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A BIBLIOMETRIC ANALYSIS ON ACADEMIC STRESS AMONG UNDERGRADUATES IN MALAYSIAN PUBLIC UNIVERSITIES

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This work is licensed under [CC BY 4.0](#)**Abstract:**

Academic stress has emerged as a critical concern affecting the mental health and academic performance of undergraduate students, particularly within the context of Malaysian public universities. Despite a growing body of literature addressing this issue, a comprehensive bibliometric analysis examining publication trends, scholarly impact, and research collaboration is still lacking. This study aims to fill that gap by systematically analyzing the scientific landscape on the causes of academic stress among undergraduates in Malaysian public universities. The main research focus involved three key keywords: “academic stress,” “mental illness,” and “undergraduate.” Using the Scopus database, a total of 813 peer-reviewed journal articles published between 2005 and 2025 were retrieved based on specific inclusion criteria namely, English-language journal articles excluding books, reviews, and conference proceedings. The data were cleaned and standardized using OpenRefine, and further analyzed through Scopus Analyzer for general trends and VOSviewer software for visualizing co-authorship networks, keyword co-occurrence, and countries collaborations. The results reveal a consistent increase in publication output over the years, with a significant concentration of research contributions from the United States, China, Australia, and Malaysia. “Academic stress,” “mental illness,” and “undergraduate students” were the most frequently occurring keywords, highlighting the central themes within this research domain. Additionally, keyword mapping and co-authorship analysis demonstrated growing interdisciplinary and international collaboration in this field. This study offers a comprehensive overview of the intellectual structure and research evolution concerning academic stress among undergraduates in Malaysia, and serves as a valuable reference for researchers, educators, and policymakers aiming to address this growing academic and psychological challenge.

Keywords:

Academic Stress, Mental Illness, Academic Load, Undergraduates, Students

Introduction

Academic stress among undergraduates in Malaysian public universities is a significant concern, impacting students' mental health, academic performance, and overall well-being. This stress arises from various sources, including academic pressures, socio-demographic factors, and environmental conditions. Understanding the causes and effects of academic stress is crucial for developing effective interventions to support students' mental health and academic success.

Studies have shown a high prevalence of academic stress among undergraduates in Malaysian public universities. For instance, a study conducted in Sarawak, Malaysia, found a significant prevalence of anxiety among students, with socio-demographic factors such as poor parental relationships contributing to higher stress levels (Talwar et al., 2017) . Another study highlighted that 37.7% of students experienced perceived stress, with female and first-year students being particularly vulnerable (Henny et al., 2014) . The sources of academic stress are multifaceted. Common stressors include heavy academic workload, high parental expectations, financial burdens, and competition among peers (Ramachandiran & Dhanapal, 2018) (Al-

Hatamleh et al., 2017). Additionally, the COVID-19 pandemic has exacerbated stress levels due to the challenges of online learning and the lack of a conducive study environment (Mooi et al., 2023) (Sa'at et al., 2022). Medical students, in particular, face severe stress due to the vast syllabus and frequent exams.

Academic stress has profound effects on students' health and academic performance. High levels of stress can lead to physical symptoms such as headaches, sleep problems, and gastrointestinal issues. Moreover, stress negatively impacts academic performance, although the presence of psychological capital can mitigate some of these effects (Chua et al., 2018). Stress also contributes to mental health issues like depression and anxiety, further affecting students' well-being (Rusli et al., 2023). Students employ various coping strategies to manage academic stress. Avoidant-focused strategies are common, but problem-focused and emotion-focused strategies are more effective in alleviating stress (Poon et al., 2012). Social support plays a crucial role in reducing stress, particularly for international students adapting to new cultural environments (Alshammari, 2024). Universities can help by providing resources and support systems to enhance students' coping mechanisms.

To address academic stress, universities should consider implementing comprehensive support systems. This includes providing mental health services, creating a supportive academic environment, and offering financial aid to alleviate economic pressures. Additionally, fostering a positive relationship between students and faculty can help reduce stress levels. Tailored interventions for vulnerable groups, such as first-year and female students, are also essential (Jia & Loo, 2018). Academic stress among undergraduates in Malaysian public universities is a complex issue influenced by various factors. Addressing this stress requires a multifaceted approach, including enhancing support systems, promoting effective coping strategies, and creating a conducive academic environment. By understanding and mitigating the causes of academic stress, universities can improve students' mental health and academic outcomes.

Research Questions:

- i. Which subject area are most productive in publishing research on this issue?
- ii. Which articles have received the highest number of citations within the context of academic stress research among undergraduate students?
- iii. Which countries have contributed the most to the body of literature on academic stress among undergraduates, based on the number of publications?
- iv. What are the most frequently occurring author keywords associated with research on academic stress among undergraduate students?
- v. What patterns of international co-authorship and country-level collaboration are evident in the research on academic stress among undergraduates?

Methodology

Bibliometric analysis entails the systematic collection, classification, and evaluation of bibliographic data sourced from scholarly publications (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002). In addition to fundamental metrics such as publication year, journal outlet, and authorship patterns (Wu & Wu, 2017), bibliometric methods incorporate more advanced analyses, including document co-citation and keyword co-occurrence techniques. A thorough literature review in this context necessitates a structured and iterative process involving the selection of relevant keywords, comprehensive literature searches, and

analytical refinement to construct a robust bibliography and yield valid insights (Fahimnia et al., 2015).

Guided by this methodology, the present study focused on the causes of academic stress among undergraduates in Malaysian public universities by prioritizing high-impact publications, which offer deeper theoretical and empirical contributions to the research field. To ensure data reliability and coverage, the Scopus database was selected as the primary data source due to its extensive indexing of peer-reviewed academic literature (Al-Khoury et al., 2022; di Stefano et al., 2010; Khiste & Paithankar, 2017). Furthermore, to maintain scholarly quality, only English-language journal articles were included, while excluding conference proceedings, books, and lecture notes (Gu et al., 2019). Publications spanning from 2005 to 2025 were retrieved for analysis to capture the research trends and developments over the past two decades.

Data Search Strategy

A systematic data strategy was employed using the **Scopus database**, known for its comprehensive and high-quality indexed literature. The advanced search string applied was: *TITLE (("academic stress" OR "mental illness") AND (undergraduate OR student))***, which specifically targeted articles where the core focus of the study; academic stress or mental illness appears in the title. This was further refined by applying filters to include only **journal articles (DOCTYPE: "ar")**, published in **English**, within year **2005-2025** time frame. The inclusion criteria were intentionally designed to focus on empirical and peer-reviewed contributions, ensuring scholarly accuracy, while excluding non-English publications and non-journal formats such as conference proceedings, books, and reviews, which may not offer consistent quality or in-depth analysis.

As a result of applying this structured search strategy and criteria, a total of **813 documents** were retrieved and deemed suitable for the bibliometric analysis. This sizable dataset indicates a significant and growing scholarly interest in the topic over the past two decades, reflecting both the increasing concern over academic stress in higher education and the global emphasis on student mental health. The data retrieved allows for comprehensive mapping of publication trends, influential articles, contributing countries, author keywords, and collaboration patterns. These elements together provide valuable insights into the development, gaps, and potential directions for future research in the field of academic stress, particularly as it pertains to undergraduates in Malaysian public universities.

Table 1: The Search String

Scopus	TITLE (("academic stress" OR "mental illness") AND (undergraduate* OR student*)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English"))
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Source: Scopus

Table 2: The Selection Criterion is Searching

Criterion	Inclusion	Exclusion
Language	English	Non-English
Time line	2005 – 2025	< 2021
Literature type	Journal (Article)	Conference, Book, Review

Source: Scopus

Data Analysis

VOSviewer is a widely recognized bibliometric analysis tool developed by Nees Jan van Eck and Ludo Waltman from Leiden University, the Netherlands (van Eck & Waltman, 2010, 2017). Known for its intuitive interface and advanced visualization capabilities, the software is extensively used to map and interpret scientific literature. It excels in creating network visualizations, clustering related entities, and generating density maps, allowing for detailed exploration of bibliometric relationships. Its strength lies in supporting analyses such as co-authorship, co-citation, and keyword co-occurrence networks, thereby offering researchers a clearer understanding of complex research environments. The tool's adaptability to various data formats and continuous updates further enhance its utility for both novice and experienced users.

A key advantage of VOSviewer is its ability to transform complex bibliometric data into accessible visual representations. It enables users to uncover patterns and relationships within large datasets by focusing on network-based visualizations. Features such as keyword co-occurrence analysis, clustering algorithms, and density mapping make it a powerful resource for examining the intellectual structure of a research field. Its customizable interface and ongoing development ensure that it remains current and effective in addressing evolving analytical needs. By accommodating diverse data types, including co-authorship and citation metrics, where VOSviewer remains an indispensable tool in scholarly research.

In this study, datasets were collected in PlainText format from the Scopus database, covering publications from 2004 through December 2024. These datasets included bibliographic elements such as publication year, title, authorship, journal source, citation counts, and keywords. The data were analyzed using VOSviewer software version 1.6.19. Employing clustering and mapping techniques, the software facilitated the construction of bibliometric maps that depict the structure of scholarly communication. Unlike the Multidimensional Scaling (MDS) method (Appio et al., 2014), VOSviewer operates within a low-dimensional space to ensure that spatial proximity between items reflects their degree of similarity or relatedness.

Although similar in objective to MDS, which typically relies on similarity indices such as cosine or Jaccard coefficients, VOSviewer utilizes a more suitable normalization approach for co-occurrence data. This method, known as association strength (AS_{ij}), is calculated using the formula (Van Eck & Waltman, 2007):

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

Here, C_{ij} represents the observed number of co-occurrences between items i and j , while w_i and w_j denote the total occurrences of each item individually. The association strength metric reflects the ratio of observed to expected co-occurrences under the assumption of statistical independence, thus providing a more accurate representation of item relationships (Van Eck & Waltman, 2007).

Result and Discussion

Which Subject Area Are Most Productive In Publishing Research On This Issue?

Table 3: Subject Area Productivity of the Topic

Subject Area	No of Document	Percentage (%)
Medicine	340	30
Social Sciences	256	22.1
Psychology	170	15.1
Nursing	108	9.4
Health Professions	49	4.1
Neuroscience	33	2.7
Arts and Humanities	30	2.7
Pharmacology, Toxicology and Pharmaceutics	28	2.3
Biochemistry, Genetics and Molecular Biology	26	2.2
Business, Management and Accounting	19	1.6
Others	20	7.9

Source: Scopus

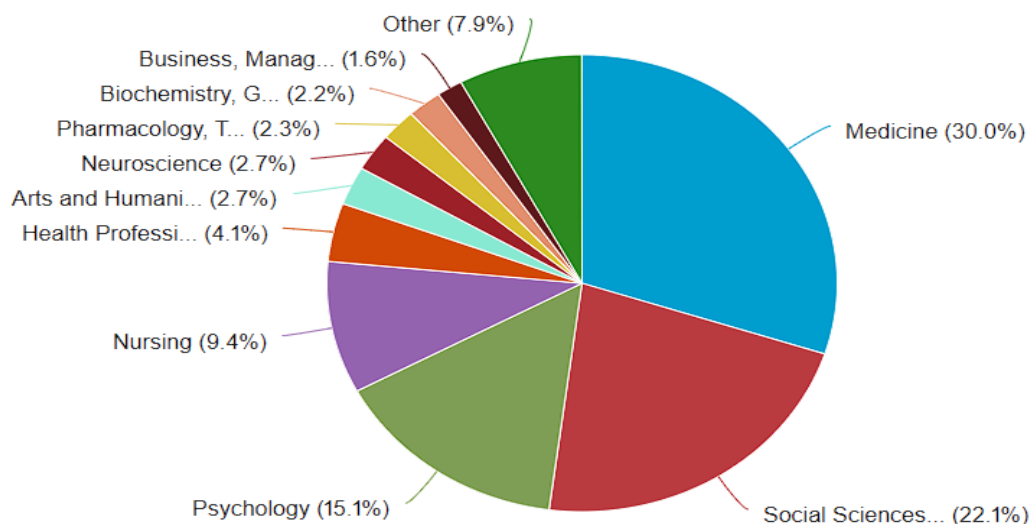


Figure 1: Subject Area Productivity of the Topic

Source: Scopus

The bibliometric analysis of 813 documents published between 2005 and 2025 on the topic of academic stress among undergraduates in Malaysian public universities reveals a predominant focus on health-related disciplines. The majority of the studies fall under *Medicine* (30%), followed by *Social Sciences* (22.1%) and *Psychology* (15.1%). This trend indicates that researchers have extensively examined academic stress through the lens of mental health, emotional well-being, and physiological outcomes. The prominence of *Nursing* (9.4%) and *Health Professions* (4.1%) further emphasizes the clinical and therapeutic perspectives of the topic. The presence of *Neuroscience* (2.7%) and *Pharmacology* (2.3%) suggests a growing interest in exploring the neurological and biochemical responses to academic stress, reflecting the interdisciplinary nature of stress research.

Interestingly, the representation of *Arts and Humanities* (2.7%) and *Business, Management and Accounting* (1.6%) remains relatively low. This highlights a potential research gap in exploring academic stress through cultural, educational, and organizational frameworks. The underrepresentation of business and management disciplines suggests limited studies focusing on institutional stressors such as administrative policies, academic workloads, and leadership practices within universities. As such, future research should consider integrating social, spiritual, and managerial perspectives; especially within the Malaysian Islamic and multicultural context to develop more holistic strategies for understanding and addressing academic stress among undergraduates.

Which Articles Have Received The Highest Number Of Citations Within The Context Of Academic Stress Research Among Undergraduate Students?

Table 4: Most Cited Authors

Authors	Title	Year	Source title	Number of Citations
Misra R.; Castillo L.G.(Misra & Castillo, 2004)	Academic stress among college students: Comparison of American and international students	2004	International Journal of Stress Management	238
Kato-Kataoka A.; Nishida K.; Takada M.; Kawai M.; Kikuchi-Hayakawa H.; Suda K.; Ishikawa H.; Gondo Y.; Shimizu K.; Matsuki T.; Kushiro A.; Hoshi R.; Watanabe O.; Igarashi T.; Miyazaki K.; Kuwano Y.; Rokutan K. (Kato-Kataoka et al., 2016)	Fermented milk containing Lactobacillus casei strain Shirota preserves the diversity of the gut microbiota and relieves abdominal dysfunction in healthy medical students exposed to academic stress	2016	Applied and Environmental Microbiology	222

Reddy K.J.; Menon K.R.; Thattil A. (Reddy et al., 2018)	Academic stress and its sources among university students	2018	Biomedical and Pharmacology Journal	218
Barbayannis G.; Bandari M.; Zheng X.; Baquerizo H.; Pecor K.W.; Ming X. (Barbayannis et al., 2022)	Academic Stress and Mental Well-Being in College Students: Correlations, Affected Groups, and COVID-19	2022	Frontiers in Psychology	200
Nickerson K.J.; Helms J.E.; Terrell F. (Nickerson et al., 1994)	Cultural Mistrust, Opinions About Mental Illness, and Black Students' Attitudes Toward Seeking Psychological Help From White Counselors	1994	Journal of Counseling Psychology	189
Rayle A.D.; Chung K.-Y. (Rayle & Chung, 2007)	Revisiting first-year college students' mattering: Social support, academic stress, and the mattering experience	2007	Journal of College Student Retention: Research, Theory and Practice	185
Backović D.V.; Živojinović J.I.; Maksimović J.; Maksimović M. (Backović et al., 2012)	Gender differences in academic stress and burnout among medical students in final years of education	2012	Psychiatria Danubina	175
Clabaugh A.; Duque J.F.; Fields L.J. (Clabaugh et al., 2021)	Academic Stress and Emotional Well-Being in United States College Students Following Onset of the COVID-19 Pandemic	2021	Frontiers in Psychology	166
Chandra Y. (Chandra, 2021)	Online education during COVID-19: perception of academic stress and emotional intelligence coping strategies among college students	2021	Asian Education and Development Studies	160
Wilks S.E.; Spivey C.A. (Wilks & Spivey, 2010)	Resilience in undergraduate social work students: Social support and adjustment to academic stress	2010	Social Work Education	158

Source: Scopus

Based on the provided citation data, the **most cited author** in the context of academic stress research is **Misra, R.**, with **238 citations** for the article *"Academic stress among college students: Comparison of American and international students"* published in 2004 in the *International Journal of Stress Management*. Misra's work, co-authored with Castillo L.G., has become a foundational reference in the field, likely due to its early exploration of cross-cultural dimensions of academic stress; a theme that remains highly relevant, especially in the globalized and diverse settings of higher education institutions like those in Malaysia.

This high citation count reflects both the **enduring relevance and foundational nature** of Misra and Castillo's study. It has likely informed subsequent research on stress coping mechanisms, academic adaptation, and the psychological well-being of students from diverse backgrounds. Compared to other highly cited authors such as Kato-Kataoka et al. (222 citations) and Reddy et al. (218 citations), Misra's earlier publication date and broad applicability across cultural and educational contexts give it an academic longevity that continues to influence contemporary research, including studies focusing on Malaysian public university undergraduates.

Which Countries Have Contributed The Most To The Body Of Literature On Academic Stress Among Undergraduates, Based On The Number Of Publications?

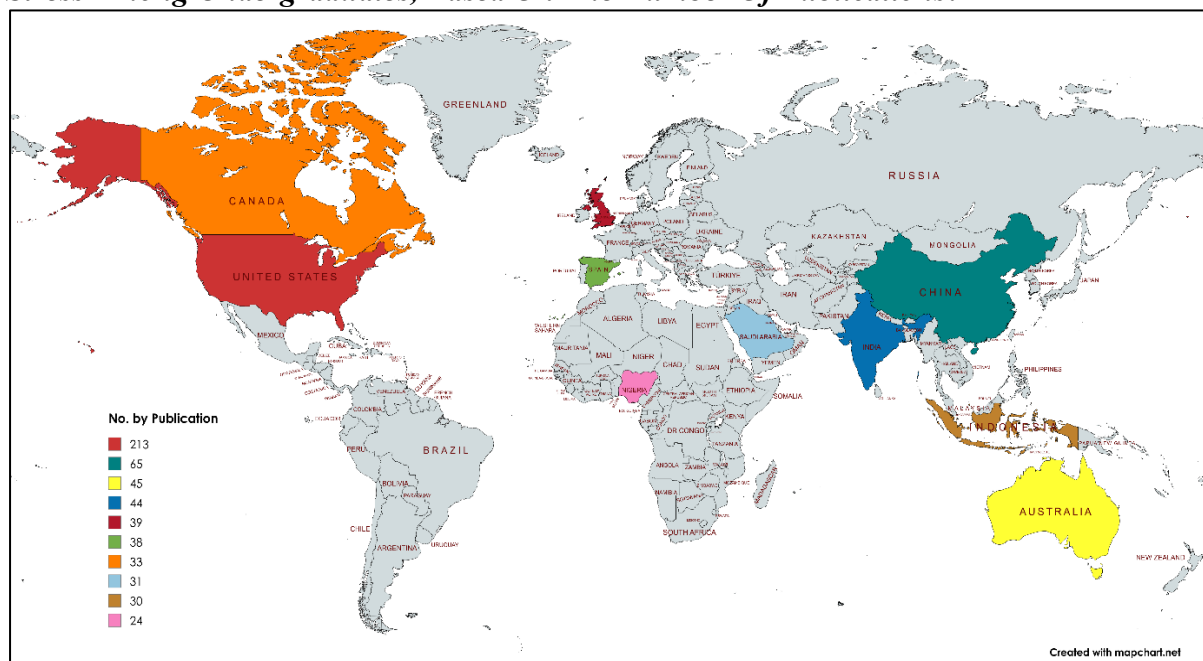


Figure 2: Top 10 Countries Contributed the Most to the Research Area

Source: Author's Own

Table 5: Top 10 Countries Contributed the Most to the Research Area

Country/Territory	No. of Document	Percentage (%)
United States	213	26.2
China	65	8.0
Australia	45	5.5
India	44	5.4
United Kingdom	39	4.8

Spain	38	4.7
Canada	33	4.1
Saudi Arabia	31	3.8
Indonesia	30	3.7
Nigeria	24	3.0

Source: Scopus

Based on the data, the **United States** leads significantly in publication output on academic stress among undergraduates, contributing **213 documents (26.2%)**. This dominance reflects the country's robust academic infrastructure and ongoing interest in mental health and student well-being across diverse educational settings. Following the U.S., **China (8.0%)**, **Australia (5.5%)**, and **India (5.4%)** contribute moderate levels of research, indicating growing attention to academic stress in their rapidly expanding higher education sectors. The presence of both Western and Asian countries in the top five suggests that academic stress is a globally recognized issue, influenced by varying cultural, educational, and systemic factors.

The remaining countries which are **United Kingdom, Spain, Canada, Saudi Arabia, Indonesia, and Nigeria** show a more modest yet notable engagement, each contributing between 3% to 4.8% of the total documents. These figures suggest a widening global discourse on academic stress, with emerging economies like **Saudi Arabia, Indonesia, and Nigeria** increasingly contributing to the literature. Their inclusion signals not only increased research activity but also a shift toward recognizing academic mental health as a universal concern. This diversity in contribution enhances the global understanding of academic stress, allowing for comparative insights and more culturally responsive interventions, particularly valuable for contexts like Malaysian public universities.

What Are The Most Frequently Occurring Author Keywords Associated With Research On Academic Stress Among Undergraduate Students?

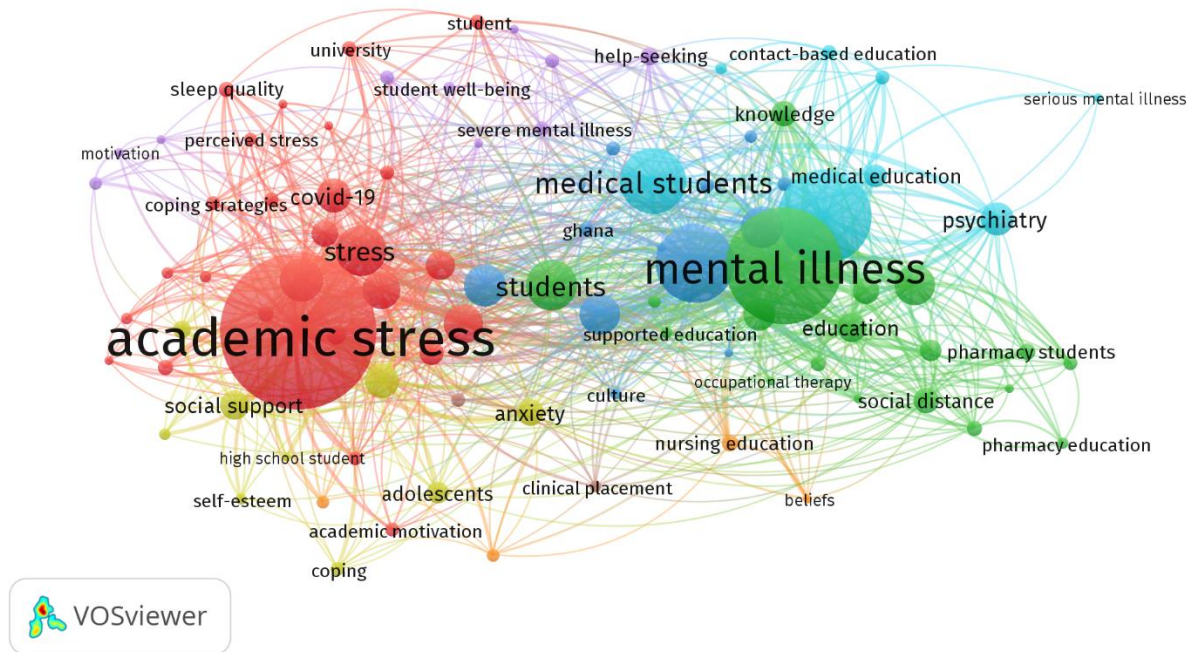


Figure 3: Network Visualization Map of Author Keywords' Co-occurrence

Source: Scopus

Based on the VOSviewer keyword analysis, the most dominant term is “**academic stress**” with **252 occurrences** and a **total link strength of 430**, clearly identifying it as the focal theme of the analyzed literature. Closely associated terms such as “**mental illness**” (**168 occurrences**), “**stigma**” (**123**), “**mental health**” (**96**), and “**medical students**” (**74**) demonstrate the strong association between academic stress and psychological well-being, particularly among health-related disciplines. The high link strength of these keywords indicates that they frequently co-occur in scholarly discussions, emphasizing that academic stress is not just an isolated phenomenon but deeply intertwined with broader mental health issues and perceptions, including stigma and access to care.

The presence of keywords such as **“students,” “nursing students,” “university students,”** and **“undergraduate students”** reflects the target population of these studies, aligning well with the article’s scope on Malaysian public university undergraduates. The inclusion of **“depression,” “psychological stress,” “anxiety,”** and **“psychiatry”** among the frequently linked terms reinforces that the psychological impact of academic stress is a key research concern. Additionally, **“COVID-19”**, which shows 30 occurrences and 82 link strength, highlights a temporal spike in academic stress levels and research output, suggesting that pandemic-induced disruptions to education have intensified scholarly interest in this topic.

Keywords like “**coping strategies**,” “**social support**,” “**self-efficacy**,” and “**resilience**” though occurring less frequently, indicate a growing emphasis on **interventions and protective factors** against academic stress. Educational aspects such as “**academic performance**,” “**medical education**,” “**curriculum**,” and “**higher education**” point to institutional and structural contributors to student stress. For the Malaysian context, these findings suggest a multidimensional cause of academic stress, stemming from individual psychological vulnerability, lack of support systems, and academic pressure especially within competitive and exam-oriented environments. As such, this keyword analysis provides a strong basis for identifying prevalent themes, gaps in intervention-focused research, and potential directions for policy and institutional reform.

What Patterns Of International Co-Authorship And Country-Level Collaboration Are Evident In The Research On Academic Stress Among Undergraduates?

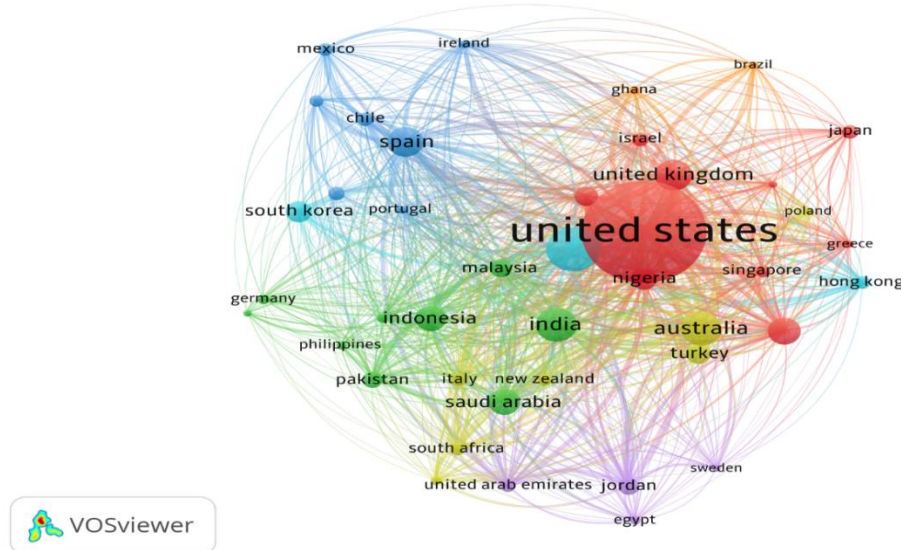


Figure 4: Network Visualization Map of Countries' Co-occurrence

Source: Scopus

The co-authorship and country-level analysis of publications related to *academic stress among undergraduates in Malaysian public universities* reveals a highly collaborative and globally dispersed research landscape. The **United States** leads significantly in output with **214 documents** and **5074 citations**, indicating its dominant role in both producing and influencing research in this area. It also holds the highest **total link strength (60)**, suggesting strong international co-authorship networks and collaborative influence. Countries like **China** and **Australia**, with 65 and 45 documents respectively, also demonstrate high scholarly engagement, supported by notable citation counts (1155 and 886), implying their research is both active and impactful. The **United Kingdom** similarly maintains a strong presence, with 1456 citations from 39 documents, reflecting the high quality or visibility of its academic output.

In terms of regional participation, countries from the Middle East and Asia such as **Jordan (17 documents, 202 citations, TLS 21)**, **Saudi Arabia (31 documents, TLS 20)**, and the **United Arab Emirates (11 documents, TLS 20)** show growing engagement. Their relatively high link strengths in proportion to output suggest that these countries are actively collaborating

internationally, likely leveraging global partnerships to increase research visibility. **Malaysia**, the focus country, has produced **19 documents** with **433 citations** and a **link strength of 9**, indicating moderate international collaboration. While Malaysia's citation count is reasonable for its document count, its lower link strength suggests a need to enhance co-authorship networks to gain more international research exposure and impact.

Other emerging contributors such as **India (44 documents)**, **Indonesia (30)**, **Pakistan (16)**, and **Nigeria (24)** show active involvement but relatively modest citation numbers and link strengths, indicating the potential for growth in both research quality and global collaboration. European countries like **Italy**, **Spain**, and **Germany** also contribute, while countries such as **Hong Kong**, **Japan**, and **South Korea** exhibit strong citation counts relative to their document numbers, signaling high-quality contributions. Overall, this data suggests that while Western countries dominate in volume and impact, there is a meaningful and increasing contribution from Asian and Middle Eastern regions, including Malaysia, which can be further strengthened through deeper international collaboration and strategic co-authorship efforts.

Conclusion

This study was undertaken to systematically examine the academic landscape concerning the causes of academic stress among undergraduate students in Malaysian public universities. By employing bibliometric methods, the research aimed to map out publication trends, identify leading contributors, and explore collaborative patterns within this domain, while also pinpointing frequently used keywords that represent thematic focus areas over the past two decades.

The analysis uncovered a consistent increase in publication output between 2005 and 2025, indicating growing scholarly attention to academic stress as a significant issue in higher education. Most of the literature originated from countries with established research infrastructures, with the United States, China, and Australia leading in terms of both output and impact. Keyword analysis revealed a predominant focus on health-related disciplines, especially mental health, with “academic stress,” “mental illness,” and “undergraduate students” emerging as core terms. Subject areas such as medicine, psychology, and social sciences dominated the field, while underrepresentation of perspectives from humanities and business disciplines suggests a notable gap.

This research contributes to the broader academic field by consolidating fragmented literature and offering insights into how academic stress is conceptualized, studied, and addressed globally and regionally. It provides a structured understanding of the evolving themes and methodological approaches, thereby serving as a foundation for researchers seeking to further investigate this multifaceted issue. The interdisciplinary nature of contributions though skewed towards medical and psychological sciences; highlights the complex interplay between educational environments, mental health, and social factors.

From a practical standpoint, the findings suggest that institutional strategies in higher education should account for psychological well-being alongside academic development. Recognizing the influence of academic stress on student performance and mental health, universities could implement proactive support systems, foster resilience, and tailor interventions to specific vulnerable student groups. Moreover, the emergence of terms related to coping strategies and social support implies a growing awareness of preventive approaches. However, some

limitations must be acknowledged. The exclusive use of the Scopus database and the focus on English-language journal articles may have resulted in the exclusion of relevant regional or non-English studies. Additionally, the analysis was limited to co-authorship and keyword networks without delving into citation contexts or content analysis. Future studies could broaden data sources, integrate qualitative reviews, or explore thematic evolution using longitudinal approaches to capture deeper insights.

In summary, this bibliometric analysis sheds light on the intellectual structure and research development regarding academic stress among undergraduates in Malaysia's public universities. The study underscores the importance of bibliometric methods in synthesizing large volumes of literature and identifying critical gaps. As academic stress continues to pose challenges to student well-being and performance, further scholarly efforts—especially those incorporating diverse disciplines and international collaborations—are essential for advancing understanding and informing effective interventions.

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