weeks) were found to be more effective than shorter programs.

Although Positive Psychology Interventions (PPIs) have shown promising results in enhancing subjective well-being and reducing stress, existing studies are often affected by biases and methodological heterogeneity. Therefore, further replication studies are needed to confirm their efficacy (Ferrandez, Soubelet, & Vankenhove, 2022).

Intervention Strategies Integrative and Alternative Intervention Strategies

Beyond traditional psychotherapeutic approaches, researchers have actively explored a variety of integrative mind–body interventions, such as yoga, nutritional interventions, and relaxation techniques. Lavados, Inzunza, Lillo, and Jerez (2025) categorized recent interventions targeting medical students into three main types: mindfulness/meditation, yoga/physical exercise, and emotional intelligence training. Among these, emotional intelligence training has been shown to be effective in reducing academic stress across diverse cultural contexts (Khorasani, Ardameh, Sany, Tehrani, Ghavami, & Gholian-Aval, 2023), and it has been positively associated with mindfulness and academic motivation (Zhang, Rehman, Zhao, Rehman, & Yaqoob, 2024).

Yoga training has demonstrated benefits in regulating physiological stress indicators and alleviating subjective stress. Nutritional interventions, such as the intake of probiotics like *Lactobacillus casei*, have also been found to mitigate gastrointestinal discomfort associated with stress (Lavados et al., 2025). Relaxation techniques, including breathing exercises, progressive muscle relaxation, and autogenic training, are widely used among medical and nursing students for stress management. These methods have shown potential in lowering physiological measures such as heart rate and blood pressure (Buizza et al., 2020). However, the reliability and generalizability of findings are limited due to considerable methodological variability and the frequent absence of randomized controlled designs (Buizza et al., 2020).

Although alternative interventions such as psychoeducational programs combined with music therapy, aromatherapy, and self-help literature have shown some promise in certain studies, the overall evidence base remains limited. Common methodological concerns include the lack of control groups, poor research design, and insufficient long-term follow-up. Other strategies, such as physical exercise and time management training, are considered feasible but have produced inconsistent results, necessitating further high-quality empirical research for validation (Chust Hernández et al., 2023).

Animal-Assisted Interventions (AAIs) have also been introduced into higher education contexts. In particular, short-term interventions involving therapy dogs have been employed to alleviate acute anxiety among students. However, due to inconsistent methodologies and small sample sizes, the overall effectiveness of such interventions remains inconclusive (Huber, Klug, Abraham, Westenberg, Schmidt, & Winkler, 2024).

Technology-driven tools for stress prediction and intervention are also emerging. Kunwar, Srivastava, Dhivya, Gulati, Amudha, and Raj (2025) proposed the use of machine learning models, such as TriBranch Convolutional Neural Networks (CNNs) and Bayesian Networks, to predict students' levels of academic stress, offering new directions for the early identification of high-risk individuals and the development of personalized interventions.

Educational Strategies and Cultural Adaptation Support

In contrast to psychotherapeutic interventions, some studies have focused on enhancing educational skills and providing cultural adaptation support. Chust Hernández et al. (2024), in a study involving 206 nursing students at a Spanish university, demonstrated that systematic training in learning strategies, such as time management, study skills, and exam preparation, significantly reduced stress related to academic overload, learning tasks, and examinations, while also improving students' academic self-efficacy. These education-based interventions yielded sustained positive effects throughout the academic year and are particularly well-suited for structured integration into university curricula.

In addition, a qualitative study by Cao, Zhu, and Meng (2021) involving Chinese international students in Belgium identified multiple sources of academic stress, including challenges to academic competency, academic cultural shock, limited access to academic resources, difficulties in cross-cultural communication, and overall academic pressure. Students commonly adopted problem-focused or endurance-based coping strategies and often sought support from peers of the same nationality. The study emphasized that cultural values play a critical role in shaping stress responses, and host universities should incorporate cultural sensitivity into the design of their intervention programs.

Recent research has shown that Chinese international students (CIS) in American universities face significant mental health challenges and tend to underutilize campus mental health services. This underutilization is closely related to cultural factors such as face concerns, self-stigma, and linguistic barriers including perceived English discrimination (Ma, Zhu, & Bresnahan, 2022). Therefore, improving the accessibility and cultural responsiveness of psychological support remains a crucial direction for universities aiming to enhance the well-being of international students.

Education Current Status of Academic Stress Interventions in Chinese Universities

Although empirical research on academic stress interventions in Chinese universities remains limited, institutions have begun to explore culturally appropriate strategies to address the growing pressures faced by students. These efforts include physical activities, art-based therapies, psychoeducational programs, and technology-assisted tools. Overall, such interventions can be broadly classified into three categories: foundational and culturally relevant interventions; psychological coping pathways related to academic stress; auxiliary strategies and technological explorations.

Foundational and Culturally Relevant Interventions

Physical exercise and extracurricular activities are widely adopted and accessible approaches to alleviating academic stress in Chinese universities, owing to their cultural relevance and practical feasibility. These activities are generally recognized as effective in mitigating academic stress. For example, Li, Nie, Yu, and Dong (2025) found that active participation in extracurricular programs can significantly buffer the negative impact of academic stress on adolescents' anxiety and aggression. However, in many Chinese universities, such activities are often promoted informally by counselors or class advisors as general recommendations, rather than delivered through structured programs or professionally guided interventions.

In addition to these widely promoted yet loosely structured activities, certain culture- and art-based therapies have also been applied in university settings, though they primarily target anxiety rather than academic stress directly. Music-based interventions (music appreciation

and music self-care programs) have been shown to effectively reduce anxiety and depression among college students. These interventions, which involve students' active engagement in musical activities, significantly improve mental health outcomes and have demonstrated strong results in intervention assessments (He, Attan, Zhang, Shang, & He, 2024). Additionally, studies suggest that engaging in Chinese painting contributes to psychological calm, stress reduction, and even supports students' career development. As a culturally inclusive art therapy, it has been recommended for integration into university curricula to enhance students' overall well-being (Bingge & Keat, 2024).

Moreover, among other culturally grounded approaches, horticultural therapy, a non-pharmacological and experiential psychological intervention, has also demonstrated notable potential in reducing stress in Chinese university contexts. In a six-week group-based horticultural intervention, participants showed significant improvements in perceived stress levels, emotional regulation, and perceived social support following the intervention (Zhao, Jiang, & Han, 2025).

Psychological Coping Pathways Related to Academic Stress

Currently, Chinese universities still lack targeted psychological interventions specifically addressing academic stress. However, several structured psychological programs and digital intervention pathways aimed at alleviating anxiety, depression, and related mental health concerns indirectly respond to the psychological distress triggered by academic stress and hold practical relevance.

For instance, the Acceptance and Commitment to Empowerment - Linking Youth and 'Xin' (hearts) (ACE-LYNX) program integrates ACT with Group Empowerment Psychoeducation (GEP), aiming to reduce social stigma, enhance mental health literacy, and improve accessibility to mental health services for students. By combining online learning modules with offline group training sessions, the program establishes a collaborative mental health support network within universities (Fung, Cheng, Ning, Li, Zhang, Liu, & Wong, 2021).

Moreover, in response to the growing prevalence of anxiety and stress among college students, some universities in China have begun to explore digital intervention approaches. Step-by-Step, developed by the World Health Organization (WHO), is a low-intensity digital mental health intervention tailored for Chinese university students. It is designed to alleviate common psychological issues such as depression and anxiety through five structured sessions, minimally guided by trained peer assistants. A randomized controlled trial conducted in Chinese universities demonstrated that this intervention significantly reduced psychological symptoms, enhanced well-being, and showed strong scalability and potential for widespread implementation (Sit, Li, Chen, Sou, Wong, Burchert, & Hall, 2022).

Auxiliary Strategies and Technological Explorations

With the advancement of campus mental health services, various auxiliary methods have gradually been introduced into academic stress management practices. On one hand, some Chinese higher vocational institutions have implemented mental health education courses and offer counseling services aimed at alleviating psychological stress, preventing mental health crises, and promoting students' overall psychological well-being. However, disparities in regional development and a shortage of qualified professionals have hindered the broad coverage and practical effectiveness of these interventions.

On the other hand, Chen and Lee (2023) designed an experimental task involving various distraction conditions to collect physiological signals, such as Photoplethysmography (PPG), Electrocardiogram (ECG), and Electroencephalogram (EEG), from university students. Using deep learning models, they achieved dynamic recognition of stress levels. Although the study has not yet entered the intervention implementation phase, its technological outcomes provide a feasible pathway for future personalized and data-driven stress management strategies in higher education (Chen & Lee, 2023).

Discussion

Building on the global insights reviewed earlier, this section discusses both the existing limitations and potential pathways for enhancing academic stress intervention within the Chinese educational landscape.

Limitations and Challenges of Academic Stress Interventions in Chinese Higher Education

Although Chinese higher education institutions have increasingly emphasized student mental health and gradually implemented academic stress interventions in recent years, these efforts remain in the early stages of development. Compared to the more diverse and systematic intervention approaches in international higher education, Chinese universities face multiple challenges in terms of strategy design, institutional support, and empirical research, areas that require urgent improvement.

First, there is a lack of systematic intervention design and evaluation mechanisms specifically targeting “academic stress”. Current mental health interventions in Chinese universities primarily focus on emotional issues such as anxiety and depression, with relatively few identifying and addressing “academic stress” as an independent psychological construct. While existing programs such as ACE-LYNX and the WHO’s Step-by-Step have shown positive outcomes in enhancing mental health literacy and alleviating depressive symptoms (Fung et al., 2021; Sit et al., 2022), their intervention goals do not directly target academic stress and instead address it indirectly. This misalignment between intervention focus and the actual sources of student stress limits the ability of these programs to effectively address the diverse academic burdens and psychological needs of university students.

Furthermore, there is a lack of concrete, operationalizable intervention frameworks and localized empirical research in this area. Existing practices often concentrate on test anxiety or general psychological distress, with relatively few integrated programs that take academic stress as a central target and combine specific intervention methods such as Cognitive Behavioral Therapy (CBT), mindfulness training, or time management skills development. Moreover, most empirical studies in this field focus on primary and secondary education, leaving a significant gap in evidence related to the university student population. This deficiency hampers the scientific development and effective dissemination of academic stress intervention strategies in higher education.

Second, insufficient mental health resources hinder the coverage and accessibility of effective interventions. International studies have shown that well-structured, medium-duration interventions are particularly effective for students experiencing high academic pressure (Amanvermez et al., 2023). However, many Chinese universities face challenges such as a shortage of trained psychological professionals, insufficient funding, and a lack of practical and effective intervention strategies. These constraints lead to inconsistent service provision

and disrupt the continuity of psychological support. Such resource limitations compromise the sustainability of intervention strategies in higher education.

Third, although some culturally grounded interventions currently exist in Chinese universities, the empirical foundation supporting their effectiveness remains limited. These interventions, such as art therapy, horticultural therapy, and traditional cultural activities, have demonstrated promising levels of acceptance and stress reduction potential (He et al., 2024; Bingge & Keat, 2024; Zhao Xiaohan et al., 2025). However, many of these studies suffer from small sample sizes, a lack of randomized controlled trials, and insufficiently rigorous evaluation methods. As a result, it remains difficult to produce high-quality, generalizable evidence to support the integration of such interventions into mainstream mental health services.

Fourth, technology-driven interventions are still at an experimental stage with limited real-world application. Although recent studies have employed deep learning and physiological signal recognition (e.g., PPG, ECG, EEG) to predict academic stress dynamically (Chen & Lee, 2023), most of these findings have yet to be translated into applied interventions. A complete feedback loop has yet to be formed, making it difficult for such technologies to support everyday educational management. This lags behind international trends, which increasingly integrate digital platforms, wearable devices, and adaptive intervention tools (Kunwar et al., 2025).

Fifth, the acceptance of mental health interventions among students remains limited. Cultural stigma, privacy concerns, and distrust in existing service mechanisms lead many students to avoid seeking psychological help (Ma, Zhu, & Bresnahan, 2022). By contrast, international approaches place a strong emphasis on accessibility and cultural sensitivity in psychological services, especially in support of cross-cultural student populations (Cao, et al, 2021), offering valuable lessons for Chinese institutions.

In summary, academic stress interventions in Chinese higher education remain in the early stages and require systematic advancement in areas such as goal orientation, sufficient resources, culturally grounded empirical interventions, and technological integration. Future development should center on academic stress as a core construct, promoting the design and evaluation of localized intervention programs, strengthening cross-regional coordination of psychological resources, expanding the empirical base for culturally approaches, facilitating the practical application of digital tools, and fostering a campus culture that reduces stigma and enhances accessibility. These measures are critical to building a sustainable and contextually relevant intervention system for Chinese universities.

Pathways for Optimizing Academic Stress Interventions in Chinese Higher Education

To effectively respond to the pressing challenges of academic stress interventions in Chinese universities, future efforts should adopt a multi-level, coordinated approach that emphasizes scientific rigor, contextual relevance, and long-term sustainability.

First, although Chinese scholars have made initial progress in defining the concept of academic stress, identifying its sources, and exploring its psychological mechanisms, systematic intervention programmes and localized empirical research based on this construct remain relatively scarce. It is therefore imperative to shift the intervention focus from predominantly indirect approaches, such as alleviating anxiety and other emotional symptoms, toward direct interventions that target academic stress as the central construct. Proven

international practices such as mindfulness training, Cognitive Behavioural Therapy (CBT), and time management skills training (Chust Hernández et al., 2023; Amanvermez et al., 2023) may serve as valuable references, but they require cultural adaptation and contextual adjustments to fit the specific needs of Chinese university environments. Universities should be encouraged to pilot structured intervention pathways explicitly centred on academic stress, thereby improving the targeting precision, effectiveness, and long-term sustainability of intervention efforts.

Second, increasing investment in mental health services, optimizing their allocation, and promoting regional coordination and equitable access are essential. Although resource limitations affect many institutions, those in central and western regions in China, along with higher vocational colleges, face particularly severe challenges due to long-standing disparities in funding, infrastructure, and professional staffing. To address these structural inequalities, targeted investment should be increased for these institutions. In addition, establishing inter-university collaboration mechanisms, strengthening faculty capacity building, facilitating cross-institutional resource sharing, and developing integrated service networks can greatly enhance the coverage, continuity, and accessibility of interventions across diverse higher education settings.

Third, it is essential to strengthen the empirical foundation of culturally interventions. Existing studies have shown that traditional Chinese cultural elements, such as calligraphy and painting, horticulture, and music, are well-received and demonstrate notable psychological benefits in reducing stress (He et al., 2024; Bingge & Keat, 2024; Zhao Xiaohan et al., 2025). Future research should enhance scientific rigor and generalizability by employing larger sample sizes, randomized controlled trials, and longitudinal designs.

Fourth, efforts should be made to advance the practical transformation of technology-driven interventions from monitoring to application. Emerging models based on physiological signal detection and deep learning hold promising potential for accurately identifying academic stress (Chen & Lee, 2023). The next step should focus on developing functional intervention components, such as stress alerts, real-time feedback, and personalized training modules, to fully integrate these technologies into university mental health support systems.

Fifth, student acceptance of psychological interventions must be improved. Universities should promote destigmatization campaigns, peer-led advocacy, and transparent mental health service mechanisms to dismantle cultural barriers and misconceptions, thereby increasing students' willingness to seek help. In particular, for culturally diverse student populations, international experience suggests the importance of enhancing cultural sensitivity and contextual adaptability within interventions (Cao et al, 2021; Ma et al., 2022)

Through the systematic advancement of these pathways, Chinese universities may shift from a model of reactive response to one of proactive intervention, ultimately building a multi-level academic stress intervention system that integrates cultural adaptability, academic specificity, and technological innovation.

Conclusion and Recommendations

Chinese universities have made initial efforts to address academic stress, but existing interventions remain fragmented and lack a unified, coherent framework. Most programs focus on alleviating general psychological symptoms such as anxiety and depression, rather

than treating academic stress as a distinct and primary intervention target. Additionally, persistent challenges include insufficient mental health resources, a lack of culturally grounded academic stress interventions supported by empirical research, limited integration of technological tools, and low levels of student engagement.

To move forward, future efforts should prioritize five key directions: (1) clearly define academic stress as an independent focus of intervention and strengthen localized, evidence-based programs; (2) increase investment in psychological resources and enhance resource allocation through regional coordination and equitable access; (3) integrate traditional Chinese cultural elements into modern intervention designs to enhance cultural relevance and acceptance; (4) shift from stress detection to actionable, technology-driven applications; and (5) foster an inclusive, destigmatized environment to improve student participation and service utilization.

By advancing these pathways in a coordinated and context-sensitive manner, Chinese universities can transition from reactive to proactive academic stress management. This transformation will support the development of a multi-level, culturally responsive, and sustainable intervention system tailored to the specific needs of China's higher education.

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