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Global Research Trends and Intellectual Structure of Academic Burnout Among College Students: A Bibliometric Analysis (2010–2026)

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ABSTRACT

Academic burnout has received increasing attention in higher education research due to rising academic demands, digital transformation, and growing concerns about student mental health. Despite the rapid expansion of the literature, no bibliometric study has comprehensively mapped the intellectual structure, thematic evolution, and developmental trajectory of academic burnout research specifically among college students. This study addresses this gap by conducting a bibliometric analysis of 359 Scopus-indexed articles published between 2010 and 2026. Data were analyzed using VOSviewer and Biblioshiny through keyword co-occurrence, co-citation, bibliographic coupling, collaboration network, and thematic evolution analyses. The findings reveal a substantial increase in publication output, rising from two articles in 2010 to 95 articles in 2025. China, Indonesia, and Iran emerged as the most productive contributing countries, while the intellectual foundations of the field remain strongly influenced by the seminal works of Maslach, Leiter, and Schaufeli. Thematic analysis identified four developmental phases of the field: Emergence (2010–2014), Early Growth (2015–2018), Acceleration (2019–2021), and Exponential Surge (2022–2025). Furthermore, digital-related themes, including technostress, smartphone addiction, and social media fatigue, have become increasingly prominent in recent studies. This study contributes theoretically by identifying a digital-burnout nexus within the extended Job Demands-Resources (JD-R) framework and methodologically by demonstrating the value of a multi-indicator bibliometric approach. The findings provide a foundation for future research and evidence-based interventions aimed at promoting student well-being in increasingly digitalized higher education environments.

Keywords*: *academic burnout, bibliometrics, college students, VOSviewer, research trends

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INTRODUCTION

Academic life in higher education confronts students with multidimensional pressures, including curriculum demands, assessment overload, and non-academic stressors that collectively exceed individual adaptive capacity and precipitate chronic stress (Robotham & Julian, 2006). When sustained, these pressures culminate in academic burnout, a psychoeducational syndrome characterized by emotional exhaustion, depersonalization, and diminished academic efficacy (Maslach & Leiter, 1997; Schaufeli et al., 2002). The consequences are well documented, including declining academic performance, elevated dropout risk, and clinically significant anxiety and depression (Salmela-Aro et al., 2009; Yang, 2004). More broadly, educational research consistently demonstrates that mental and emotional well-being constitutes a fundamental prerequisite for successful learning and psychological adjustment across educational settings (Ramadhanti et al., 2023; Risma et al., 2025). Studies in Indonesian educational contexts further emphasize

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that psychological health, emotional regulation, and positive learning environments play a critical role in supporting students' academic development and well-being.

The digital transformation of higher education has further compounded these pressures. Technostress, information overload, and social media saturation are now recognized as independent predictors of emotional fatigue among students (Tarafdar et al., 2007; Cao & Sun, 2018). The COVID-19 pandemic accelerated this trajectory, as the abrupt shift to online learning intensified cognitive demands and weakened social support structures, resulting in documented increases in the prevalence of burnout globally (Huckins et al., 2020; WHO, 2022). Similar challenges have been reported in Indonesian educational settings, where the rapid implementation of distance learning and digital technologies required substantial adaptation from both students and educators (Atina, 2020; Nurhaliza et al., 2026; Septiani et al., 2021; Rahmawati et al., 2022; Wildan et al., 2022). Beyond technological challenges, recent studies have highlighted the importance of emotional regulation and healthy coping strategies in educational environments. The suppression of negative emotions and the tendency toward toxic positivity may undermine psychological well-being and increase vulnerability to emotional exhaustion (Hadiarni et al., 2025).

The rapid growth of academic burnout research over the past decade necessitates systematic bibliometric mapping to identify its intellectual structures, collaborative networks, and thematic evolution. Existing bibliometric studies in this domain, however, exhibit several crucial limitations. First, Zhang et al. (2022) examined the academic burnout literature broadly, without restricting the population to college students, thereby limiting the specificity of their findings for higher education contexts. Second, Ishak et al. (2013) and West et al. (2018) focused primarily on medical students and health professionals, leaving the broader college student population underrepresented. Third, none of the existing bibliometric reviews have simultaneously applied keyword co-occurrence analysis, co-citation analysis, bibliographic coupling, collaboration network mapping, and thematic evolution analysis to this specific population, resulting in an incomplete understanding of the field's intellectual development. Furthermore, recent educational studies have increasingly emphasized the importance of resilience, psychological adaptation, digital literacy, and mental health support as key factors influencing student outcomes in contemporary learning environments (Sugiyanti et al., 2021; Chairilsyah & Kurnia, 2025), suggesting the need for a more comprehensive synthesis of the evolving academic burnout literature.

This study addresses these gaps by conducting a comprehensive bibliometric analysis of academic burnout research among college students, drawing on Scopus-indexed publications from 2010 to 2026. Specifically, this study aims to answer four research questions: (1) What is the longitudinal publication trend of academic burnout research among college students? (2) Who are the most prolific and influential authors, institutions, and countries in this field? (3) What are the dominant themes and keyword co-occurrence structures? and (4) How have research topic clusters evolved across developmental phases? The findings are expected to provide a strategic reference for researchers seeking to identify knowledge gaps and emerging research directions, as well as for counselors, educators, and institutional policymakers designing evidence-based student support systems. Given growing concerns regarding student well-being, mental health, and adaptation to increasingly digital learning environments, a comprehensive understanding of the academic burnout literature is becoming increasingly crucial for informing future educational policies and interventions.

LITERATURE REVIEW

Theoretical Framework of Academic Burnout

Academic burnout is theoretically grounded in the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2007), one of the most empirically validated frameworks in occupational and educational psychology. The JD-R model posits that burnout emerges when job demands — in this context, academic demands — chronically exceed available personal and environmental resources, leading to energy depletion and motivational withdrawal (Bakker & Demerouti, 2017). Within the academic domain, Schaufeli et al.

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(2002) operationalized burnout through three core dimensions: emotional exhaustion, reflecting depletion of emotional energy from academic tasks; cynicism, reflecting detachment and indifference toward academic activities; and reduced academic efficacy, reflecting diminished belief in one's academic competence. This tripartite conceptualization, measured using the Maslach Burnout Inventory-Student Survey (MBI-SS), has become the dominant theoretical and measurement framework underpinning most empirical studies in this field (Salmela-Aro et al., 2009; Bresó et al., 2011).

Empirical evidence consistently confirms the multidimensional nature of academic burnout and its downstream consequences. A meta-analysis by Madigan and Curran (2021) involving 43 studies and over 35,000 students demonstrated that academic burnout significantly predicts declining grade point averages, increased dropout intentions, and reduced academic engagement. Similarly, Shen et al. (2022) conducted a systematic review and meta-analysis of Chinese university populations, reporting a pooled prevalence of burnout of 55.16%, underscoring the scale of the phenomenon. At the individual level, Luo et al. (2021) identified academic self-efficacy and perceived social support as the two most robust protective factors against burnout across diverse student populations, with findings replicated in Iranian (Rabipour et al., 2022) and Indonesian (Langoy et al., 2023) contexts.

Contemporary theoretical developments have expanded the JD-R framework by incorporating digital stressors as an additional dimension of demand. Technostress theory (Tarafdar et al., 2007) and social media overload frameworks (Cao & Sun, 2018) have increasingly been integrated into burnout models, positioning digital ecosystem pressures as independent antecedents of emotional exhaustion among college students. Supporting this integration, Lian et al. (2021) demonstrated in a large-scale study of 3,425 Chinese undergraduates that smartphone addiction significantly mediated the relationship between academic stress and emotional exhaustion, while Xie et al. (2023) confirmed that social media fatigue independently predicted burnout dimensions beyond conventional academic load variables. These findings collectively reflect a paradigmatic shift from viewing academic burnout purely as a product of conventional academic load toward a more complex, multi-domain demand structure that characterizes contemporary higher education environments.

Bibliometric Analysis as a Conceptual and Methodological Framework

Bibliometric analysis provides a quantitative methodological framework for mapping the intellectual structure and developmental trajectory of a scientific field through the systematic analysis of publication data (Pritchard, 1969; Aria & Cuccurullo, 2017). Recent methodological developments further emphasize the integration of science mapping and bibliometric indicators to produce more comprehensive and dynamic representations of knowledge structures within a research field (Pessin et al., 2022). As a scientific mapping approach, bibliometrics moves beyond narrative description to produce reproducible, statistically grounded representations of how knowledge is produced, organized, and evolves within a discipline (Donthu et al., 2021). The application of bibliometric methods to educational psychology and mental health research has expanded substantially in recent years, with notable contributions mapping burnout in healthcare workers (West et al., 2018), stress in university students (Bedewy & Gabriel, 2015), and psychological well-being in higher education contexts (Yıldırım & Solmaz, 2022).

Within this framework, four analytical techniques are central to the present study, each capturing a distinct dimension of the field's intellectual organization. First, keyword co-occurrence analysis examines the frequency with which keyword pairs appear together across publications, enabling the identification of dominant themes, conceptual clusters, and thematic relationships within a field (van Eck & Waltman, 2010). High co-occurrence frequency between two keywords indicates strong conceptual proximity, while the total link strength of a keyword node reflects its centrality within the broader thematic network. This technique has been successfully applied in recent bibliometric studies of psychological constructs, including resilience research (Chmitorz et al., 2018) and emotion regulation literature (Compas et al., 2017), yielding coherent thematic maps that informed subsequent research agendas.

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Second, co-citation analysis identifies intellectual foundations by mapping which pairs of references are most frequently cited together across the corpus (Small, 1973). Documents that are consistently co-cited tend to represent the theoretical cornerstones of a field, and their clustering reveals the underlying intellectual schools of thought that shape ongoing research directions. In the context of burnout research, co-citation patterns have been shown to reflect the enduring influence of Maslach and colleagues' foundational work alongside more recent demand-resource theorizations (Bakker & Demerouti, 2017; Schaufeli et al., 2002).

Third, bibliographic coupling connects documents that share common references, identifying current research frontiers by clustering articles that draw upon similar theoretical and empirical foundations (Kessler, 1963). Unlike co-citation analysis, which reflects historical influence, bibliographic coupling captures the contemporary intellectual landscape of active research clusters, making it particularly valuable for identifying emerging research directions in rapidly evolving fields such as academic burnout (Donthu et al., 2021; Zupic & Čater, 2015).

Fourth, thematic evolution analysis through overlay visualization maps the temporal development of research topics by assigning color gradations to keyword nodes based on their average year of publication (Cobo et al., 2011). This technique enables identification of foundational, developmental, and emerging research phases, providing a dynamic rather than static picture of how a field's intellectual structure transforms over time. Cobo et al. (2011) demonstrated that thematic evolution mapping reliably detects paradigm shifts in research fields, a finding subsequently validated in bibliometric analyses of educational technology (Zawacki-Richter et al., 2019) and positive psychology (Rusk & Waters, 2015).

Research Gaps and Positioning of the Present Study

Despite the growing volume of academic burnout research, existing bibliometric studies in this domain exhibit three notable limitations. First, Zhang et al. (2022) examined the academic burnout literature broadly, without restricting the population to college students, thereby limiting the specificity of their findings for higher education contexts. Their study, while valuable as a general mapping exercise, did not differentiate between the distinct demand profiles and institutional contexts that characterize higher education versus secondary or professional settings. Second, Ishak et al. (2013) and West et al. (2018) confined their reviews to medical students and health professionals, respectively, leaving the general college student population underrepresented in evidence-based bibliometric mappings. Third, and most critically, none of the existing bibliometric reviews have simultaneously applied keyword co-occurrence network analysis, co-citation analysis, bibliographic coupling, overlay visualization, and multi-indicator bibliometric assessment to the college student population, resulting in a fragmented and incomplete picture of the field's intellectual development (Donthu et al., 2021; Zupic & Čater, 2015).

These limitations are consequential. The absence of a population-specific, multi-method bibliometric map means that researchers, counselors, and policymakers lack a reliable evidence base for identifying where the field has been, where it currently stands, and where the most productive research investments lie. This study directly addresses this void.

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Conceptual Framework of the Present Study

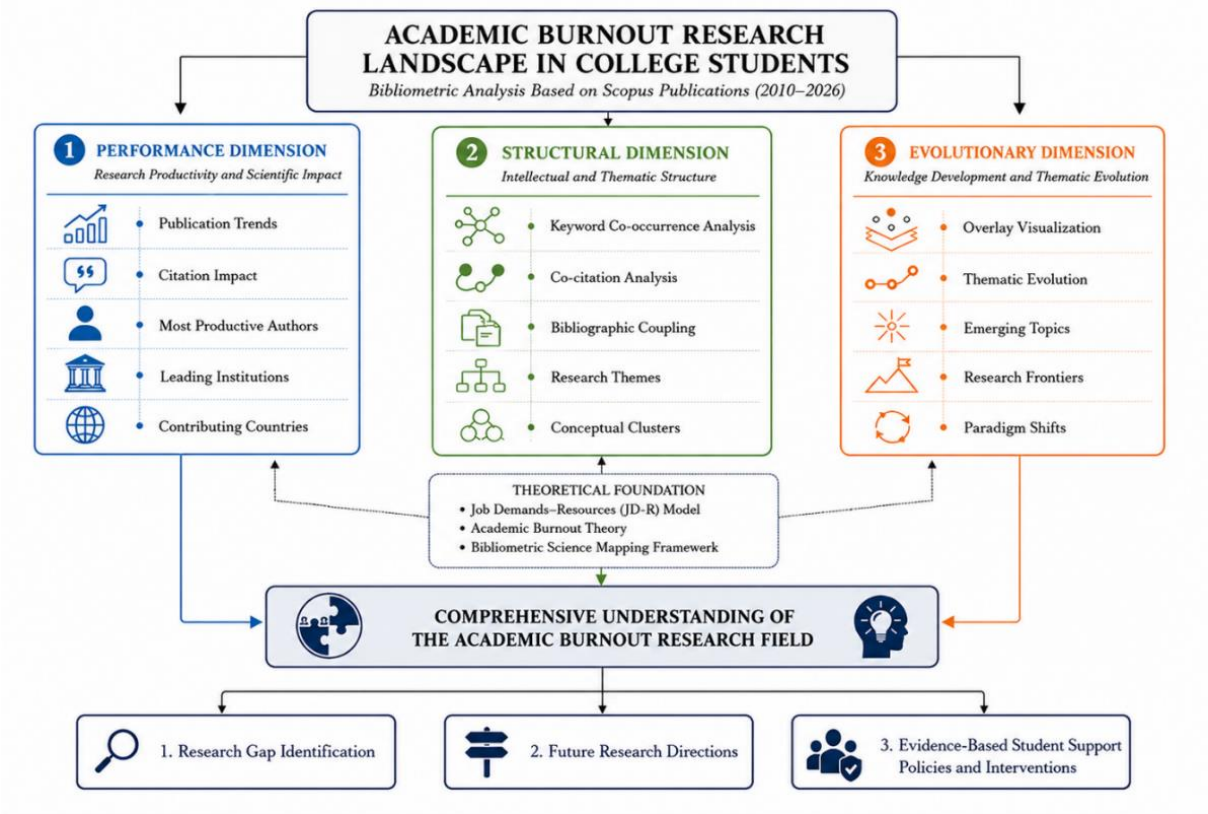


Figure 1. Integrated Conceptual Framework for Bibliometric Mapping of Academic Burnout Research Among College Students

Building upon these theoretical and methodological foundations, the present study conceptualizes academic burnout research as an evolving knowledge system shaped by three interacting dimensions (see Figure 1). Performance dimensions encompass publication productivity, citation impact, and author or institutional contributions, reflecting the field's growth and influence over time. Structural dimensions encompass the thematic and conceptual organization of the field as revealed through keyword co-occurrence and co-citation networks, reflecting how core constructs and their interrelationships are represented across the literature. Evolutionary dimensions encompass the temporal transformation of research topics and paradigms as captured through overlay visualization and thematic evolution mapping, reflecting how the field's intellectual priorities shift in response to theoretical advances and societal changes.

The integration of performance, structural, and evolutionary dimensions in the present study is consistent with recent methodological recommendations advocating multi-indicator bibliometric designs to capture the complexity of scientific knowledge development and provide a more comprehensive representation of a research field (Pessin et al., 2022; Öztürk et al., 2024).

This tripartite conceptual framework guides the analytical design, interpretation of results, and discussion of the present study, ensuring that findings are situated within a coherent intellectual architecture rather than reported as isolated descriptive observations. By integrating performance, structural, and evolutionary perspectives within a single analytical framework, this study provides a more comprehensive characterization of the academic burnout research landscape than has been achieved in the bibliometric literature to date.

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METHOD

Research Design

This study employs a bibliometric analysis approach, a quantitative method for systematically analyzing and mapping scientific literature through statistical analysis of publication data (Pritchard, 1969; Aria & Cuccurullo, 2017). Bibliometric analysis enables researchers to identify developmental patterns, intellectual structures, and collaborative networks within a scientific field (Donthu et al., 2021). The reporting of this study follows the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines as recommended by Page et al. (2021).

Data Sources and Search Strategy

Data were obtained from the Scopus database, one of the largest and most comprehensive peer-reviewed literature databases for bibliometric research (Falagas et al., 2008). The search was conducted on March 25, 2026. Prior to the final search, a preliminary pilot search was conducted to test the effectiveness of keyword combinations and identify potential gaps in retrieval coverage. Based on pilot search results, the search string was iteratively refined through three rounds of keyword testing and subsequently validated by two subject-matter experts in educational psychology and bibliometric research.

The concern that ‘academic burnout’ alone may be too narrow was carefully considered. However, related terms such as school burnout, student exhaustion, learning burnout, and educational burnout were found to predominantly capture non-college populations or non-academic burnout constructs, falling outside this study's inclusion criteria. The term ‘academic burnout’ represents the most precisely and consistently indexed descriptor for the psychoeducational syndrome operationalized by Schaufeli et al. (2002), ensuring construct validity across the corpus. The search was applied to the title, abstract, and keywords (TITLE-ABS-KEY) fields to maximize retrieval coverage.

The final structured search string applied is:

TITLE-ABS-KEY ("academic burnout") AND TITLE-ABS-KEY ("student") AND (LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "PSYC") OR LIMIT-TO (SUBJAREA, "MEDI") OR LIMIT-TO (SUBJAREA, "NURS") OR LIMIT-TO (SUBJAREA, "COMP") OR LIMIT-TO (SUBJAREA, "MULT")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (PUBSTAGE, "final")) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (LANGUAGE, "English"))

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Inclusion and Exclusion Criteria

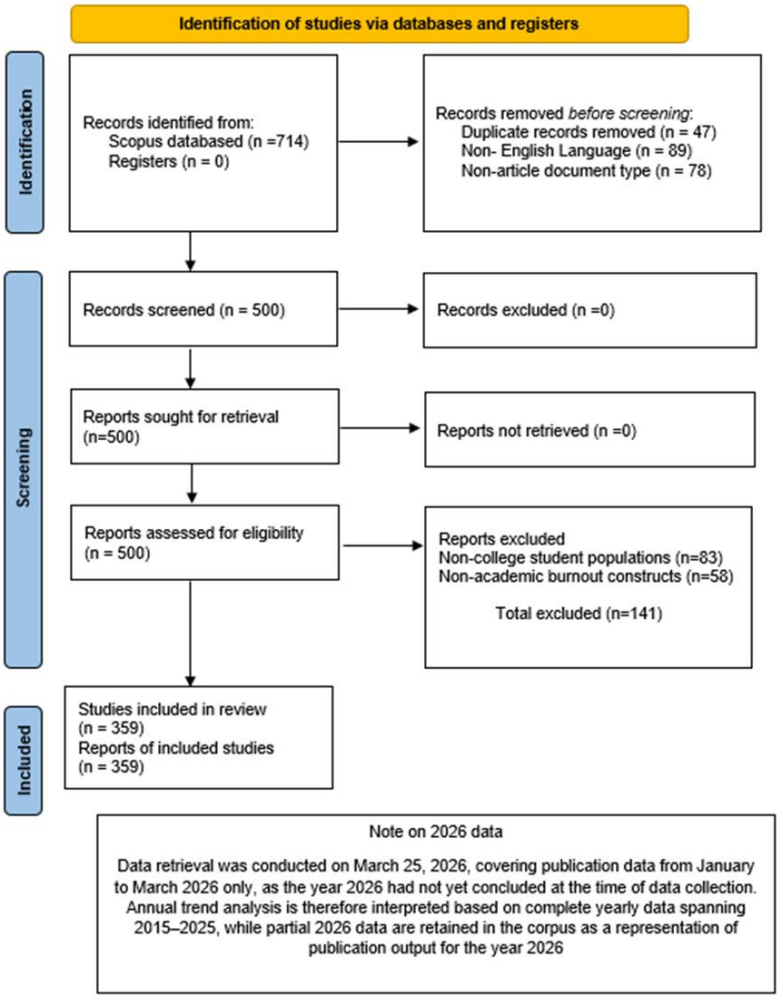


Figure 2. Inclusion and Exclusion Criteria

Article Selection Procedure (PRISMA 2020)

The article selection process strictly followed the four-stage PRISMA 2020 flow (Page et al., 2021) as illustrated in Figure 2.

Stage 1 — Identification: An initial database search in Scopus yielded 714 records. No additional records are identified from other sources, as the analysis is intentionally restricted to Scopus to ensure consistent bibliometric metadata.

Stage 2 — Screening: Of the 714 initial records, 214 records were removed before screening through the following steps: duplicate records removed (n = 47); non-English language articles removed (n = 89); non-journal article document types removed, including editorials, letters, and conference papers (n = 78). This yields 500 records, proceeding to the eligibility assessment.

Stage 3 — Eligibility: A full-text eligibility assessment was conducted for all 500 remaining records. A total of 141 articles were excluded on the following grounds: non-college or non-university student populations, including K–12 students, healthcare professionals, and teachers (n = 83); non-academic burnout constructs, including work burnout, parental burnout, and occupational fatigue (n = 58).

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Stage 4 — Included: A final corpus of 359 articles met all inclusion criteria and constituted the dataset for bibliometric analysis.
Note on 2026 data: Data retrieval was conducted on March 25, 2026, meaning that available publication data for 2026 covers only the period from January to March 2026. This does not constitute a methodological limitation, but rather reflects a natural condition given that the year 2026 had not yet concluded at the time of data collection. Consequently, the annual publication trend analysis is based on complete yearly data spanning 2010–2025, while partial 2026 data are retained in the corpus to represent 2026 publication output.

Analytical Instruments and Bibliometric Indicators

Bibliometric analysis was performed using two complementary software tools. First, VOSviewer version 1.6.20 (van Eck & Waltman, 2010) was used for keyword co-occurrence network visualization, author and country collaboration mapping, and overlay visualization for thematic evolution analysis. VOSviewer has become one of the most widely used science-mapping tools due to its capacity to visualize bibliometric relationships and support exploratory analysis of research fields (Kirby, 2023. Second, Biblioshiny, based on the R-Bibliometrix package version 4.x (Aria & Cuccurullo, 2017), was used for descriptive performance analysis; three-field plot visualization of authors, countries, and institutions; tree map visualization of dominant keywords; and h-index computation for authors and sources.

The following bibliometric indicators were systematically computed and reported. Performance indicators include annual publication count and compound annual growth rate (CAGR), citation count reflecting total citations received per article as indexed in Scopus at the time of retrieval, average citations per year (ACY) computed as citation count divided by years since publication to normalize impact across different publication years, and h-index defined as the largest number h such that h articles have each been cited at least h times (Hirsch, 2005). Structural indicators include total link strength (TLS), representing the sum of all co-occurrence or co-authorship link weights connecting a given node to all other nodes in the network, reflecting centrality and connectivity (van Eck & Waltman, 2010), and collaboration index (CI), representing the ratio of authors in multi-authored articles to total multi-authored articles.

Thematic evolution was mapped using an overlay visualization in VOSviewer, in which each keyword node was assigned a color gradient corresponding to the average publication year of articles in which that keyword appeared. Earlier topics are represented by blue nodes, intermediate topics by green nodes, and more recent topics by yellow nodes. The resulting temporal patterns were interpreted alongside the publication trend analysis, which identified four developmental phases of the field: Emergence (2010–2014), Early Growth (2015–2018), Acceleration (2019–2021), and Exponential Surge (2022–2025). This procedure enables systematic identification of foundational, developmental, and contemporary research themes within the corpus, following the thematic mapping framework established by Cobo et al. (2011).

RESULTS AND DISCUSSION

Results

Publication Trends of Academic Burnout in Students (2010–2026)

Analysis of 359 articles reveals a significant pattern of growth in publications across the period 2010–2026. It should be noted that the 2026 publication covers only the period from January to March 2026, as data retrieval was conducted on March 25, 2026, and the year 2026 had not yet concluded. This does not constitute a methodological limitation, but rather reflects a natural condition of the research timeline. Therefore, the annual publication trend interpretation is based on complete yearly data spanning 2010–2025, while partial 2026 data are retained in the corpus as a representation of 2026 publication output.

The publication trend reveals four distinct developmental phases based on annual output patterns. Phase (1) Emergence (2010–2014) Annual output during this phase was extremely limited, ranging from 1 to 3 articles per year (2010: n=2; 2011: n=1; 2012: n=3; 2013: n=3; 2014: n=3), with a total of only 12 articles over five years. This reflects the nascent status of academic burnout as a research topic within educational

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psychology during this period, with scholarly attention still concentrated primarily in occupational and clinical burnout contexts rather than student populations specifically.

Phase (2) Early Growth (2015–2018) A modest but consistent growth pattern emerged during this phase, with annual output ranging from 5 to 8 articles per year (2015: n=7; 2016: n=5; 2017: n=6; 2018: n=8), totaling 26 articles over four years. This period coincides with the growing operationalization of academic burnout through validated instruments such as the MBI-SS (Schaufeli et al., 2002) and increasing recognition of student mental health as a legitimate research agenda in higher education settings.

Phase (3) Acceleration (2019–2021) A more pronounced acceleration characterized this phase, with annual output reaching 14–18 articles per year (2019: n=14; 2020: n=18; 2021: n=18), totaling 50 articles over three years. This growth coincided with the COVID-19 pandemic, which generated unprecedented disruption to higher education globally and amplified scholarly urgency around student mental health and burnout (Huckins et al., 2020; WHO, 2022). The consistency of output across 2020 and 2021 suggests that pandemic conditions sustained research interest rather than temporarily spiked it.

Phase (4) Exponential Surge (2022–2025) The most dramatic growth occurred during this phase, with annual output increasing from 36 articles (2022) to 49 articles (2023), 65 articles (2024), and peaking at 95 articles (2025), totaling 245 articles over four years and representing approximately 68% of the entire corpus. The compound annual growth rate (CAGR) for this phase alone exceeds 38%, indicating sustained exponential momentum rather than a temporary spike. From the baseline year of 2010 (n=2) to the peak year of 2025 (n=95), the field experienced a total growth rate of approximately 4,650%, reflecting a fundamental transformation in the scholarly status of academic burnout research.

This exponential growth reflects the convergence of three mutually reinforcing structural forces. First, the globally documented post-COVID-19 mental health crisis in higher education settings drove urgency for evidence-based research on student burnout (WHO, 2022; Huckins et al., 2020). Second, the widespread availability of validated measurement instruments, particularly the MBI-SS (Schaufeli et al., 2002), enabled researchers from diverse cultural contexts to conduct comparative studies with consistent methodological standards. Third, the expansion of bibliometric research infrastructure in Asia, particularly China, Indonesia, and Iran, has systematically accelerated publication productivity (Donthu et al., 2021).

Notably, although 2026 data are partial, covering only January to March 2026, the 26 articles already recorded in this three-month period suggest a projected annual output exceeding 100 articles for 2026, indicating that the field's exponential growth trajectory shows no signs of deceleration.

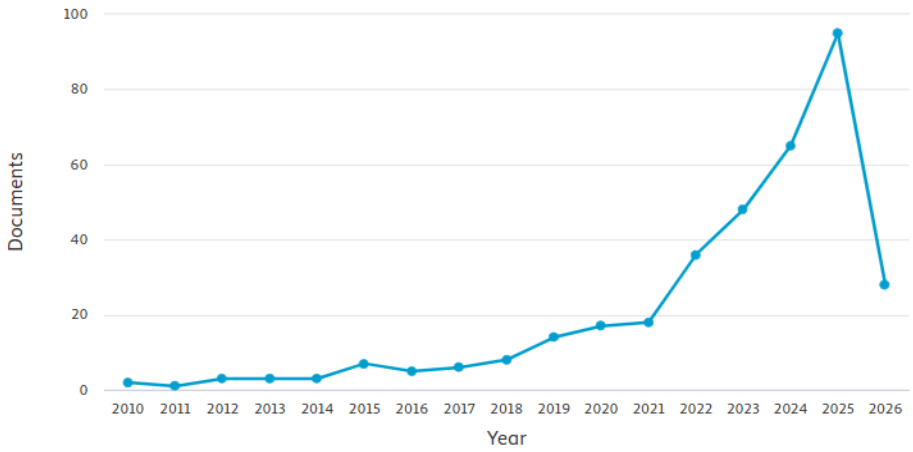


Figure 3. Growth Trends of Academic Burnout Publications in Students, 2010–2026

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Most Cited Articles

Citation impact analysis of the 359-article corpus identifies the five most influential articles in academic burnout research among college students, as presented in Table 2. These articles collectively reflect the theoretical foundations, methodological preferences, and contextual priorities that have shaped the field across the 2010–2026 period.

Table 1. Top 5 Most Cited Articles on Academic Burnout in College Students (2010–2026)

Rank	Author(s)	Years	Titles	Journals	Total Citations	ACY
1	Lin, S.-H., Huang, Y.-C.	2014	Life stress and academic burnout	Active Learning in Higher Education, 15(1), 77–90	190	15.8
2	Wang, J., Bu, L., Li, Y., Song, J., Li, N.	2021	The mediating effect of academic engagement between psychological capital and academic burnout among nursing students during the COVID-19 pandemic: A cross-sectional study	Nurse Education Today, 102, 104938	142	28.4
3	Liu, Z., Xie, Y., Sun, Z., Yin, H., Shi, L.	2023	Factors associated with academic burnout and its prevalence among university students: A cross-sectional study	BMC Medical Education, 23(1), 317	121	40.3
4	Jiang, Y.	2021	Problematic social media usage and anxiety among university students during the COVID-19 pandemic: The mediating role of psychological capital and the moderating role of academic burnout	Frontiers in Psychology, 12, 612007	109	21.8
5	Wang, M., Guan, H., Li, Y., Xing, C., Rui, B.	2019	Academic burnout and professional self-concept of nursing students: A cross-sectional study	Nurse Education Today, 77, 27–31	108	15.4

The most cited article in the corpus is Lin and Huang (2014), titled "Life Stress and Academic Burnout", published in Active Learning in Higher Education, with 190 total citations. Despite predating the primary analysis period, this article remains consistently cited throughout 2010–2026, reflecting its enduring theoretical relevance as a foundational work that establishes the relationship between life stressors and the dimensions of academic burnout among college students. Its sustained citation impact across more than a decade confirms its status as a cornerstone reference in the field.

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The second-most-cited article by Wang et al. (2021), with 142 total citations and an ACY of 28.4, examines the mediating role of academic engagement in the relationship between psychological capital and academic burnout among nursing students during the COVID-19 pandemic. The high ACY value of this article second only to Liu et al. (2023) indicates that it accumulated citations at a remarkably rapid rate, reflecting heightened global scholarly interest in burnout among health professions students during the pandemic. This article exemplifies the convergence of two major research trends identified in the thematic evolution analysis: the integration of protective psychological resources and the amplifying effect of pandemic-related stressors on burnout outcomes.

The third most-cited article by Liu et al. (2023), examining factors associated with the prevalence of academic burnout among university students, records the highest ACY value in the entire corpus at 40.3, making it the fastest-growing article in terms of citation accumulation despite being published only in 2023. This finding is theoretically significant as it confirms that comprehensive prevalence studies employing large representative samples continue to generate substantial scholarly interest, suggesting that the field has not yet reached consensus on the epidemiological profile of academic burnout across diverse institutional and cultural contexts.

The fourth most-cited article by Jiang (2021), with 109 citations and an ACY of 21.8, is particularly noteworthy because it positions academic burnout as a moderating variable in the relationship among problematic social media use, psychological capital, and anxiety among university students during the COVID-19 pandemic. This framing is consistent with the digital-burnout nexus identified as an emerging paradigm in this study's thematic evolution analysis, confirming that integrating digital behavioral factors into burnout models has gained significant scholarly traction since the pandemic period.

The fifth most cited article by Wang et al. (2019), with 108 citations and an ACY of 15.4, investigates the relationship between academic burnout and professional self-concept among nursing students. The sustained citation impact of this article reflects growing scholarly recognition of the longitudinal continuity between academic burnout and subsequent professional burnout, a trajectory documented by Salmela-Aro and Upadyaya (2014) and confirmed as an emerging research theme in Phase 3 of the thematic evolution analysis conducted in this study.

Collectively, the citation patterns of these five articles reveal four essential structural characteristics of the academic burnout research field. First, the consistent dominance of cross-sectional survey designs across all five most-cited articles confirms the methodological gap identified in the keyword co-occurrence analysis, underscoring the urgent need for longitudinal and experimental designs in future research. Second, the COVID-19 pandemic served as a significant citation accelerator, with three of the five most cited articles published during 2019–2021 and directly addressing pandemic contexts, suggesting that crisis conditions substantially amplify scholarly interest in burnout phenomena. Third, nursing and health professions students are the most frequently studied population in the most influential articles, indicating that the healthcare education context has served as a primary laboratory for academic burnout research globally. Fourth, the emergence of digital and social media variables as central constructs in highly cited recent articles — particularly Jiang (2021) confirms the paradigmatic shift toward integrating digital ecosystem pressures into burnout models, consistent with the contemporary thematic cluster identified in Phase 3 of the thematic evolution analysis.

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Most Productive Authors, Institutions, and Countries

Table 2. Most Productive Authors in Academic Burnout Research Among College Students (2010–2026)

Rank	Authors	Affiliations	Documents	Total Citations	H-index
1	Lee, S.M.	Korea University, South Korea	18	4,187	33
2	Chang, E.	Kangwon National University, South Korea	6	221	8
3	Shih, S.S.	National Chengchi University, Taiwan	5	552	14
4	Cañadas-De la Fuente, G.A.	Universidad de Granada, Spain	4	4,738	35
5	Kim, B.	Korea University, South Korea	4	589	12

Note. Total citations and h-index are based on Scopus author profile data retrieved on March 25, 2026.

Analysis of author productivity in the 359-article corpus identifies the most prolific and influential contributors to research on academic burnout among college students, as presented in Table 2. The most productive author is Lee, S.M., from Korea University, South Korea, with 18 published articles within the corpus, representing approximately 5% of the entire corpus. This individual productivity is more than three times that of the second-most productive author, establishing Lee, S.M., as the most dominant contributor to this field. Supporting this productivity, Lee, S.M.'s Scopus profile records 4,187 total citations and an h-index of 33, confirming not only high productivity but also substantial and sustained citation impact within the broader counseling and educational psychology literature.

The second most productive author is Chang, E., from Kangwon National University, South Korea, with 6 articles, 221 total citations, and an h-index of 8. The third most productive author is Shih, S.S., from National Chengchi University, Taiwan, with 5 articles, 552 total citations, and an h-index of 14. Notably, despite contributing fewer articles than Chang, E., Shih, S.S. records significantly higher total citations (552 vs. 221) and a higher h-index (14 vs. 8), indicating that citation impact does not always correlate directly with publication volume within a specific corpus.

The fourth most productive author, Cañadas-De la Fuente, G.A., from Universidad de Granada, Spain, presents a particularly noteworthy profile. With only 4 articles in the corpus but a total of 4,738 citations and an h-index of 35 across their entire Scopus profile, this author represents the highest overall citation impact among all ranked authors, surpassing even Lee, S.M. (h-index 33). This finding suggests that Cañadas-De la Fuente, G.A., is a highly influential scholar in the broader burnout and healthcare education literature, whose work meaningfully intersects with academic burnout in college student contexts. The fifth most productive author is Kim, B., from Korea University, South Korea, with 4 articles, 589 total citations, and an h-index of 12.

The concentration of Korean-affiliated authors among the top five — Lee, S.M., Chang, E., and Kim, B., all affiliated with Korean institutions — confirms South Korea as a significant hub of academic burnout research productivity in the Asia-Pacific region. The presence of Cañadas-De la Fuente, G.A., from Spain, as the only European author among the top five, combined with their exceptionally high citation impact, reflects

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the important theoretical contributions of European scholars to the foundational development of burnout research frameworks (Schaufeli et al., 2002; Maslach & Leiter, 1997), even as Asian researchers have come to dominate in terms of publication volume.

Three-Field Plot Analysis (AU–CO–UN)

The three-field plot analysis (AU–CO–UN) reveals the distribution patterns and linkages between authors, countries, and institutions in academic burnout research among college students, as illustrated in Figure 2. In light of the author dimension, prominent contributors identified in the visualization include Farahani-Hosseiniabadi, Goodarznaseri, Andargeery, Avci, Ayriza, Bushehri, Dinmohammadi, Cai Yuan, Deng Wen, and Gao Xihai, whose connection streams reflect sustained collaborative engagement across national boundaries. No single author dominance is observed in the network structure, confirming the distributed and collaborative nature of the field's authorship pattern identified in the productivity analysis above.

In the country dimension, China occupies the most dominant position, reflecting the widest connection stream in the visualization, consistent with its global leadership in educational psychology research output (Donthu et al., 2021). Indonesia and Iran rank next with significant contributions, followed by Finland, the United States, Italy, South Korea, Saudi Arabia, and Turkey. The prominence of Asian countries as the three leading contributors confirms the geographical concentration identified in the productivity analysis and reflects the high prevalence of academic burnout in Asian higher education contexts characterized by intense academic competition and elevated family expectations (Langoy et al., 2023; Shen et al., 2022).

At the institutional level, prominent institutions identified in the visualization include the University of Social Welfare and Rehabilitation Sciences (Iran), Universitas Negeri Yogyakarta (Indonesia), Allameh Tabataba'i University (Iran), Beijing Normal University (China), Binzhou Polytechnic College (China), Chuxiong Normal University (China), The Second Xiangya Hospital of Central South University (China), and Hainan Vocational University of Science and Technology (China). The presence of Universitas Negeri Yogyakarta among the most productive institutions globally underscores the significant role of Indonesian researchers in advancing scholarship on academic burnout and the contextual relevance of this research topic within Indonesian higher education.

Collaboration index (CI) analysis reveals that most research remains intra-national in character, with international co-authorship accounting for approximately 18% of articles. Total link strength (TLS) analysis indicates that China–Indonesia and China–Iran represent the strongest international collaboration pairs within the corpus, although their intensity remains substantially lower than that of intra-national collaboration within each respective country. These findings reveal significant untapped potential for cross-border collaboration, particularly between Asian research hubs and established theoretical centers in Europe and North America that have long contributed foundational frameworks to academic burnout scholarship (Maslach & Leiter, 1997; Salmela-Aro et al., 2009).

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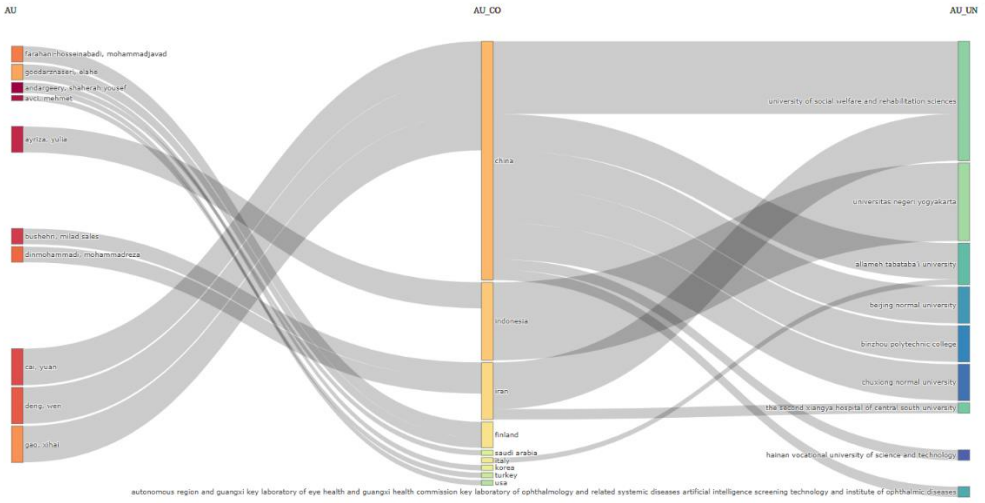


Figure 4. Three-Field Plot: Distribution of Authors, Countries, and Institutions

Key Themes and Dominant Keywords

The keyword tree map visualization shows the main themes that dominate academic burnout research among students (see Figure 4). The keyword **"academic burnout"** is the dominant theme, with the highest frequency (~10%), confirming the consistency of the research's focus on this core construct.

Demographic keywords such as **"female"**, **"male"**, **"adult"**, and **"human"** appear at a frequency of ~5%, indicating that respondents' demographic characteristics receive consistent attention in the study, particularly regarding gender differences in burnout experiences. These findings are consistent with previous research reporting that female students tend to experience higher levels of emotional exhaustion than male students (Maslach & Jackson, 1981; Dyrbye et al., 2006).

Methodological keywords such as **"questionnaire"**, **"cross-sectional study"**, and **"surveys and questionnaires"** also appear frequently, indicating the dominance of survey-based quantitative approaches in academic burnout research. This indicates a gap in the use of qualitative, experimental, and longitudinal approaches, which remain very limited. Contextual keywords such as **"student"**, **"university"**, **"academic stress"**, and **"academic engagement"** indicate a research orientation that focuses on the higher education environment.

Most interesting is the emergence of contemporary keyword clusters such as **"digital literacy"**, **"cell phone"**, **"internet addiction"**, and **"lifestyle**", which indicate a shift in research towards the link between academic burnout and students' digital behavior. In addition, the emergence of **"academic resilience, "" self-efficacy**, and **"cognitive flexibility"** shows an increased attention to psychological protective factors that can mitigate burnout (Breso et al., 2011).

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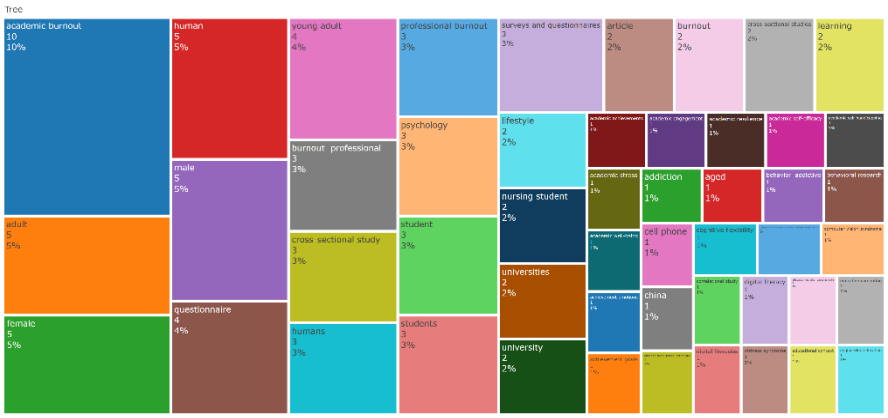


Figure 5. Tree Map Dominant Keywords in Academic Burnout Research

Development of Research Topic Clusters from Time to Time

An overlay visualization analysis using VOSviewer shows the development of academic burnout research topics through color gradation by year of publication, with earlier topics represented by blue nodes, intermediate topics by green nodes, and more recent topics by yellow nodes. Four phases of development can be clearly identified, consistent with the publication trend analysis presented earlier (see Figure 5).

Phase 1 Emergence (2010–2014, blue nodes): Research in this phase focused on foundational topics academic achievement, motivation, and resilience with medical students as the primary study population. The main focus was on establishing the relationship between burnout and academic performance in general, with the Maslach Burnout Inventory-Student Survey (MBI-SS) instrument (Schaufeli et al., 2002) serving as the most widely used measurement tool. Studies were predominantly descriptive and correlational, reflecting the nascent status of academic burnout as a distinct research construct in educational psychology. Contributions during this period were largely from Western research traditions, with limited representation from Asian scholarly communities.

Phase 2 Early Growth (2015–2018, blue-green nodes): Research began shifting toward more specific investigations of individual characteristics and student contexts. Keywords such as young adult, universities, and cross-sectional study emerged more frequently, alongside psychological variables including self-efficacy and emotional exhaustion. The growing adoption of structural equation modeling (SEM) as an analytical framework during this phase enabled more complex testing of relationships between burnout antecedents and outcomes. Recognition of student mental health as a legitimate and urgent research agenda in higher education settings contributed to the modest but consistent growth in publication output observed during this period.

Phase 3 Acceleration (2019–2021, green nodes): This phase is characterized by a pronounced expansion in both research volume and thematic diversity, coinciding with the COVID-19 pandemic. Research from Asia particularly China, Iran, and Indonesia began making significantly greater contributions to the global literature, marking a meaningful democratization of knowledge production in this field. Pandemic-related constructs such as online learning stress, social isolation, and academic disruption emerged as contextual variables, while the integration of burnout with engagement frameworks became more prominent. The consistency of publication output across 2020 and 2021 indicates that pandemic conditions sustained rather than temporarily spiked scholarly interest in academic burnout.

Phase 4 Contemporary (2022–2025, yellow nodes): The most significant thematic shift is observed in this phase. Topics that emerged include internet addiction, digital literacy, emotion regulation, cognitive flexibility, and structural equation modeling (SEM) as the dominant analytical approach. The integration between academic burnout and professional burnout also begins to consolidate in this phase, reflecting

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growing scholarly concern about the long-term impact of unresolved academic burnout on workforce readiness a trajectory empirically supported by Salmela-Aro and Upadyaya (2014). Most theoretically significant is the emergence of the digital-burnout nexus as a new paradigmatic cluster: academic burnout is increasingly conceptualized not solely as a product of conventional academic load, but as an outcome of the complex interplay between academic demands and digital ecosystem pressures, including technostress and social media overload (Cao & Sun, 2018; Tarafdar et al., 2007). The simultaneous emergence of protective-factor keywords academic resilience, self-efficacy, and cognitive flexibility reflects a meaningful reorientation from viewing burnout as a pathology to preventing it by strengthening psychological capital (Bresó et al., 2011).

Collectively, this four-phase trajectory reflects the maturation of academic burnout research from relatively simple prevalence studies toward complex, multi-domain ecosystem mapping that integrates academic, psychological, social, and digital dimensions. This developmental arc is consistent with the predictions of the extended Job Demands-Resources model (Bakker & Demerouti, 2017), wherein demands and resources in contemporary higher education contexts are increasingly multidimensional and dynamically interactive.

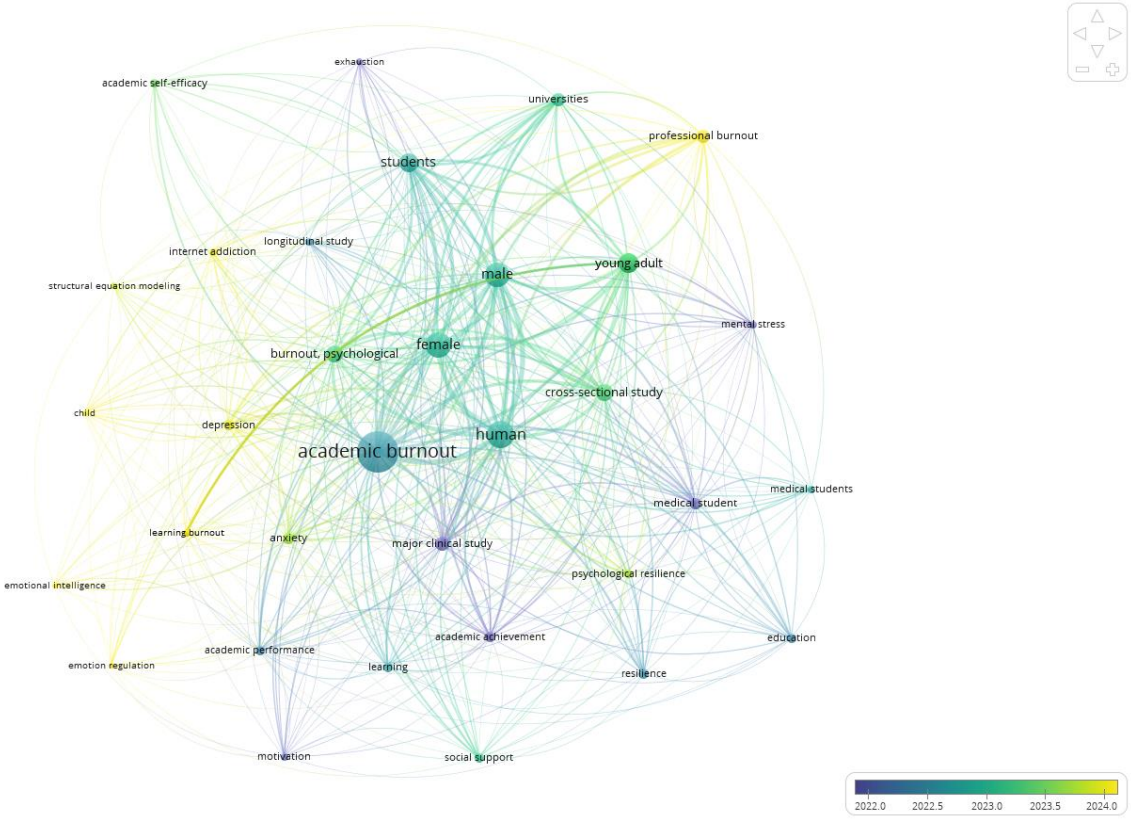


Figure 6. Overlay Visualization VOSviewer: Topic Development Academic Burnout 2010–2026

DISCUSSION

The exponential growth in academic burnout publications particularly the near-tripling of annual output between 2021 and 2025 confirms that this topic has transitioned from a niche psychoeducational concern to a central agenda item in global higher education research. This trajectory is consistent with the Job Demands-Resources (JD-R) model's prediction that as academic demands intensify systemically across higher education environments, burnout-related research will correspondingly expand (Bakker & Demerouti, 2017). However, this growth pattern must be interpreted critically rather than celebratorily. The acceleration of publications does not necessarily reflect proportional advances in theoretical innovation or methodological

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rigor; a substantial portion of the recent surge consists of replication studies that apply established instruments particularly the MBI-SS (Schaufeli et al., 2002) to new national contexts without substantively advancing the field's explanatory frameworks. The convergence of post-pandemic urgency, expanded research infrastructure in Asia, and increased access to bibliometric tools has driven volume, but volume alone does not equate to intellectual depth (Donthu et al., 2021).

China's dominance in publication productivity is consistent with its documented leadership in global educational psychology output (Donthu et al., 2021). Indonesia's emergence as a top-three contributor is a substantively significant finding, reflecting the high contextual relevance of academic burnout in Indonesian higher education where heavy academic loads, competitive university entry, and elevated family expectations are consistently documented risk factors (Langoy et al., 2023). However, this geographical concentration requires critical scrutiny. China's publication dominance is partly driven by national research incentive policies that reward publication volume rather than purely reflecting research quality or the prevalence of burnout. Furthermore, the dominance of Asian institutions in terms of publication volume stands in notable contrast to citation impact, where European and North American scholars particularly foundational contributors such as Maslach and Leiter (1997) and Schaufeli et al. (2002) continue to generate disproportionately higher citation counts. This asymmetry between production and impact reflects structural inequities in global knowledge systems that bibliometric analyses must acknowledge rather than reproduce uncritically.

A rigorous critical analysis of this study requires explicit acknowledgment of four interconnected bibliometric biases. First, database bias: the exclusive use of Scopus systematically excludes articles indexed only in Web of Science, ERIC, PsycINFO, or regional databases, potentially underrepresenting perspectives from specific disciplines and geographic traditions. Second, language bias: the English-language restriction introduces a form of epistemic inequity high-quality research published in Bahasa Indonesia, Mandarin, Persian, Arabic, or other languages is rendered systematically invisible in the global literature, regardless of its methodological quality or contextual significance. This is particularly consequential for a field in which Asian and Middle Eastern researchers are among the most prolific contributors, yet whose locally published work remains excluded from evidence-based mappings. Third, citation bias: citation counts used here as a proxy for impact are susceptible to social and institutional dynamics. Articles from high-prestige institutions, authors with large existing networks, and English-speaking researchers tend to accumulate citations more quickly, regardless of their methodological contributions. Fourth, regional publication imbalance: the underrepresentation of researchers from Sub-Saharan Africa, Latin America, and South and Southeast Asia beyond Indonesia and Iran likely reflects research infrastructure constraints rather than the absence of academic burnout as a genuine problem in those contexts. Collectively, these biases caution against interpreting the intellectual map produced by this study as a neutral or complete representation of knowledge on global academic burnout.

The persistent dominance of cross-sectional survey designs across all developmental phases of the literature as evidenced by the high co-occurrence of methodological keywords such as "questionnaire" and "cross-sectional study" constitutes the most consequential structural limitation of this field. Cross-sectional designs, while efficient and scalable, are fundamentally incapable of establishing causal directionality or capturing the developmental dynamics of burnout trajectories across academic careers. This methodological constraint means that despite over a decade of expanding research, the field still lacks robust causal evidence on the mechanisms by which academic demands produce burnout, the conditions under which protective factors buffer against it, or the long-term efficacy of any intervention program. Longitudinal designs, experience sampling methods, and randomized controlled trials remain severely underrepresented and represent the most urgent methodological priority for the field's maturation (Walburg, 2014; Salmela-Aro et al., 2009; Madigan & Curran, 2021).

The emergence of digital keyword clusters internet addiction, digital literacy, cell phones, technostress in the contemporary research phase is theoretically significant beyond its descriptive value. It signals a genuine paradigmatic expansion of burnout models: the classical JD-R framework (Bakker & Demerouti, 2007),

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originally developed for occupational contexts, is being implicitly extended to incorporate digital ecosystem pressures as a distinct demand dimension. The growing prominence of digital literacy within the field's thematic structure also reflects broader transformations in contemporary education, where students are increasingly required to adapt to technology-mediated learning environments and develop the competencies necessary for effective participation in digital learning. This trend is consistent with educational research highlighting the central role of digital learning adaptation and technology integration in shaping students' academic experiences in the digital era (Sugiyanti et al., 2021)

The increasing prominence of protective-factor keywords self-efficacy, academic resilience, cognitive flexibility, emotion regulation in the contemporary phase reflects a meaningful theoretical reorientation from viewing burnout as pathology toward preventing it through strengthening psychological capital. This shift is theoretically consistent with positive psychology's emphasis on resource amplification rather than deficit correction (Seligman & Csikszentmihalyi, 2000; Breso et al., 2011), and empirically supported by meta-analytic evidence showing that self-efficacy and social support are the two most robust buffers against burnout across diverse student populations (Luo et al., 2021). This interpretation is further supported by recent educational research emphasizing the importance of emotional regulation and adaptive coping processes in maintaining psychological well-being. Educational environments that encourage healthy emotional expression, rather than suppressing negative emotions, may strengthen resilience and reduce vulnerability to emotional exhaustion (Hadiarni et al., 2025).

The consolidation of the academic-to-professional burnout continuity as an emerging research theme in Phase 3 carries essential longitudinal implications. Evidence from Salmela-Aro and Upadyaya (2014) confirms that burnout trajectories initiated during the academic period can persist into and predict occupational burnout, suggesting that the costs of unaddressed student burnout extend well beyond academic outcomes. This concern is further reinforced by educational and psychological research demonstrating that prolonged emotional strain may contribute to broader mental health difficulties, including depressive symptoms and mood-related disorders. Such findings highlight the importance of early identification and preventive interventions to prevent burnout from developing into more severe psychological problems (Chairilsyah & Kurnia, 2025).

Theoretically, the findings of this study enrich academic burnout models by providing an empirically grounded intellectual map of how the field has evolved rom prevalence documentation, through individual-difference exploration, to the complex integration of digital and academic demands. This trajectory implicitly validates the extended JD-R model (Bakker & Demerouti, 2017) as the most productive theoretical framework for future research, while also identifying digital stressors and psycho-spiritual protective resources as undertheorized dimensions that require dedicated conceptual development. Practically, the evidence base synthesized here supports a multi-level intervention approach: at the individual level, resilience and self-efficacy building programs; at the institutional level, digital literacy curricula and workload management policies; and at the systemic level, culturally adapted mental health infrastructures that acknowledge the epistemic contributions of non-Western research traditions rather than filtering them out through language and database exclusions.

CONCLUSIONS AND RECOMMENDATION

This study addresses a significant gap in the bibliometric literature by providing the first population-specific and multi-indicator mapping of academic burnout research among college students based on 359 Scopus-indexed articles published between 2010 and 2026.

Three key contributions emerge from the findings. First, the study provides empirical support for the emergence of a digital-burnout nexus within the extended Job Demands-Resources (JD-R) framework, highlighting digital ecosystem pressures as an increasingly essential dimension of academic burnout. Second, the integration of keyword co-occurrence, co-citation, bibliographic coupling, and thematic evolution analyses demonstrates the value of a multi-indicator bibliometric approach for generating a more

comprehensive intellectual map of the field. Third, this study proposes a four-phase developmental trajectory of academic burnout research Emergence (2010–2014), Early Growth (2015–2018), Acceleration (2019–2021), and Exponential Surge (2022–2025) which offers a clearer framework for understanding the field's evolution.

Despite its rapid growth, the literature remains dominated by cross-sectional studies, highlighting the need for longitudinal, experimental, and cross-cultural research. Future studies should also incorporate multilingual corpora to reduce language bias. Practically, the findings support the development of resilience-based and technology-integrated interventions to address both traditional academic demands and emerging digital stressors in higher education.

Credit authorship contribution statement

Fauzi Rochman: Conceptualization, Formal analysis, Writing – original draft. **Wahyu Budi Nugraha:** Methodology, Supervision. **Basir Jarah Anilon:** Visualization, Data curation. **Ahmad T. Zainal Abidin:** Supervision, Writing – review & editing, Validation. **Alfurqaan Hakiki**: Conceptualization, Validation, Writing – review & editing. **M. Amien Mujaddid:** Funding acquisition, Project administration.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethical Declaration

This study is a bibliometric analysis based solely on secondary data retrieved from the Scopus database, which contains publicly available and previously published scientific literature. No primary data collection involving human participants was conducted. Therefore, no ethical approval for human subjects research was required. All data used in this study were accessed in accordance with the terms of use of the Scopus database and are cited transparently in the manuscript.

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