

A CiteSpace-Based Analysis of the Current Status of Psychological Health Education Research in Chinese Vocational Colleges

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Abstract—This paper describes the current situation analysis and future development trend of mental health education research in higher vocational colleges in China, providing a reference for the teaching reform of mental health education in higher vocational colleges in China. Taking the Web of science (WOS) core collection database as the data source, the retrieval time was from January 1998 to April 2025. The CiteSpace software was used to analyse the included literatures, including the number of published papers, publishing institutions, high-frequency keywords, keyword clustering and emergence. A total of 257 literatures were included for visual analysis. Since 2011, the number of published papers has shown a rapid growth trend. Especially after 2013, the annual number of published papers steadily rose to double digits, and after 2021, there was an explosive growth, with the annual number of published papers exceeding 30. By 2024, the number of published papers reached a historical high of 49. Univ Texas Arlington had the highest frequency of published papers in 2018, reaching 6, and Hong Kong Polytechnic University published 6 in 2017. Univ Michigan also published six papers in 1999. Since 2012, the research focus has gradually shifted from the identification of psychological disorders to psychological support, the influence of social factors and intervention mechanisms. In recent years, it has entered a diversified stage based on educational fields and support systems, integrating behavioral measurement and preventive intervention. This changing trajectory fully reflects the dynamic development trend of this field at both the theoretical and practical levels, indicating that the research in this field is moving towards a more diverse and systematic direction. With the further attention of the academic community to the research on mental health education in higher vocational colleges, the academic framework of this field is bound to be more systematic and comprehensive in the future, promoting its further development and deepening in practical applications.

Keywords—Vocational Colleges, Mental health education, Current Status, Research hotspot

I. INTRODUCTION

Mental health education forms a vital part of the talent cultivation system in higher vocational colleges, directly influencing students' overall competence and future career development (Du, 2018).

In recent years, the quality of higher vocational education in China has improved steadily. The 2016 Annual Report on the Quality of Higher Vocational Education in China noted significant progress in areas such as industry-education integration and school-enterprise cooperation,

with institutions strengthening their overall capacity and graduates achieving higher levels of quality and employment benefits (Liu, et al.,2016).However, mental health issues among vocational students remain a persistent concern. Studies have shown that, owing to factors such as educational level, many vocational students experience varying degrees of inferiority, adversely affecting their career choices, employment prospects, entrepreneurial intentions, and the broader goals of cultivating high-quality skilled workers (Ying, et al.,2010&Sun, et al.,2010).

II. PROBLEM STATEMENT

Mental health education is not only essential to safeguarding students' well-being but also fundamental to their comprehensive development. Research by Marceau Melanie suggests that actively fostering psychological resilience, combined with the cultivation of individual character, can effectively alleviate mental health problems and better align student development with societal expectations (Marceau, 2018).

As higher education reform deepens, vocational students are facing mounting employment pressures and intensified social competition, with mental health challenges becoming more complex and diverse. Strengthening research into mental health education in vocational colleges is therefore crucial both to optimising educational practice and to supporting students' psychological development. Bibliometric analysis, widely used in mental health and education research, provides valuable insights into research landscapes and trends. Yet bibliometric studies specifically focusing on mental health education in vocational colleges remain limited, and a systematic understanding of the field is lacking. This paper employs bibliometric methods to systematically analyse key academic contributions, map the knowledge base, identify research hotspots and trends, and offer theoretical and practical guidance for future studies.

III. LITERATURE REVIEW

The mental health problems of college students are mainly manifested as anxiety, depression, confusion of self-identity and social disorders. Survey shows that nearly 60% of college students have psychological problems to varying degrees, among which academic pressure (52.3%), interpersonal relationships (41.7%), and career planning (38.6%) are the three core sources of stress. Female students scored significantly higher than male students in the dimensions of depression and loneliness, and problems such as mobile phone addiction and Internet dependence intensified with the increase of grade (Chen, et al., 2022).

Jiang (2012) found through a randomized controlled

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experiment that mental health courses based on CBT could significantly reduce the anxiety level of college students ($p < 0.01$) and enhance psychological resilience ($d = 0.68$). Wang(2018) longitudinal study further proved that mindfulness-based stress reduction therapy (MBSR) has long-term benefits in improving depressive symptoms. After 6 months, the score of the depression scale in the intervention group was 34.2% lower than that in the control group ($p < 0.001$). In addition, Yu (2021) proposed the "home-school-community collaboration" model, emphasizing the construction of a comprehensive intervention system through parent training and community support networks.

IV. METHOD AND FINDINGS

This study draws on data from the Web of Science (WOS) Core Collection. The search was conducted using the keywords "Higher Vocational Colleges," "Vocational Colleges," "Vocational Education," "Mental Health Education," and "Psychological Health Education," limited to publications in English. The search date was 25 April 2025, resulting in an initial data set of 452 records.

To ensure the relevance and academic quality of the data set, a manual screening process was undertaken following these criteria: (1) removal of duplicate records; (2) exclusion of non-academic documents such as patents, lectures, news articles, notices, and conference abstracts; and (3) assessment of titles, keywords, and abstracts to eliminate studies unrelated to the research topic. Following this process, 257 documents were retained as the final sample for subsequent bibliometric analysis.

This study adopts a bibliometric approach to systematically analyse the research landscape of mental health education in higher vocational colleges. First, relevant literature was retrieved from the Web of Science Core Collection, and statistical analyses of annual publication trends and institutional distribution were conducted to reveal the development trajectory and research capacity in the field. Second, co-occurrence networks of keywords were constructed using CiteSpace and VOSviewer, with cluster analysis employed to identify core research themes. Finally, keyword burst analysis and temporal evolution analysis were performed to explore the dynamic changes and emerging trends in research topics. Through this multi-dimensional approach, the study aims to provide a comprehensive understanding of the knowledge structure and developmental pathways within the field.

V. FINDINGS and DISCUSSION

Annual Publication Trends

The trend in publication volume serves as an important indicator for understanding the development of a research field and assessing the level of scholarly activity. As shown in Figure 1, the number of publications in this field has exhibited an overall upward trajectory, with a particularly notable increase after 2011. This growth reflects the rising academic interest and the deepening exploration of mental health education in higher vocational colleges. Specifically, between 1998 and 2010, the average annual publication

volume remained low, generally between two and three papers per year, indicating that research in this area was still at an early stage. From 2011 onwards, a rapid increase in publication volume was observed. In particular, after 2013, the number of annual publications consistently rose to double digits, culminating in an explosive growth after 2021, when annual outputs exceeded 30 papers. By 2024, the number of publications reached a historical peak of 49. Overall, the trend demonstrates that research on mental health education in higher vocational colleges has increasingly become a focal point in academic discourse over the past decade, with broadening attention and deeper investigations driving the field's rapid development.

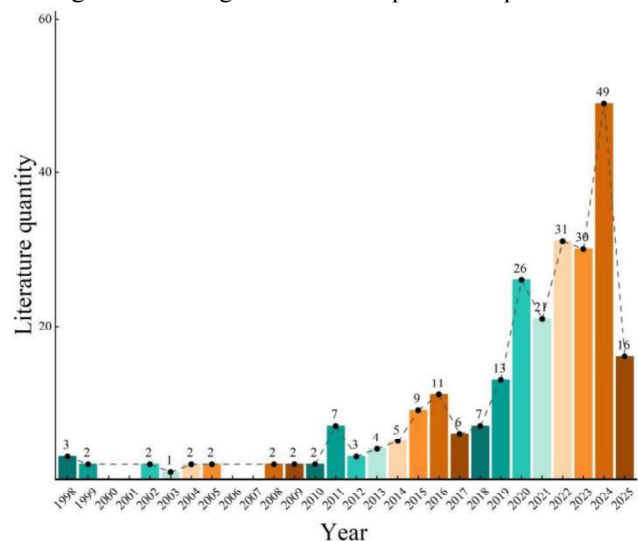


Figure 1. Annual Number of Publications on Mental Health Education in Higher Vocational Colleges

Institutional Publication Analysis

The institutional collaboration network, constructed using CiteSpace, is shown in Figure 2. This network illustrates the distribution of publications and collaborative relationships among research institutions in this field. The network consists of 274 nodes and 248 links, with a network density of 0.0066, indicating relatively low overall collaboration and a loosely connected network with weak ties between institutions. The size and colour of the nodes reflect the publication volume and academic influence of each institution. Larger nodes, such as those for the University of Michigan, Boston University, and the University of Texas Arlington, represent institutions with significant academic contributions and influence in this field. The different colours of the links indicate the temporal distribution of collaborations, with some institutions forming relatively close cooperative relationships. Overall, while some key institutions have played an important leading role, the collaboration network has yet to develop into a highly integrated research system.

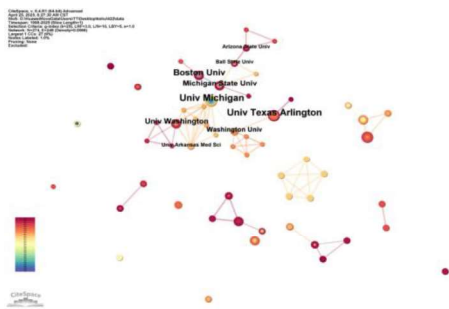


Figure 2. Institutional Collaboration Network in Mental Health Education Research

Statistical results show the top ten publishing institutions, as presented in Table 1. Among them, the University of Texas Arlington had the highest publication frequency in 2018, with six papers; the Hong Kong Polytechnic University published six papers in 2017, while the University of Michigan also published six papers in 1999. These institutions are located in the core area of the collaboration network and have significant publication outputs, indicating their high academic influence in the field.

From both the network diagram and table, it is evident that the primary research output in mental health education in higher vocational colleges is concentrated in a few internationally renowned institutions, such as the University of Michigan and Boston University. At the same time, the increasing research activity of institutions like the University of Texas Arlington in recent years suggests a trend toward the diversification of research strength in this field.

TABLE 1: INSTITUTIONS BY PUBLICATION FREQUENCY

Institution	Frequency	Year
Univ Texas Arlington	6	2018
Hong Kong Polytech Univ	6	2017
Univ Michigan	6	1999
Boston Univ	5	1999
Univ Turku	4	2010
Michigan State Univ	4	1999
Inst Mental Hlth	4	2014
Old Dominion Univ	4	2009
New Mexico State Univ	4	2019
Univ Utrecht	4	2023

Keyword Co-occurrence Analysis

The keyword co-occurrence network generated by CiteSpace is shown in Figure 3. A total of 1,414 keyword nodes were identified, with 1,854 links, resulting in a network density of 0.022, indicating a relatively complex structure of knowledge connections. The colour of the nodes represents different time slices, with the colour gradient from cool to warm indicating the temporal evolution from earlier to more recent periods. In the network, the size of the

nodes reflects the frequency of keyword co-occurrence, while the thickness of the edges represents the strength of co-occurrence between keywords. The purple borders around the outer edges of nodes indicate that these nodes are positioned in the core of the network, signifying their central role in connecting other nodes. Keywords such as "depression," "prevalence," "impact," "vocational education," and "community college" occupy the core area of the map, highlighting their status as high-frequency and high-centrality terms, constituting key research topics and hotspots in the field.

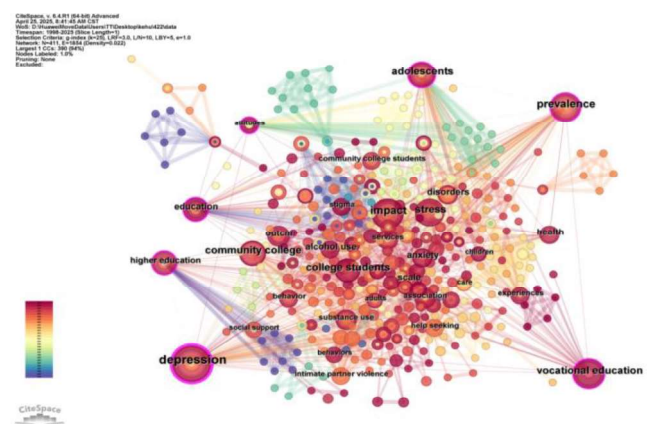


Figure 3. Keyword Co-occurrence Network

Table 2 lists the top 15 keywords by frequency, along with their corresponding years and centrality values. Notably, "depression" ranks first with a frequency of 29 and a centrality of 0.27, making it the core research topic in this field. This underscores the central role of depression in mental health education research in higher vocational colleges. Following closely are "prevalence" (frequency 22, centrality 0.16) and "impact" (frequency 21, centrality 0.08), indicating that the focus of research is primarily on the prevalence of mental health issues and their impact on students. In addition to "depression," other keywords with high centrality include "education" (centrality 0.16) and "prevalence" (centrality 0.16). These keywords not only appear frequently but also serve as bridges between multiple research themes, indicating their crucial role in the research network and as key nodes in the development of the research structure. The keyword "vocational education" (frequency 18, centrality 0.12), a core theme related to higher vocational colleges, reflects the increasing attention given to mental health issues in the context of vocational education. Keywords such as "college students" (frequency 17), "community college" (frequency 17), and "adolescents" (frequency 15) are positioned in the core of the map, indicating that the research primarily focuses on student populations, particularly the mental health and behavioral issues of young adults and adolescents. The frequent appearance of keywords like "stress" (frequency 18), "anxiety" (frequency 11), and "disorders" (frequency 11) highlights the diverse range of mental health issues being addressed, including anxiety, stress, psychological disorders, and addiction.

In summary, the keyword co-occurrence network reveals the development trajectory and research hotspots in the field of mental health education in higher vocational colleges from 1998 to 2025. "Depression," "prevalence," and "impact" constitute the core issues of research, while "college students," "community college students," and "adolescents" are the primary research subjects. The intersection of high-frequency and high-centrality keywords forms a complex research network centered on student mental health within the educational environment, reflecting a mature research system and a clear direction for future studies in this field.

TABLE 2: HIGH-FREQUENCY KEYWORDS

Keyword	Year	Frequency	Centrality
depression	1999	29	0.27
prevalence	2009	22	0.16
impact	2009	21	0.08
stress	1999	18	0.04
vocational education	2020	18	0.12
community college	2015	17	0.08
college students	2015	17	0.08
adolescents	2005	15	0.16
scale	2020	12	0.04
education	1998	12	0.16
outcm	1998	11	0.09
anxiety	2012	11	0.04
disorders	2012	11	0.05
health	2011	10	0.04
alcohol use	2015	10	0.02

Keyword Clustering Analysis

Keywords reflect the core content and themes of the literature, and conducting a clustering analysis of these keywords can reveal the hotspots and development trends in a research field. This study, based on relevant literature from 1998 to 2025, employs CiteSpace to construct a keyword co-occurrence clustering map (see Figure 4). The map identifies 441 nodes and 1854 connections, with a network density of 0.022, indicating a relatively sparse but clearly connected knowledge structure in the field. A total of 8 major clustering modules were identified, labelled The colour gradient from red to blue represents the trend of time slices, with red clusters representing early-established themes, while green to blue clusters signify topics that have gained prominence in recent years. The modularity Q value of the map is 0.5532, and the average silhouette value is 0.8189, suggesting a significant clustering structure with high internal consistency.

The primary clustering results of this study are as follows: Cluster (hurricane katrina), one of the core clusters in the map, is shown in red, indicating its formation in the early stages of research. The keywords in this cluster focus on the impact of natural disasters on students' mental health, suggesting that early research tended to emphasize the effects of major external events on students' psychological states. Cluster #1 (cross-sectional study), positioned towards the centre-upper part of the map and colored orange, indicates a formation slightly later than

Cluster #0. This cluster centres on cross-sectional studies, primarily conducting descriptive analyses of students' mental states at different time points, emphasizing the structural and objective nature of the research methods, thus constituting the foundational research framework of the field. Cluster #2 (economic abuse), appearing in yellow-green, represents a formation during the mid-phase of the research. This cluster explores the effects of economic pressure and economic control behaviours on students' mental health, gradually highlighting the connection between socioeconomic factors and psychological issues.

In terms of clustering structure and content, this study demonstrates a progression from external event impacts (#0) and methodological exploration (#1) to a focus on socioeconomic and cultural differences (#2, #3), group adaptation issues (#4, #5), and educational system feedback mechanisms (#6, #7). These clusters are interconnected and evolve over time, ultimately constructing a comprehensive research framework cantered on students' mental health, incorporating social culture, educational systems, and life experiences.

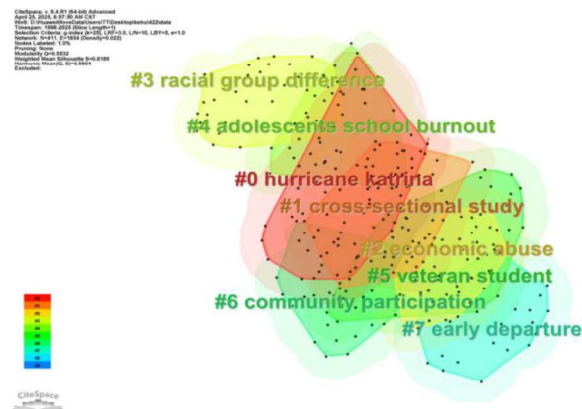


Figure 4. Keyword Co-occurrence Clustering Map

Keyword Temporal Zone Map Analysis

Keyword temporal zone map analysis helps reveal the evolving trends and changing hot topics within a research field. Using CiteSpace software, this study constructs a keyword temporal zone map based on an analysis of keywords across the literature from 1998 to 2025 (see Figure 5). The map covers 28 annual slices from 1998 to 2025, with each keyword node connected to others to represent co-occurrence relationships. Based on this map, the evolution of keywords in this study can be divided into four stages:

I. 1998–2005: Early Stage of Research, Focus on Basic Psychological Issues

In the left section of the map, early keywords such as “depression,” “stress,” “education,” “adults,” and “higher education” dominate, indicating that research during this period primarily focused on fundamental psychological issues. Attention was given to common psychological problems like "depression" and "stress" among vocational college students, as well as their relationship with higher education backgrounds.

II. 2006–2012: Deepening Stage, Emphasis on Measurement and Variable Associations

In the middle section of the map, keywords like “prevalence,” “impact,” “validity,” “achievement,” “depressive symptoms,” and “model” become central to co-occurrence. This shift highlights a growing emphasis on the universality of psychological problems, their underlying mechanisms, and the validity of assessment tools. Additionally, the appearance of “adolescents” signals a focus on the youth demographic.

III. 2013 – 2019: Expansion Stage, Focus on Specific Psychological Phenomena and Intervention Factors

As research advanced, keywords such as “anxiety,” “disorders,” “burnout,” “implementation,” “stigma,” and “community” became more frequent. This suggests a deeper exploration of specific psychological issues, including anxiety, burnout, psychological disorders, and stigma, with research paradigms becoming more diverse. The concentration of keywords like “college students” and “community college” reflects a more specific focus on vocational and community college student populations.

IV. 2020 – 2025: Diversified Hot Topics, Integration of Educational and Social Variables

On the far right of the map, a broad range of keywords, such as “online learning,” “school,” “prevention,” “intimate partner violence,” “substance use,” “help seeking,” and “university,” are densely clustered. This indicates that recent research not only extends into online learning and school environments but also delves into more complex social-psychological issues like intimate partner violence, substance use, and help-seeking behaviours. This reflects a shift in research paradigms from educational psychology to an integration of social psychology perspectives.

The keyword temporal zone map clearly illustrates the development trajectory of this field over nearly three decades. Early research focused on fundamental psychological issues, gradually transitioning to the study of measurement tools and variable associations, followed by a focus on psychological phenomena and intervention mechanisms. In recent years, there has been a trend towards diversification and integration. Current research hotspots show a shift from “individual symptoms” to “environmental interactions” and “social support,” reflecting the deepening theoretical foundation and practical orientation of the field.

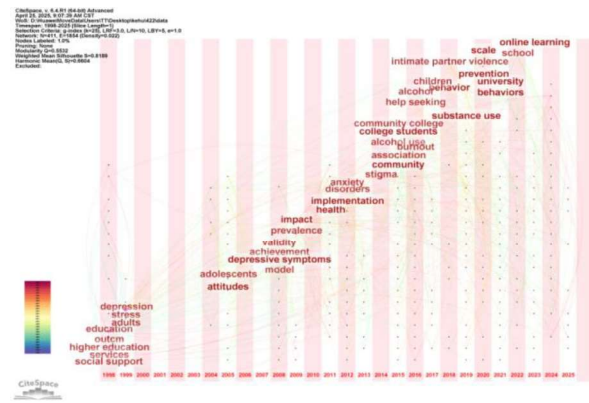


Figure 5. Keyword Temporal Zone Map
Keyword Burst Analysis

Keyword burst analysis reveals the core content and emerging research trends within the literature. This study uses CiteSpace software and the Log-Likelihood Ratio (LLR) algorithm to identify keywords with significant burstiness over time. The burst patterns, from 1998 to 2025, highlight the evolving hot topics and trends in the field (see Figure 6). The map shows the 12 keywords with the highest burst intensity, with red areas indicating active burst periods and blue areas denoting non-burst periods. The left side lists each keyword's first appearance year, burst strength, and start and end years.

Keywords primarily began to burst after 2012, signaling rapid development in the 2010s and expansion into multidimensional issues such as social psychology and educational support post-2020. The most intense burst occurred for “intimate partner violence” (strength 3.56), followed by keywords like “help seeking,” “care,” and “disorders.” Specifically, “disorders” (2012 – 2020, strength 2.33), “care” (2014 – 2019, strength 2.9), and “help seeking” (2016 – 2020, strength 3.00) emerged as early bursts, reflecting a focus on mental health issues and support behaviours. Keywords such as “economic abuse” and “lives” emerged in 2019, indicating an expanding interest in the impact of living conditions and economic control on mental health. “Prevention” (2020 – 2021, strength 1.96) reflects a short-lived focus on intervention strategies. More recently, “community college” (2021 – 2022, strength 2.25) indicates an increased focus on specific educational contexts, particularly vocational and community colleges. In the past few years, “behaviours” (2023 – 2025, strength 1.94) and “scale” (2023 – 2025, strength 1.72) have emerged, reflecting greater emphasis on psychological behaviour and measurement tools.

This burst analysis illustrates the shift in research focus from identifying psychological disorders to exploring psychological support, social factors, and interventions, with a recent emphasis on behavioural measurement and prevention. This trend underscores the field’s evolving theoretical and practical direction.

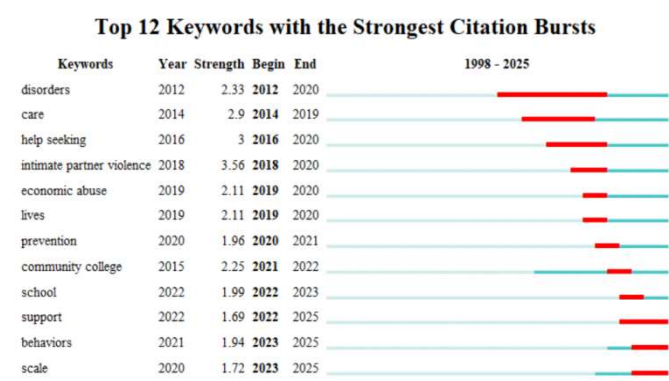


Figure 6. Burst Keywords

VI. CONCLUSION (OR LIMITATION OR SUGGESTION FOR FURTHER STUDIES)

Gradual Growth and Rising Academic Interest in Psychological Health Education in Vocational Colleges. From 1998 to 2024, the number of publications in this field has shown a steady increase, with a significant rise in the number of publications since 2011. This reflects the growing importance of psychological health education in vocational colleges as a key academic topic. This trend indicates a heightened academic focus and the increasing prominence of this field in psychological health education research.

Current Status of Institutional Collaboration Networks and Potential for Growth. The institutional collaboration network map constructed with CiteSpace shows that, although some well-known institutions stand out in this field, the overall collaboration is still relatively loose. The degree of cooperation between research institutions remains low, and a highly centralized collaborative network has not yet formed. This presents significant opportunities for future academic exchange and collaboration, which could enhance the overall research quality.

Evolution of Research Keywords Reflecting Expanding Themes in Psychological Health Education. Keyword co-occurrence and temporal zone analysis reveal a shift in research topics from basic mental health issues to broader social, cultural, and educational factors. Initial research focused on psychological issues, but has since expanded to include social support, psychological intervention, and educational factors, indicating the diversification of research themes and the deepening and broadening of academic discussions in this field.

Rapid Rise of Social Psychology and Educational Intervention Topics. Through keyword burst analysis, this study finds a growing academic interest in social psychological factors and educational intervention mechanisms in recent years. Keywords such as “intimate partner violence” and “help seeking” began to emerge after 2012, marking a shift in research from identifying psychological disorders to a deeper exploration of

psychological support and the impact of social and cultural factors.

Development of a Multidimensional Research System and Ongoing Growth of Psychological Health Education in Vocational Colleges. Keyword clustering and temporal zone analysis indicate that research on psychological health education in vocational colleges has gradually formed a comprehensive research system covering mental health, socioeconomic factors, and cultural differences. The research focus has expanded from individual student mental health issues to broader topics such as group adaptation, the influence of social environments, and educational system feedback. This shows the deepening and maturing of research in the field, with potential for a more systematic and integrated academic framework in the future.

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