

A Bibliometric and Visualization Analysis of Social Support among College Students: Insights from the Web of Science Core Collection

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Abstract

Based on literature from the Web of Science Core Collection (2015–2025), this study adopts bibliometric methods and uses CiteSpace software to visualize research on social support among college students. It analyzes publication trends, leading authors, institutions, countries, and keyword co-occurrence to clarify the field's developmental trajectory and identify key research trends. Findings show a steady increase in publications, indicating sustained academic interest. Prominent scholars and institutions are actively contributing, with China and the United States exerting significant international influence and collaboration. Core keywords—social support, mental health, college students, stress, and depression—have formed eight major thematic clusters: perceived social support, depressive symptoms, physical activity, mental health, behavior, peer support, gender differences, and college students. In light of current hotspots, the study outlines future research directions, emphasizing the need for individualized and contextualized approaches to social support, digitalization and platform-based services, dynamic theoretical model development, and practical intervention strategies. These insights aim to guide future academic inquiry and contribute to the deepening and refinement of research on college student social support.

Keywords College Students, Social Support, Bibliometric Analysis, Visualization, Research Progress

Introduction

College students today navigate a critical developmental period marked by the transition to adulthood and increasing academic and social demands (Matud et al., 2020; Sundqvist et al., 2024). However, this transitional phase has been profoundly reshaped by contemporary challenges, ranging from the lingering psychosocial impacts of the global pandemic to the pervasive influence of digital media on identity and relationships. Consequently, their mental

health has become not just a persistent concern but an escalating priority for public health and educational policy worldwide (Auerbach et al., 2018).

In response to these challenges, the positive psychology movement, which emerged in the late 20th century, offered a crucial reframing. It shifted the focus from merely treating mental illness to understanding and fostering human strength and well-being (Seligman & Csikszentmihalyi, 2000). Within this paradigm, social support has consistently been identified as a cornerstone of psychological resilience. Initially conceptualized by Cobb (1976) as a protective factor, social support was later refined by House (1981), who articulated its multidimensional nature, encompassing emotional, instrumental, informational, and appraisal support. The theoretical significance of social support is further solidified by the stress-buffering model (Cohen & Wills, 1985), which explains its mechanism for mitigating the adverse effects of stress. While these fundamental theories remain highly influential, their applicability in a rapidly changing social and technological landscape warrants renewed and systematic investigation.

A wealth of empirical research has robustly confirmed the vital role of social support in promoting the mental health of college students (Hefner & Eisenberg, 2009; Huang & Zhang, 2021; Selak et al., 2024). However, the nature of this support is evolving. The proliferation of digital communication has given rise to new forms of digitally mediated social support, the dynamics and efficacy of which may differ significantly from traditional face-to-face interactions (Szeto et al., 2024). Simultaneously, increasing globalization and student mobility have brought cross-cultural variations in the perception and utilization of support networks into sharper focus (Li and Wang, 2021). This evolving reality presents a critical challenge: does the existing body of research, largely built on traditional frameworks, adequately capture these new complexities? A significant research gap exists in systematically mapping whether the field's intellectual structure is keeping pace with these socio-technological shifts.

Traditional literature reviews, while valuable, are inherently limited in their ability to objectively and comprehensively synthesize the vast and fragmented knowledge base resulting from decades of research across diverse contexts. This limitation makes it difficult to discern the macro-level evolutionary patterns of the field or to empirically identify emerging, cutting-edge themes. Scientometric analysis, particularly using tools such as CiteSpace (Chen, 2006), offers a powerful methodological solution. CiteSpace can objectively map the intellectual landscape of a domain by employing citation network analysis, keyword burst detection, and timeline visualization. This allows researchers to move beyond subjective summaries and empirically trace the field's historical roots, pivotal turning points, research hotspots, and future directions. Therefore, this study poses a set of questions that go beyond simple description: How has the discourse on college student social support evolved structurally over the past decade? Do current research hotspots reflect the rise of digital support networks and cross-cultural considerations? What do these evolutionary patterns reveal about the field's alignment or misalignment with the contemporary college student experience?

To address these questions, this study analyzes the literature indexed in the Web of Science Core Collection (WoSCC) from 2015 to 2025. Using CiteSpace 6.3.R1 to construct and visualize knowledge maps, we aimed to systematically observe research trajectories, identify core

themes and their evolution, and critically analyze emerging trends within the domain of college students' social support.

The academic contributions of this study are twofold. First, it offers a critical, data-driven assessment of whether foundational social support theories are adequately tested, extended, or challenged by contemporary research. Second, by integrating fragmented findings into a coherent knowledge framework, it provides a clear roadmap for future scholarship, highlighting underexplored areas and potential avenues for theoretical innovation. Practically, the findings offer evidence-based insights for university mental health services, enabling them to design more nuanced and differentiated support systems. This is particularly crucial for addressing the unique needs of diverse subpopulations, such as international students navigating cultural transitions and digital natives, for whom online support is a primary resource.

Method

Study Design and Ethics

This retrospective bibliometric study was based exclusively on previously published literature and did not involve any human participants or clinical interventions. Therefore, ethical approval from an institutional review board was not applicable.

Data Source

This study uses data retrieved from the WoSCC, one of the most comprehensive and authoritative citation databases for academic research (Pranckutė, 2021). Maintained by Clarivate Analytics, the database covers high-impact journals across a wide range of disciplines, including science, social sciences, arts, and humanities. It provides standardized metadata, citation networks, and indexing, which are essential for bibliometric and scientometric analyses (Falagas et al., 2008; Mongeon & Paul-Hus, 2016).

The retrieval strategy employs topic retrieval and Boolean logical operators to formulate the retrieval expressions. The expressions were as follows: TS = (("social support" OR "social supports") AND ("college student" OR "university student" OR "college graduate" OR "university graduate")). The results were refined by Publication Years: 2015–2025, Language: English, and Document Types: Article. The literature search was conducted on July 21, 2025, yielding an initial pool of 3,304 publications. The inclusion criteria required articles to be directly relevant to research on social support among college students. The exclusion criteria were as follows: (1) duplicate publications; (2) non-research items such as news reports, book reviews, and conference summaries; and (3) articles clearly unrelated to the research domain. After applying these filters, we obtained 1,671 valid articles, which were exported in full text from WoSCC.

Data deduplication was performed to eliminate redundant entries using the data preprocessing module of CiteSpace. The deduplication procedure involved: (1) selecting the "WoS" label in the preprocessing interface; (2) loading the raw data into the "Input Directory"; (3) designating the output folder in the "Output Directory" for processed data; and (4) executing the "Remove Duplicates (WoS)" function. Following this deduplication process, the final dataset of 1,671 validated articles was obtained and served as the bibliometric sample for this study.

Research Instrument

This study employs bibliometric analysis, utilizing CiteSpace software to conduct a comprehensive scientometric evaluation, knowledge mapping, text mining, and visualization of research on social support among college students. The software used in this research is CiteSpace 6.3.R1, developed by Professor Chaomei Chen.

Analytical Methods

Bibliometrics is a quantitative analytical approach that examines various characteristics of scientific literature, employing mathematical and statistical methods to systematically analyze and quantify current trends in science and technology. By utilizing data models, this method facilitates the understanding and prediction of developmental trajectories, with its primary advantage being the provision of quantifiable information outputs (Hood & Wilson, 2001; De Bellis, 2009). Compared to qualitative research, quantitative review studies based on knowledge mapping offer a more comprehensive and intuitive revelation of the developmental patterns of research topics than qualitative studies. In this study, CiteSpace software was used to analyze the literature on social support among college students.

Using CiteSpace, we conducted a visual analysis of the screened literature, including annual publication volume, authors, institutions, countries, keyword co-occurrence and clustering, and keyword burst detection, to extract insights from the literature on social support for college students. The following parameters were configured: the time span was set from 2015 to 2025, with a time slice of one year; the source selection included the title, abstract, and keywords of the articles; the node type was set to keywords, and the term selection was set to burst terms; the network pruning method was pathfinder; the threshold values (c, cc, ccc) were set to the default parameters (2, 2, 20), (4, 3, 20), and (3, 3, 20). Within the Node Type module, specific items (e.g., institutions, keywords) were selected for analysis. Parameters such as Threshold, Font Size, and Node Size were adjusted to optimize the co-occurrence network visualization. The co-occurrence results were further organized and analyzed using Excel.

In the co-occurrence network generated by CiteSpace, each node represents an entity, such as an author, institution, country, or keyword. The size of a node reflects its frequency of occurrence, and the links between nodes indicate co-occurrence or co-citation relationships. The thickness of the links represents the strength of these associations, and the color of the links denotes the period during which the co-occurrence or co-citation first appeared (Chen, 2006).

Keyword clustering was conducted using the clustering function in CiteSpace, which applies the log-likelihood ratio (LLR) algorithm in conjunction with K-means clustering to classify keywords into distinct groups. The modularity value (Q) and mean silhouette score (S) were calculated to evaluate the clustering quality. A Q-value greater than 0.3 suggests a significant clustering structure, whereas an S-value above 0.5 indicates reasonable and convincing clustering (Chen, 2006). This algorithm tends to highlight the uniqueness of clusters with minimal overlap, making the clustering results more representative of the actual knowledge structures.

CiteSpace also enables burst detection analysis based on keyword citation bursts. This technique focuses on identifying terms with a rapid increase in usage over a specific period, revealing emerging trends and thematic evolution within the field (Chen, Dubin, & Kim, 2014). Citation burst strength indicates the extent of fluctuation in keyword citations, which can be used to detect the rise or decline of research topics (Chen, 2006; Zhou et al., 2019). The intensity of the burst reflects the significance of the change in citation frequency and is automatically calculated using CiteSpace's burst detection algorithm (Chen, 2006; Zhang et al., 2024).

Research Overview of Social Support Studies among College students

Annual Publication Analysis

The distribution of annual publications serves as a metric for evaluating research output and disciplinary development within a field, providing insights into evolving academic trends (Hood & Wilson, 2001). From 2015 to 2025, the number of publications demonstrated a rapid upward trajectory (Figure 1). Based on the growth rates, this period can be divided into two distinct phases.

The first phase (2015–2019) represented a stable development period, with an average annual output of approximately 78 publications per year. The second phase (2020–2024) marked a rapid growth period, characterized by a surge to around 216 publications annually. This increase reflects the heightened global scholarly attention to social support among college students.

The COVID-19 pandemic, as a global crisis, has profoundly impacted societal, economic, and public health systems worldwide (Nicola et al., 2020). During this period, college students faced elevated stress and anxiety due to challenges in online learning, social isolation, and concerns about academic performance and future employment (Son et al., 2020). Social support, which has been proven to buffer pandemic-related psychological distress (Zimet et al., 1988; Grey et al., 2020), has emerged as a critical protective factor. Such support encompasses interpersonal networks (e.g., family and friends) and systemic sources (e.g., universities, communities, and media) (Saltzman et al., 2020), thereby establishing actionable pathways for interventions. Against this backdrop, online mental health support mechanisms have gained prominence.

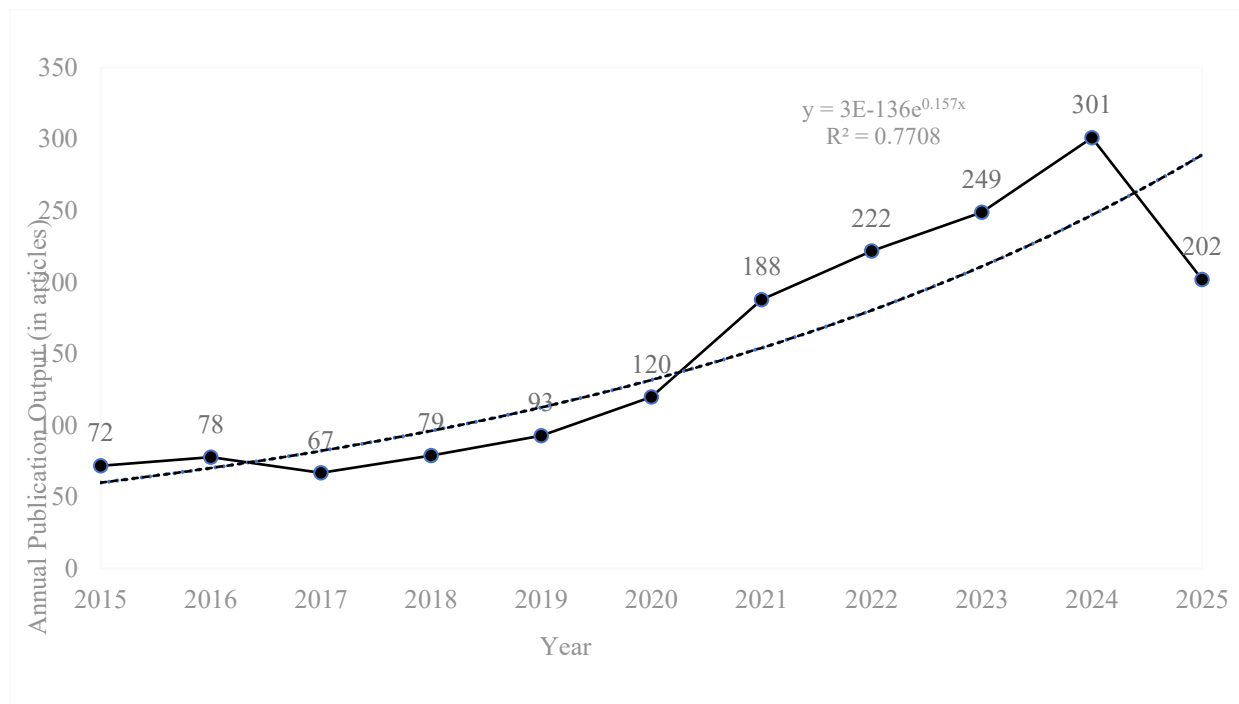


Fig.1 Annual Publication Statistics and Trends in Studies on College Students' Social Support (2015–2025)

Analysis of Contributing Authors

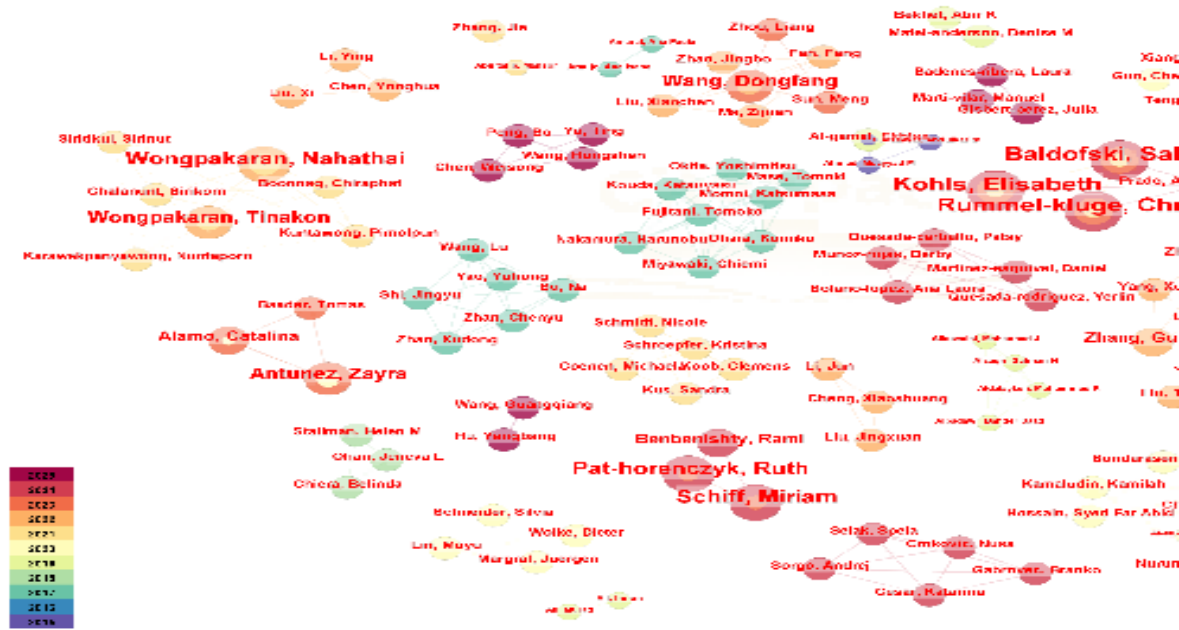
The publication output of authors reflects their contributions and influence within a specific research domain (Carpenter et al., 2014). CiteSpace was used to conduct a visual co-authorship analysis of publications on college students' social support from 2015 to 2025. As shown in Figure 2, the co-authorship network includes 298 nodes ($N = 298$) and 229 links ($E = 229$), with a network density of 0.0052. This indicates that collaborative relationships among authors are relatively sparse, suggesting a low overall level of cooperation and a tendency toward individualized or small-group research efforts.

The volume of publications by core authors is a key indicator of the maturity and development level of a research field (Glänzel & Schubert, 2004). According to Price's Law ($N_{min} = 0.749 \cdot \sqrt{N_{max}}$), authors who have published more than N_{min} papers can be considered core contributors (Qiu, 1988). In this study, N_{min} was calculated as 1.835, resulting in the identification of 172 core authors, accounting for 57.7% of the total—an excessively high proportion that lacked meaningful differentiation.

To improve representativeness and align with the typical bibliometric standard that core authors usually constitute 5%–10% of all contributing authors (Glänzel & Schubert, 2004), the threshold for defining core authors was raised to a minimum of three publications. Based on this revised criterion, 24 core authors were identified, representing 8.1% of the total, which is both representative and methodologically sound.

Among them, Baldofski, Kohls, and Rummel-Kluge each published six papers and are recognized for their extensive work in the field of psychiatry and psychotherapy in Germany. The majority of the remaining authors contributed only one or two publications.

CiteSpace v. 5.10.R4 (64-bit)
 July 21, 2025 8:08:29 AM CDT
 MMS: C:\Program Files\CiteSpace\supportdata
 Transitivity: 0.15, Modularity: 0.9179
 Network: 2.8432, Weighted Mean Silhouette: 0.9841
 Label: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295
 Pruning: None
 Eccentricity:



CiteSpace

Fig.2 Author Collaboration Network on Social Support Research in College Students (2015–2025)

Analysis of Research Institutions

By analyzing the publication output of various research institutions, we can better understand the distribution of research teams that focus on social support among college students. An institution’s research capacity reflects its relative standing and achievements within a given academic field (Szluka et al., 2023). Using CiteSpace, we conducted a co-occurrence network analysis of institutions that published on this topic between 2015 and 2025.

Six institutions published more than 20 papers. The University System of Ohio ranked first with 33 publications, demonstrating substantial engagement and influence in this research area. Notably, according to The Carnegie Classification of Institutions of Higher Education (2021), The Ohio State University—a member of this system—is classified as an R1 institution, indicating very high research activity.

As shown in Figure 3, the co-occurrence network consisted of 295 nodes (N) and 357 links (E), with a density of 0.0082. Although some institutions exhibit multiple collaborative connections, the overall network density remains low, suggesting that actual collaborations represent only a small fraction of potential partnerships. This pattern indicates that institutional cooperation remains relatively fragmented and has not yet formed a broad and stable collaborative network.

Nodes with BC values exceeding 0.1 are conventionally considered to play significant intermediary roles in network analyses (Chen, 2017). In our study, several institutions demonstrated relatively high BC values: the University System of Ohio (BC = 0.12), Beijing

Normal University (BC = 0.14), University of Texas System (BC = 0.09), and Jiangxi Normal University (BC = 0.09). These institutions functioned as critical "bridging nodes" within the collaborative network, serving as key intermediaries that facilitated cross-cluster cooperation and enabled resource integration among diverse research groups.

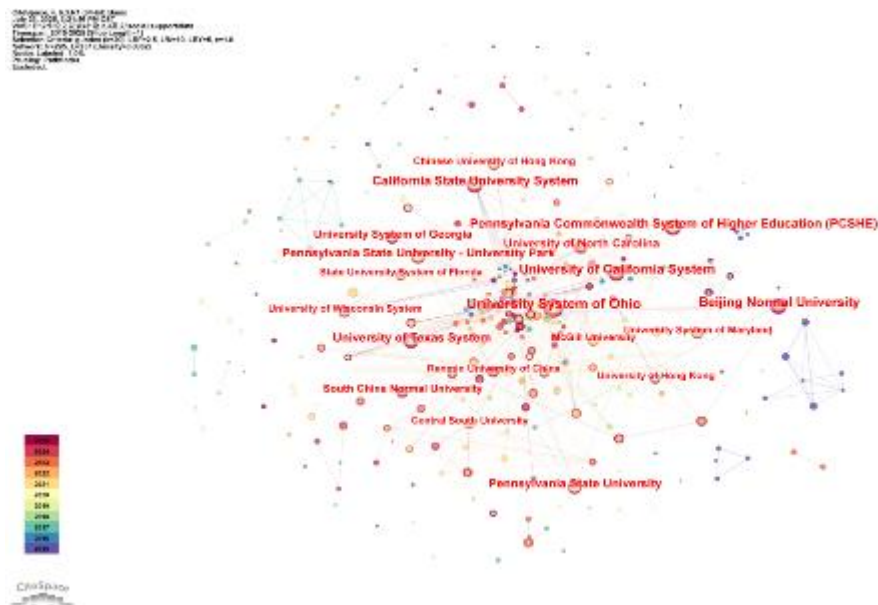


Fig.3 Institutional Collaboration Network on Social Support Research in College Students (2015–2025)

Country Collaboration Analysis

National collaboration networks can reveal the degree of internationalization within a particular research field (Pohl, 2024). To understand the global research landscape of social support in college students, this study analyzes the spatial distribution of research output across countries. By setting the network node type to "Country," CiteSpace was used to visually map the international collaboration network based on relevant publications from 2015 to 2025. As shown in Figure 4, the network comprised 99 nodes ($N = 99$) and 362 links ($E = 362$), with a network density of 0.0746.

The size of each circle represents the frequency of publications affiliated with a given country; larger circles indicate a higher publication output. The color of the circles reflects the publication year, with the width of the outer rings indicating the frequency of publications in a specific period. During 2015–2025, 99 countries contributed to college students' social support research. The top five contributors were the United States (533 publications), China (492 publications), Spain (78 publications), Australia (71 publications), and Canada (59 publications). The publication volumes of the United States and China are significantly higher than those of other countries, forming a steep "cliff-like" gap. This finding highlights the leading roles of China and the United States in this field, demonstrating their sustained academic investment and strong attention to the development of mental health support systems in higher education. Their high output reflects considerable international influence and collaboration capacity.

In the country collaboration network generated by CiteSpace, countries or regions surrounded by a purple ring are characterized by high BC, indicating that they function as important bridges or hubs within the global academic collaboration network (Chen, 2006). The analysis shows that eight countries exhibit centrality values greater than 0.1: the United States (BC = 0.46), China (BC = 0.25), Spain (BC = 0.15), the United Kingdom (BC = 0.15), Canada (BC = 0.14), Germany (BC = 0.13), Saudi Arabia (BC = 0.12), and Norway (BC = 0.12). These countries play critical roles in connecting diverse research communities, thereby facilitating knowledge dissemination and the development of a globally integrated research network.

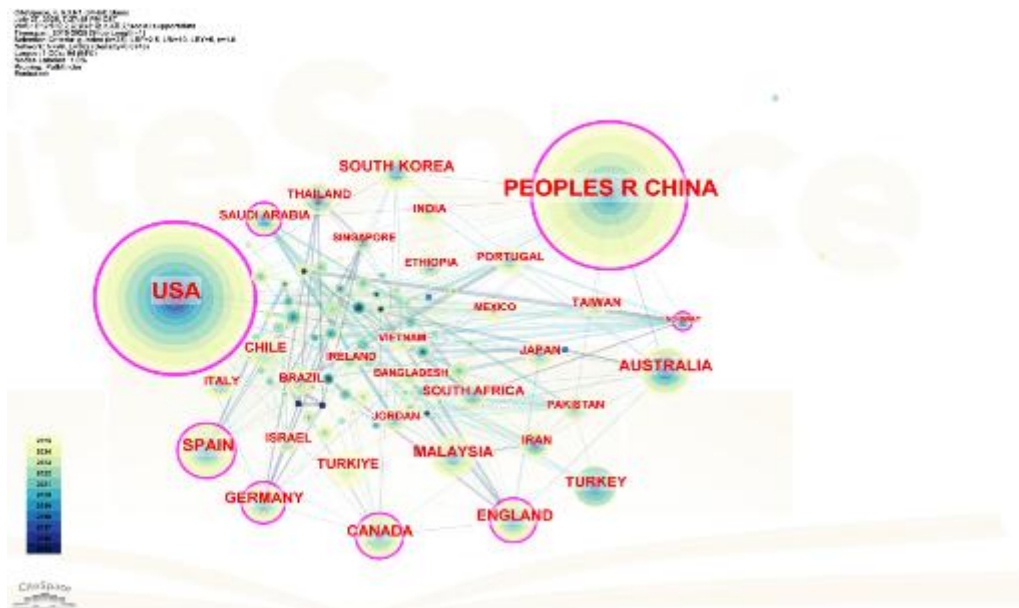


Fig.4 Country Contribution Map in Social Support Research in College Students (2015–2025)

Research Trends and Hotspots in Studies on College Students' Social Support

Keyword Co-occurrence Analysis

Keywords serve as concise summaries of the core content of academic publications and can effectively reflect authors' central ideas and theoretical focuses (Corrin et al., 2022). To analyze the intellectual landscape and evolving trends in the field, a keyword co-occurrence analysis was conducted using CiteSpace on literature published between 2015 and 2025. The resulting keyword co-occurrence network (Figure 5) reveals patterns in the frequency and relationships of keywords over this time span. In such networks, the repeated appearance of specific keywords within a defined period can be interpreted as indicative of research hotspots and thematic trends shared by scholars in the field (Wang et al., 2025).

As shown in Figure 5, the network contained 272 nodes ($N = 272$) and 1337 links ($E = 1337$), with a density of 0.0363. This suggests that the field has developed a relatively structured knowledge base with considerable thematic interconnections among studies. However, the overall degree of integration remains moderate, reflecting the field's diversity and a tendency toward phased thematic convergence.

The size of each node represents the frequency of a keyword's occurrence, while the links between nodes reflect their co-occurrence relationships—the thicker the link, the stronger

the association. In this study, the cumulative coverage method was employed to extract keywords (Chen, 2017; Wang et al., 2020), and a threshold of a minimum of 100 occurrences was established to ensure analytical rigor. A total of 17 high-frequency keywords were identified (see Table 1), capturing the central research hotspots and developmental directions within the field. This approach ensures that the analysis covers the core body of literature while enhancing the interpretability of the co-occurrence network by focusing on influential themes.

Since 2015, scholarly discussions surrounding college students' social support have primarily centered on the mechanisms linking social support and mental health outcomes among college students (Zhao et al., 2022), subjective perception and standardized measurement of social support (Md Khalid et al., 2024), prevalence and health impact of psychological issues (Tang et al., 2021), and application of social support as a practical intervention resource (Huang & Zhang, 2022). Overall, the research landscape in this domain exhibits a pattern characterized by central thematic clustering and peripheral thematic diversity. Over time, research has shown a clear trajectory toward deeper and more focused inquiries.

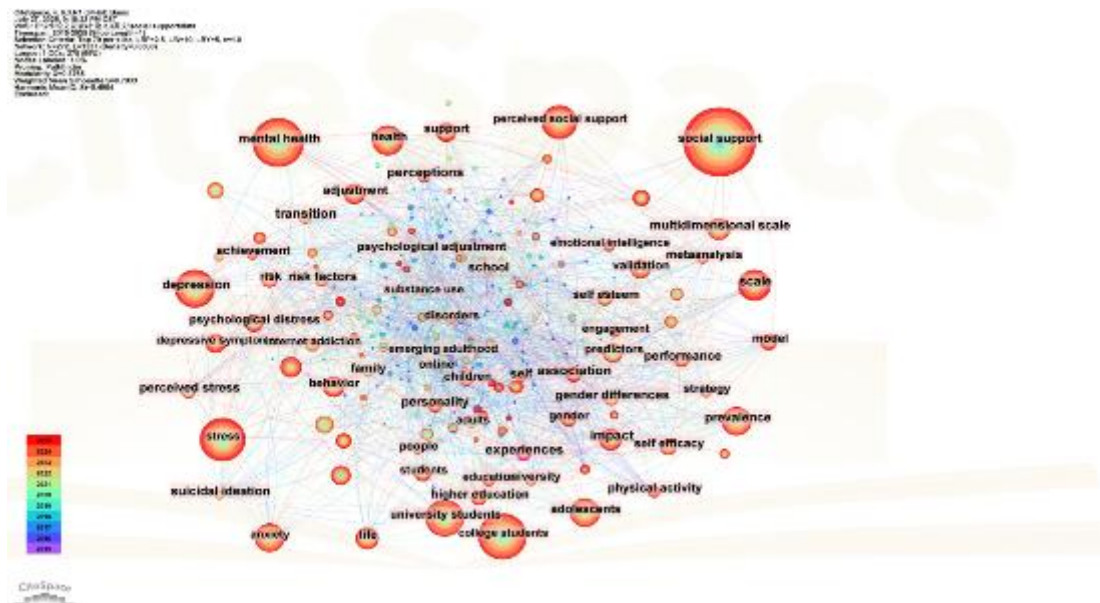


Fig.5 High-Frequency Keyword Co-occurrence Map in Social Support Research in College Students (2015–2025)

Table 1

Major High-Frequency Keywords in Research on Social Support for College Students (2015–2025)

Count	Centrality	Keyword
804	0.01	social support
400	0.03	mental health
393	0.01	college students
347	0.02	stress
294	0.03	depression
256	0.02	college students
218	0.02	perceived social support
206	0.04	scale
183	0.01	health
178	0.03	adolescents
178	0.03	anxiety
173	0.06	prevalence
122	0.01	multidimensional scale
114	0.03	symptoms
113	0.05	life
111	0.06	depressive symptoms
101	0.04	support

Keyword Cluster Analysis and Research Hotspot Identification

Keyword cluster analysis involves grouping semantically related keywords into thematic clusters, providing an objective representation of core research topics within a field (Chen, 2017). Using CiteSpace, we performed keyword cluster analysis and obtained corresponding visualization maps and cluster metrics. The modularity (Q) and silhouette (S) scores serve as critical indicators of cluster stability and reliability. Following established thresholds (Chen, 2017; Sabe et al., 2023; Zhang et al., 2024), $Q > 0.3$ indicates significant cluster structure, while $S > 0.7$ reflects high cluster homogeneity and credibility. Values between 0.5-0.7 suggest reasonably robust clustering, with higher values denoting superior clustering performance. As shown in Figure 6, our analysis yielded $Q = 0.3765$ and $S = 0.7033$, demonstrating that the keyword clusters in college student social support research (2015-2025) exhibit both statistically significant structure and substantial internal consistency. This confirms the reliability and interpretative value of the clustering results. Table 2 further illustrates that all keywords were effectively categorized into eight distinct clusters, each demonstrating strong thematic coherence.

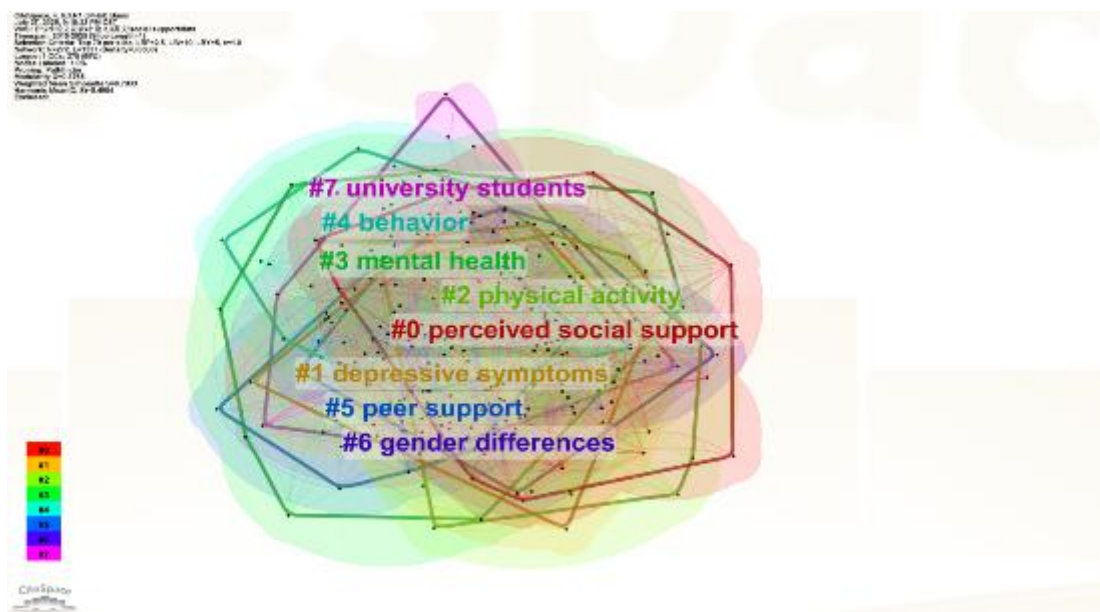


Fig.6 Keyword Clustering Map of Research on Social Support among College Students (2015–2025)

Table 2
Keyword Cluster Characteristics

Cluster ID	Size	Silhouette	Mean /Year	Top Terms (log-likelihood ratio, p-level)
#0perceived social support	44	0.68	2016	perceived social support ; higher education ; academic achievement ; emotional intelligence; motivation
#1 depressive symptoms	38	0.694	2016	depressive symptoms ; suicidal behavior ; young people ; fomo ; emotional support
#2 physical activity	37	0.708	2016	physical activity ; exercise ; intervention ; transition ; adults
#3 mental health	37	0.728	2017	mental health ; social support ; college students ; resilience; young adults
#4 behavior	34	0.662	2017	behavior ; risk ; life satisfaction ; version ; psychological adaptation
#5 peer support	32	0.598	2017	peer support; self-esteem ; psychological well-being ; facebook; physical health
#6 gender differences	28	0.737	2016	gender differences; outcome expectations ; perceived social support ; college students; satisfaction
#7 college students	20	0.908	2017	college students ; psychological distress ; medical students; ethiopia ; suicidal ideation

Figure 7 presents the keyword timeline visualization for studies on college students’ social support from 2015 to 2025, clearly illustrating the emergence and persistence of various

research themes over time. By combining insights from the keyword clustering map and its associated cluster labels, this timeline enables a systematic review of the major research hotspots and their evolutionary trajectories. Overall, while the research topics show some degree of diversity and dispersion, they primarily converge around the following five core thematic areas:

(1) Mental Health Status and Influencing Factors among College Students.

Clusters #7 (students), #3 (health), and #1 (symptoms) feature keywords that were consistently cited between 2016 and 2020, indicating sustained scholarly attention to psychological distress within the student population. Research in this area has primarily focused on the mechanisms and influencing factors associated with depressive symptoms, anxiety, suicidal behavior, and psychological distress, while also exploring the moderating roles of social support, self-esteem, and coping strategies in alleviating such issues (Kim et al., 2017; Zhang et al., 2018).

(2) Social Support and Psychological Adaptation.

Clusters #0 (support), #4 (adaptation), and #5 (connection) became particularly active from 2018 onward, with keywords such as social support, resilience, and adjustment appearing with high frequency across multiple time points. Findings indicate that social support functions not only as a critical buffer against psychological stress, but also enhances college students' resilience and encourages the use of adaptive coping strategies, thereby facilitating psychological adjustment and recovery (He et al., 2022; Rathakrishnan et al., 2022).

(3) The Role of Gender Differences in Psychological Support and Mental Health.

Keywords associated with clusters #6 (gender), #0 (support), and #3 (health) became notably active around 2020. Research in this area investigates gender-based differences in mental health status, the ways social support is accessed, and levels of satisfaction with support received. These systematic differences suggest the need to incorporate gender sensitivity into future mental health interventions to design more targeted and effective support mechanisms (Graves et al., 2021; Ooi et al., 2022).

(4) The Positive Effects of Physical Activity on Mental Health.

Since 2021, keywords such as physical activity, exercise, and intervention have frequently appeared in clusters #2 (activity), #3 (health), and #4 (adaptation), signaling the rise of research on how exercise enhances psychological adaptation and self-efficacy. Studies indicate that regular physical activity not only significantly reduces symptoms of anxiety and depression among college students, but also plays a mediating role by strengthening self-efficacy and psychological coping mechanisms (Qin et al., 2024; Li et al., 2025).

(5) The Impact of Peer Relationships and Social Media Use on Psychological Well-being.

With the widespread adoption of digital social media, related keywords in clusters #5 (connection), #7 (students), and #1 (symptoms) have become increasingly prominent in recent years. This reflects growing research interest in the psychological implications of digital social interactions. Studies show that the frequency and quality of online engagement significantly influence students' perceived social support and are closely associated with key psychological variables such as anxiety, loneliness, and subjective well-being (Elhai et al., 2020; Hallauer et al., 2022)..

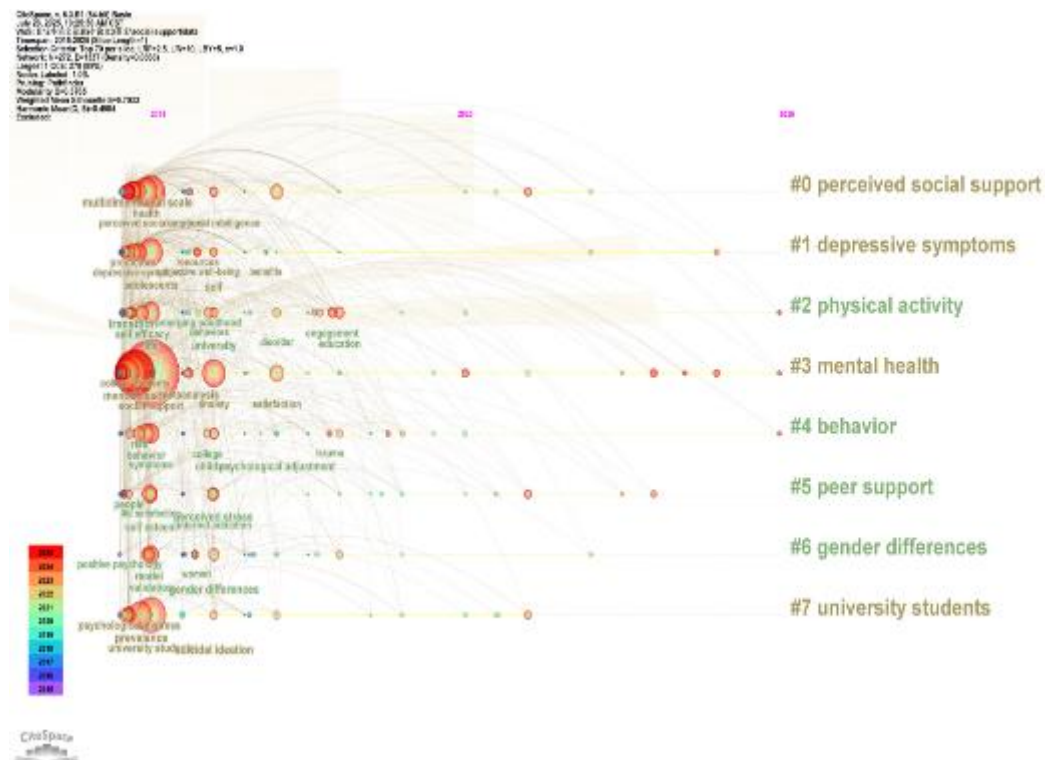


Fig.7 Timeline View of Keyword Clusters in Research on Social Support among College Students (2015–2025)

Keyword Burst Analysis and Research Trend Identification

Keyword burst refers to a sudden and significant increase in the frequency of a keyword within a short period, signaling an emerging trend or frontier in the research field (Chen, 2006; Kleinberg, 2002). In visualizations, the burst duration is typically marked by a thick line, indicating the period during which the keyword attracted significant attention. The longer the burst duration, the more sustained the interest in that research theme, reflecting its relevance and prominence as a research frontier.

As shown in Figure 8, in terms of keyword burst strength, “personality traits” had the highest burst intensity (6.1) from 2016 to 2020, indicating sustained academic interest in the relationship between individual characteristics and psychological adjustment. This was followed by “exercise” (5.4), “sleep quality” (5.04), “coping strategies” (5.01), and “disorder” (5.0), suggesting that these topics have also garnered considerable attention in recent years. Of particular note is the keyword “attitudes”, which showed a burst from 2015 to 2020, lasting for five years. This reflects long-standing scholarly interest in how college students’ attitudes towards receiving social support influence their mental health and adaptive behaviors (Li, 2024; Arifin et al., 2020).

“Personality traits”, which experienced a four-year burst from 2016 to 2020, highlights growing concern among researchers regarding how individual differences—such as extraversion, neuroticism, and agreeableness—affect students’ needs for, perceptions of, and receptivity to social support, as well as their capacity to build social networks and adapt psychologically (Oshio, 2018; Durón-Ramos, 2020).

In addition, the keywords “culture” and “American” both showed bursts during 2016–2020, underscoring the relevance of cross-cultural perspectives—particularly within American contexts—in social support research among college students. These studies frequently examine how cultural values and educational systems shape individuals’ cognition, utilization, and perception of social support (Lee & Goldstein, 2016; Sterle et al., 2018).

The keyword “emerging adulthood” experienced a burst from 2018 to 2022, reflecting increasing scholarly focus on college students as a distinct developmental group in early adulthood. Research indicates that during this life stage, access to effective social support—especially from family, friends, or romantic partners—plays a critical role in buffering psychological stress, fostering personal growth, and enhancing psychological adjustment (Lee & Goldstein, 2016; Matud et al., 2020).

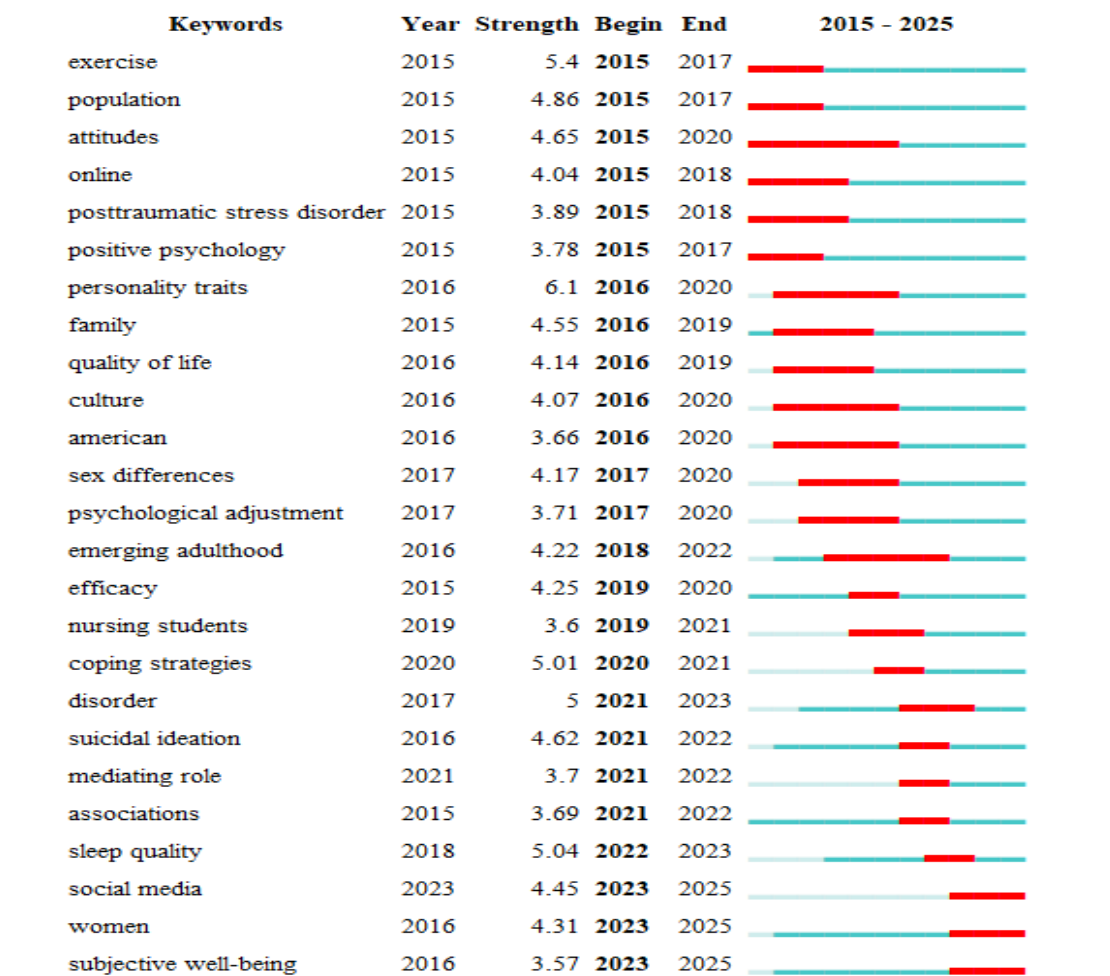


Fig.8 Keyword Burst Detection Map of Research on Social Support among College Students (2015–2025)

Future Directions in College Student Social Support Research

The study of social support among college students remains a complex and multidimensional issue, involving individual, familial, and societal factors. Based on the current findings, future research should focus on four key directions.

First, research should increasingly emphasize personalization and contextualization by examining how support needs vary across developmental stages (e.g., adolescents, college

students, older adults) and situational contexts (e.g., illness, post-disaster recovery, major societal transitions). Additional variables such as identity, gender roles, and family structure should be integrated into social support frameworks.

Second, the digitalization and platformization of social support are becoming more prominent. With advancements in digital media, support is no longer limited to face-to-face interactions but extends to virtual social networks, mental health apps, and online peer communities. Future studies should assess the authenticity, sustainability, and psychological effects of online support while exploring its complementary or substitutive relationship with traditional offline support.

Third, mechanistic research should move toward integrated and dynamic models. While existing studies confirm the benefits of social support for mental health, future work should investigate mediating pathways (e.g., emotion regulation, self-efficacy, cognitive appraisal) and moderating factors (e.g., personality traits, coping styles, life events) to develop comprehensive theoretical models.

Finally, intervention research should strengthen empirical validation of program effectiveness. As universities and communities expand mental health services, social support has become a key intervention strategy. Future studies should design and evaluate targeted support programs (e.g., peer mentoring, family engagement initiatives) and use longitudinal designs to assess long-term outcomes.

Research Limitations

This study provides a partial yet valuable overview of the current research landscape on social support among college students; however, several limitations should be acknowledged. First, the exclusive reliance on the Web of Science (WoS) database for literature retrieval may have resulted in the omission of relevant studies due to selection bias or the database's limited coverage. Second, the CiteSpace software used in this analysis is based on keyword co-occurrence rather than full-text content, which may lead to potential gaps or biases in capturing the comprehensive scope of the articles (Chen, 2006). Future research should consider incorporating additional academic databases and employing more robust and comprehensive analytical tools to enhance the completeness and credibility of the findings.

Conclusion

Using CiteSpace 6.3.R1, this study conducted a knowledge mapping and bibliometric analysis of 1,671 research articles on college students' social support published between 2015 and 2025 in the WoSCC, yielding the following key findings:

In terms of publication volume and timeline, the number of publications was significantly influenced by external factors, displaying clear stage-based characteristics. Based on the annual distribution of publications, research on college students' social support can be divided into two phases: a stable development period (2015–2019) and a rapid growth period (2020–2024).

With regard to contributing authors, institutions, and countries, the field exhibits a wide distribution of researchers and affiliations. However, collaborative networks among authors are relatively sparse, indicating a tendency toward individualized or small-group research

efforts. Universities constitute the majority of research institutions, with those possessing high BC serving as bridges across different cooperation clusters, though overall institutional collaboration remains limited. The United States and China maintain a dominant position in this field, with strong international influence and collaborative capacity.

Keyword co-occurrence and clustering analysis identified 17 high-frequency keywords—such as “social support,” “mental health,” and “college students”—and yielded 7 major clusters, from which five core research themes were extracted: (1) mental health conditions and influencing factors among college students, (2) the role of social support in psychological adjustment, (3) gender differences in psychological support and well-being, (4) the positive impact of physical activity on mental health, and (5) the influence of peer relationships and social media use on psychological states.

Keyword burst and clustering analysis further revealed that terms such as “personality traits,” “exercise,” “sleep quality,” and “coping strategies” have demonstrated high burst strengths in recent years, indicating sustained scholarly attention in the context of college students’ mental health. Keywords such as “attitudes,” “personality traits,” “culture,” “American,” and “emerging adulthood” exhibited long burst durations, suggesting these topics have attracted enduring and in-depth research interest over a considerable period.

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