INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 14, Issue 12, (2024) E-ISSN: 2222-6990

A Knowledge Map of Emotional Labor in Healthcare: Insights from CiteSpace-Based Bibliometric Analysis

Luo Guoyu
Universiti Sains Malaysia
Email: Luoguoyu@student.usm.my

AP Dr. Mohd Anuar bin Arshad
Universiti Sains Malaysia, Penang
Corresponding Author Email: Anuar_arshad@usm.my

Li Jinbei
Universiti Sains Malaysia; Southwest Jiaotong University Hope College, China
Email: lijinbei@student.usm.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v14-i12/23723 DOI:10.6007/IJARBSS/v14-i12/23723

Published Date: 16 December 2024

Abstract

Despite the increasing recognition of the importance of emotional labor for employee mental health and patient satisfaction in the healthcare industry, the research structure in this field still lacks coherence and clarity. A systematic literature review on emotional labor in medical services is urgently needed to advance the development of this area. This study utilizes bibliometric methods to comprehensively understand the knowledge structure and research hotspots related to emotional labor in the healthcare sector. We retrieved 1,000 publications from the Web of Science Core Collection database and analyzed them using CiteSpace, revealing significant research clusters, and emerging trends in this field. The results indicate that the evolution of emotional labor research in healthcare primarily focuses on critical themes such as the impact of emotional labor on healthcare workers' mental health, strategies for managing emotional labor, and the role of organizational support. Additionally, this study identifies essential gaps in the existing literature and suggests potential directions for future research, particularly regarding healthcare professionals' emotional regulation and mental health. This research provides a visual knowledge map that enhances the understanding of emotional labor in the healthcare sector, offering valuable insights for scholars, practitioners, and policymakers aiming to promote the emotional well-being of healthcare workers.

Keywords: Emotional Labor, Bibliometric Analysis, CiteSpace, Healthcare

Introduction

Emotional labor, first conceptualized by Hochschild (1983), refers to how employees manage and regulate their emotions to meet organizational expectations and professional standards (Hochschild, 1983). While originally studied in service industries like hospitality and retail, emotional labor has garnered increasing attention in healthcare due to its profound impact on healthcare workers and patients(Riforgiate et al., 2022). In this context, healthcare professionals, particularly doctors and nurses, frequently engage in emotional labor as they navigate emotionally charged interactions with patients, families, and colleagues (Zaghini et al., 2020). This demand for continuous emotional regulation can lead to significant psychological strain, affecting healthcare workers' mental health and job satisfaction(C.-C. Chen et al., 2022), while also influencing patient care outcomes, such as patient satisfaction and the overall quality of care (Yuan et al., 2022). The significance of studying emotional labor in healthcare extends beyond individual workers to the broader healthcare system. For healthcare professionals, understanding and managing emotional labor is essential for reducing burnout, mitigating anxiety and depression, and fostering a more sustainable work environment. For patients, the ability of healthcare workers to effectively manage their emotions directly impacts the quality of care and therapeutic relationships, which are integral to positive health outcomes. Furthermore, for healthcare organizations and policymakers, insights into emotional labor can guide the development of targeted interventions, such as training programs and supportive workplace policies, that enhance workforce resilience and efficiency, ultimately contributing to improved healthcare delivery.

Despite the growing body of research highlighting the importance of emotional labor in the healthcare sector, the field's theoretical and empirical development remains fragmented. The lack of coherence in the research structure and the absence of a comprehensive literature synthesis presents challenges for researchers and practitioners seeking to understand the full scope of emotional labor in healthcare settings. Furthermore, the evolving landscape of healthcare, marked by increasing demands on healthcare workers and a global focus on employee well-being, calls for a deeper investigation into the factors that shape emotional labor and its outcomes in this critical sector. Given these gaps in the literature, there is a pressing need for a systematic analysis of the knowledge structure, research hotspots, and emerging trends in emotional labor within the healthcare industry. Bibliometric analysis, mainly using tools like CiteSpace(Cui et al., 2023), offers a powerful approach to mapping the intellectual landscape of this field, identifying influential studies, detecting research clusters, and uncovering critical trends over time(Ninkov et al., 2021).

This study aims to address the research gap in emotional labor in healthcare through a bibliometric analysis. Drawing on 1,000 publications from the Web of Science Core Collection, CiteSpace software was used to conduct a quantitative study, constructing a knowledge map of the field. The second section of this paper introduces the data sources and research methods; the third section describes the results of the CiteSpace analysis on emotional labor in healthcare; and the fourth section presents the main conclusions and discusses future research directions. By identifying key research clusters, influential publications, and emerging areas of interest, this study provides valuable insights for scholars, healthcare practitioners, and policymakers, ultimately contributing to the emotional well-being of healthcare professionals.

Data and Methods

Data Sources

The data for this study were sourced from the Web of Science Core Collection (WoSCC). This leading global academic information platform provides high-quality scholarly journals, conference papers, and patents across various fields, including natural sciences, social sciences, and engineering. On October 19, 2024, a comprehensive literature search was conducted in WoSCC, covering all available years in the database, resulting in 1,000 articles and reviews. The search formula was set as follows: TS=("emotional labor" OR "surface acting" OR "deep acting" OR "emotion regulation" OR "emotional display rules" OR "emotional work") AND TS=(hospital OR healthcare OR doctor OR nurse) AND DT=(Article OR Review) AND LA=(English). For the analysis, we selected this dataset from WoSCC. Since the WoSCC topic search includes keywords from the title, abstract, author keywords, and keywords, this method ensured a more precise and focused retrieval of relevant studies (Ninkov et al., 2021). This approach allowed us to comprehensively understand the research landscape on emotional labor in the healthcare sector. To ensure the analysis's accuracy and the results' representativeness, we applied the "Remove Duplicates" function in CiteSpace to the 1,000 articles retrieved. After removing the duplicates, 908 articles remained available for analysis.

Research Methods

This study aims to explore the current research status and development trends in emotional labor in healthcare through bibliometric analysis. To achieve this, we utilized CiteSpace 6.2.R3, a Java-based bibliometric analysis tool developed by Chinese American scholar Professor Chaomei Chen, widely applied for data visualization and trend analysis in scientific research (Shu Yueyu, 2019). CiteSpace employs citation, co-word, and co-citation analysis techniques to reveal a comprehensive view of information, research hotspots, and trends within academic fields, demonstrating exceptional precision. This study used CiteSpace to statistically analyze emotional labor literature in healthcare from 1992 to 2024, constructing keyword clustering maps, timeline analysis maps, and burst word maps to examine research hotspots and trends in this area. (See Figure 1)

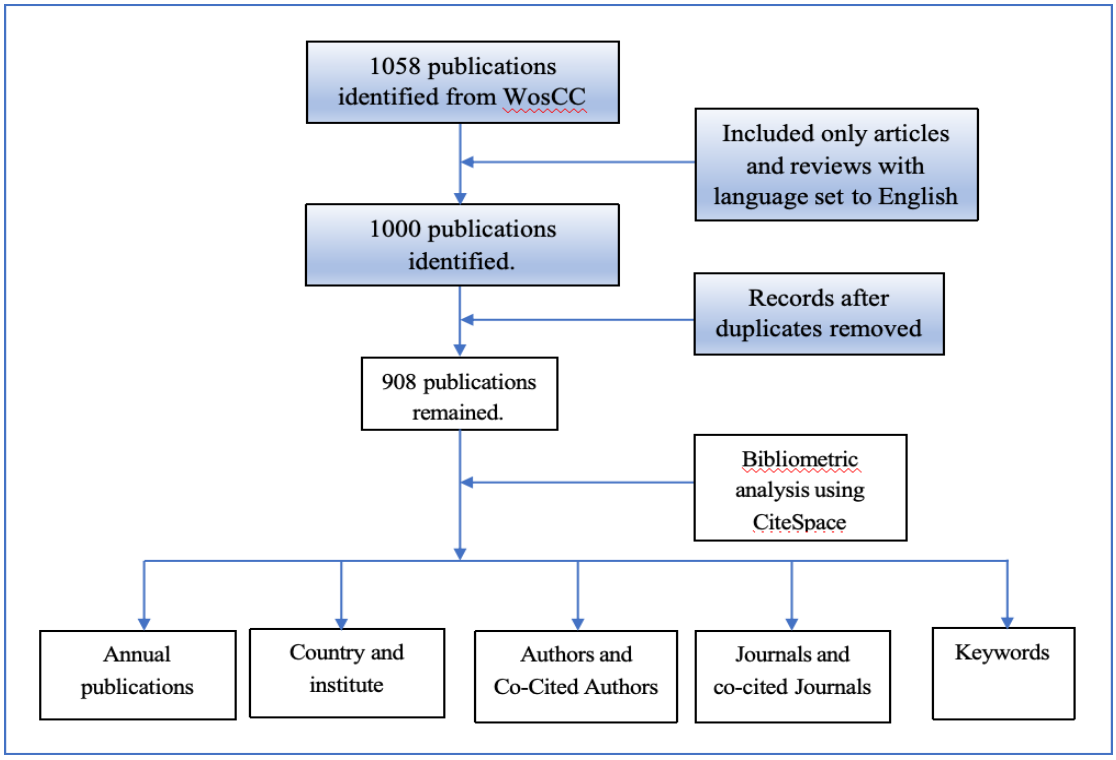

Figure 1. Literature Screening and Selection Process Flowchart

Results

Statistical Analysis of Publications

Figure 2 shows the yearly distribution of Emotional Labor in Healthcare publications from 1992 to 2024. The first publication appeared in 1992, despite the search covering all available years in the Web of Science database. From 1992 to 2024, the number of publications on "Emotional Labor in Healthcare" has shown a significant upward trend. In the early stage (1992-2000), the output was relatively low, with slow growth. However, from 2001 to 2010, the number of publications gradually increased. After 2011, the research in this field entered a period of rapid growth, with an explosive surge after 2015, reaching 146 publications by 2024. This trend indicates the growing recognition of the importance of emotional labor in the healthcare sector, particularly as global healthcare systems face increasing challenges and healthcare workers experience mounting pressures. Research in this area is expected to expand in the coming years.

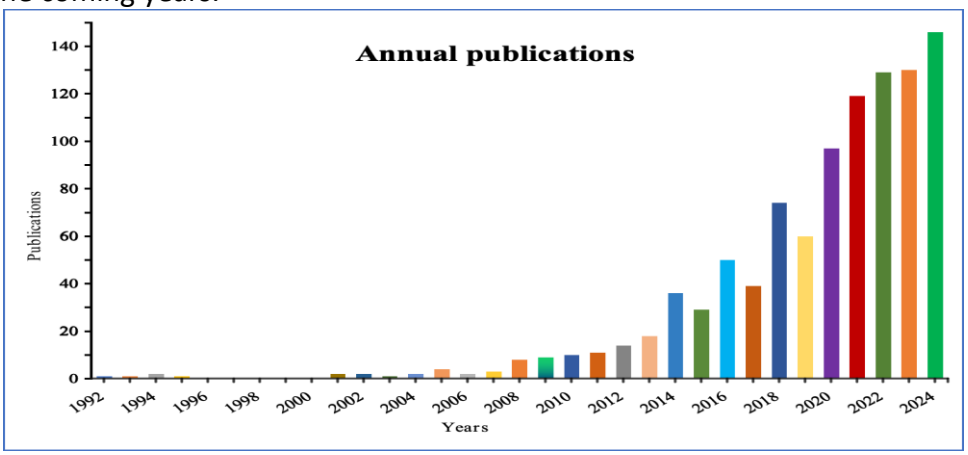

Figure 2. Annual Publications of Healthcare Emotional Labor in WOS

Country and Institutional Analysis

Country Analysis

Table 1 shows the top 10 countries/regions regarding healthcare emotional labor research output. Among them, the number of publications in this field in the USA is far ahead, reaching 261 (28.7%). China's research in this field has multiplied since 2001, with 113 publications (12.4%), second only to the USA. With the expansion and modernization of China's medical system, the problem of work stress and the emotional labor of medical staff has become increasingly prominent. It has become the focus of academic research. England, Germany, Italy, Spain, and other European regions are more active in this field of study. England's 107 publications (11.8%) demonstrate its significance to the issue. The USA, China, and England together account for 53% of all publications on emotional labor in healthcare.

Developed countries exhibit a greater focus on emotional labor issues within healthcare compared to developing and emerging markets, though the upward trend in the latter should not be overlooked. This reflects a global problem in the healthcare industry as emotional labor pressures continue to mount. Given the intensifying shortage of healthcare workers worldwide, emotional labor research is expected to deepen and expand to more countries and regions.

Table 1
Top 10 Countries/Regions with Healthcare Emotional Labor Publications

Rank	Countries	Counts	Centrality	Percentage(out of 908)	Year
1	USA	261	0.16	28.7%	1994
2	China	113	0	12.4%	2014
3	England	107	0.83	11.8%	2001
4	Australia	70	0.37	7.7%	2006
5	Canada	55	0	6.1%	2008
6	Italy	54	0.06	5.9%	2007
7	Germany	49	0.06	5.4%	2006
8	Spain	47	0	5.2%	2013
9	Netherlands	44	0	4.8%	2003
10	South Korea	34	0	3.7%	2015

Based on publication volume and relationships, we constructed a collaboration network (see Figure 3) and analyzed it using the Country module in CiteSpace with a threshold set at 25. Figure 2 shows a network with 69 nodes, 337 links, and a density of 0.1436. Node size represents publication volume, with larger nodes indicating higher output, while node centrality reflects each country's influence and degree of collaboration in the research network (Chen, 2006). The results reveal that although the USA leads in publication volume, its bridging role is relatively weak, with a centrality of only 0.16 (Table 1). In contrast, England

has a centrality of 0.83, indicating a significant intermediary role within the global emotional labor research network, likely connecting multiple research clusters. Australia, with a centrality of 0.37, also demonstrates robust connectivity across various research regions, facilitating literature dissemination and citation. China, Canada, Spain, the Netherlands, and South Korea, each with a centrality of 0, indicate that their research primarily remains within domestic academic circles without forming solid global connections.

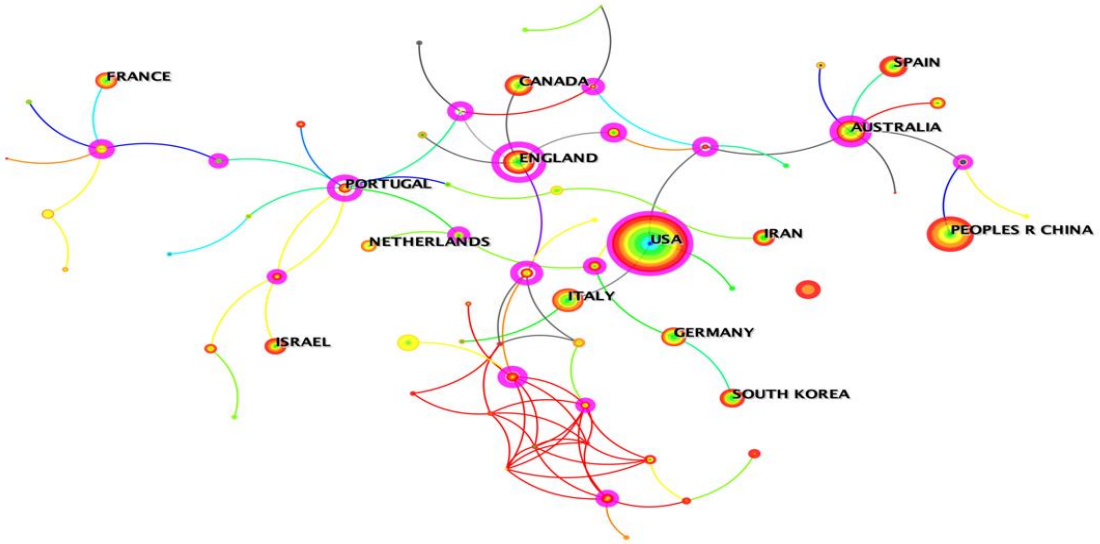

Figure 3. Collaboration Network of Countries

Institute Analysis

Table 2 and Figure 4 show that the University of London has the highest publication volume in this field, with 29 articles and a relatively high centrality score (0.22), underscoring its essential position within the global research network. Harvard University ranks second with 27 publications and a slightly lower centrality (0.14) yet has shown significant academic influence since 2007. This highlights that the University of London and Harvard University have been instrumental in advancing the global research network on emotional labor in healthcare through their scholarly output and connections.

Additionally, another key UK institution, King's College London, published 18 articles but has a lower centrality score (0.03), indicating its impact is more concentrated in specific areas with limited global connectivity. The U.S. Department of Veterans Affairs and the Veterans Health Administration published 18 and 15 articles, respectively, and have invested significant resources in this field since 2015, reflecting the U.S. government's focus on this topic.

In summary, academic institutions such as the University of London and Harvard University and U.S. government agencies have made substantial contributions to emotional labor research in healthcare, driving the development of a global collaborative network.

Table 2
Top 10 Institutions with Healthcare Emotional Labor Publications

Rank	Institution	Counts	Centrality	Year
1	University of London	29	0.22	2001
2	Harvard University	27	0.14	2007
3	King's College London	18	0.03	2005
4	U.S. Department of Veterans Affairs	18	0.03	2015
5	Baylor College of Medicine	17	0.03	2014
6	University of California System	17	0.1	2016
7	University System of Ohio	16	0.07	1995
8	Pennsylvania Commonwealth System of Higher Education (PCSHE)	16	0.13	2007
9	Emory University	16	0.02	2013
10	Veterans' Health Administration (VHA)	15	0.04	2015

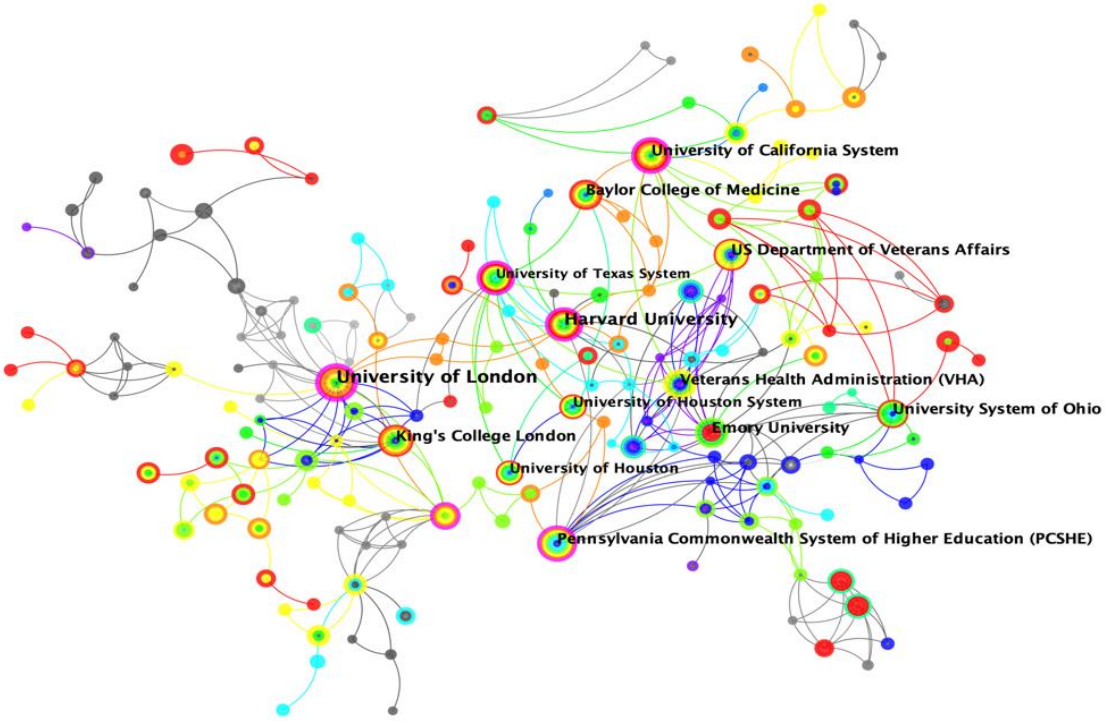

Figure 4. Collaboration Network of Research Institutions

Journals and Co-Cited Journals

From 1992 to October 19, 2024, the WOS database searched 687 academic journals and published 1,000 papers on emotional labor in health care. The top 10 journals accounted for 23% of all publications (Table 3). *Frontiers in Psychology* ranked highest with 49 papers,

followed by the *Journal of Advanced Nursing* (n=29), *International Journal of Environmental Research and Public Health* (n=28), and *Frontiers in Psychiatry* (n=26). Table 3 shows that emotional labor in healthcare is a multidisciplinary topic, drawing significant attention, particularly in mental health, nursing, and public health. Most of the journals in the table are in divisions Q1 and Q2. The journal with the highest impact factor is *International Journal of Environmental Research and Public Health* (IF=4.614). At the same time, the *Journal of Advanced Nursing* holds the highest citation count at 1,094, indicating its strong influence in the field. Although some journals, such as *Frontiers in Psychology* (IF=2.6), have relatively lower impact factors, they still exhibit high citation counts (866 citations), reflecting the importance of the psychological perspective in emotional labor research. Since emotional labor is closely related to mental health, *Frontiers in Psychology*, a psychology journal, has extensively covered and advanced research in this area.

Table 3
Top10 Productive Journals Associated with Healthcare Emotional Labor

Rank	Journal	Count	Total Citations	IF	JCR Division
1	Frontiers in Psychology	49	866	2.6	Q2
2	Journal of Advanced Nursing	29	1094	3.8	Q1
3	Environmental Research and Public Health	28	686	4.614	Q2
4	Frontiers in Psychiatry	26	196	3.2	Q2
5	PLOS ONE	22	191	2.9	Q1
6	Journal of Clinical Nursing	18	463	3.2	Q1
7	BMC Nursing	17	42	3.1	Q1
8	BMJ Open	14	111	2.4	Q1
9	Healthcare	14	61	2.4	Q2
10	BMC Psychiatry	13	143	3.4	Q2

Highly co-cited journals typically indicate substantial academic influence within a specific field and are widely recognized by the scholarly community. As shown in Table 4, among the top ten co-cited journals, total citation counts range from 233 to 358. *Journal of Personality and Social Psychology* ranks highest with 358 co-citations, followed closely by *PLOS ONE* (277) and *Clinical Psychology Review* (264). *Psychological Bulletin* has the highest impact factor (IF=17.3), followed by *Clinical Psychology Review* (IF=13.7), underscoring their authority within the field. The range of co-cited journals spans psychology, nursing, and public health, highlighting the interdisciplinary nature of emotional labor research.

Table 4
Top10 Co-Cited Journals Associated with Healthcare Emotional Labor

Rank	Co-Cited Journal	Total Citations	IF	JCR Division
1	Journal of Personality and Social Psychology	358	6.4	Q1
2	PLOS ONE	277	2.9	Q1
3	Clinical Psychology Review	264	13.7	Q1
4	Journal of Advanced Nursing	249	3.8	Q1
5	Journal of Affective Disorders	246	4.9	Q1
6	Frontiers in Psychology	242	2.6	Q2
7	Behaviour Research and Therapy	241	4.2	Q1
8	Personality and Individual Differences	234	3.5	Q1
9	Journal of Psychosomatic Research	224	3.5	Q2
10	Psychological Bulletin	223	17.3	Q1

Authors and Co-Cited Authors

In the CiteSpace software, with the node type set to "Author," from 1992 to 2024, and a time slice of 1 year, an author collaboration network map was generated for emotional labor research in the healthcare industry. This map includes 519 nodes and 475 links, with a density of 0.0035. The size of each node represents the author's number of publications or citation count, with larger nodes indicating a more significant influence in the field. For example, the nodes for Powers, Abigail (11 publications), Bradley, Bekh (8 publications), and Garnefski, Nadia (8 publications) are relatively large, suggesting that these authors have made substantial contributions to the field or have a significant academic impact (see Table 5).

The color of the nodes reflects different periods, with lighter colors representing earlier research and darker colors indicating more recent studies, illustrating the progression and shifting research trends within the field. For example, authors such as Petit, Geraldine, Jobson, Laura, de Timary, and Philippe each published three papers in 2022 (see Table 5), suggesting they may be emerging contributors in the field or represent new research directions.

The lines between nodes represent collaborative relationships among authors. Nodes with more connections typically indicate authors who play a crucial role in collaborations with other researchers. Overall, the network density is 0.0035, indicating a low level of collaboration intensity. Although there are some core authors (such as Powers, Abigail and Garnefski, Nadia) and localized collaborative groups, the connections between these groups are relatively sparse, reflecting a weaker overall collaborative strength. This may suggest that researchers in this field tend to work independently or in smaller collaborative clusters, lacking a broad, interconnected network (see Figure 5 for details).

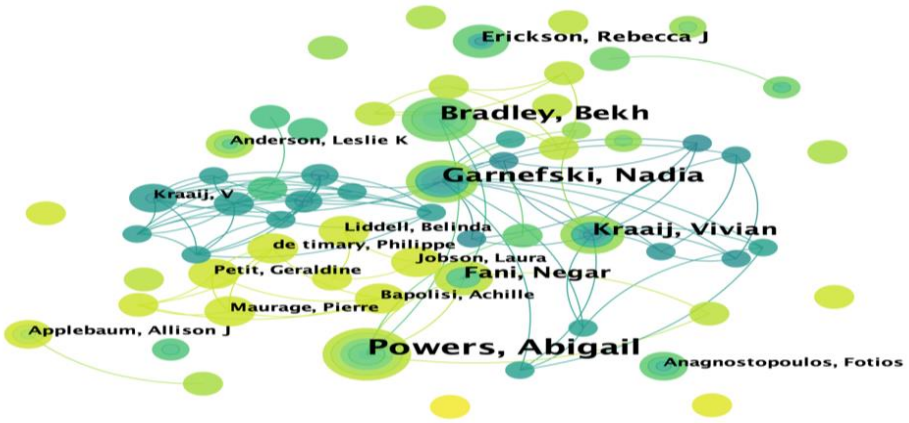

Figure 5. Author co-occurrence map in healthcare emotional labor research

Table5

Top10 Authors and Cited Authors in the Field of Healthcare Emotional Labor

Rank	Author	Count	Year	Co-Cited Author	Count	Centrality
1	Powers, Abigail	11	2015	Gross JJ	255	0.17
2	Bradley, Bekh	8	2013	Gratz KL	170	0.05
3	Garnefski, Nadia	8	2007	Zigmond AS	145	0.07
4	Kraaij, Vivian	6	2007	Grandey AA	113	0.05
5	Fani, Negar	5	2013	American Psychiatric Association	95	0.03
6	Erickson, Rebecca J	4	2008	Hochschild AR	90	0.06
7	Petit, Geraldine	3	2022	Maslach C	89	0.08
8	Jobson, Laura	3	2022	Garnefski N	87	0.04
9	detimary, Philippe	3	2022	Aldao A	78	0.04
10	Anderson, Leslie K	3	2015	Brotheridge CM	66	0.03

This study used CiteSpace to generate an author co-citation network map (see Figure 6). Analysis of Table 5 reveals that Gross JJ is the most influential author in this field, with a high citation count (255) and centrality (0.17). This suggests that Gross JJ is widely cited and serves as a critical bridging figure in the co-citation network, potentially connecting different research themes or sub-networks. Authors such as Gratz KL, Zigmond AS, and Grandey AA have relatively high citation counts (over 90) but low centrality (mostly below 0.05), indicating their significant influence within specific areas but limited role in connecting broader networks. Although Maslach C and Hochschild AR have lower citation counts, their higher centrality suggests they may function as bridges linking areas such as emotional labor and occupational burnout. Figure 5 illustrates a co-citation network structure centered on a few core authors, with multiple highly cited but low-centrality authors surrounding them.

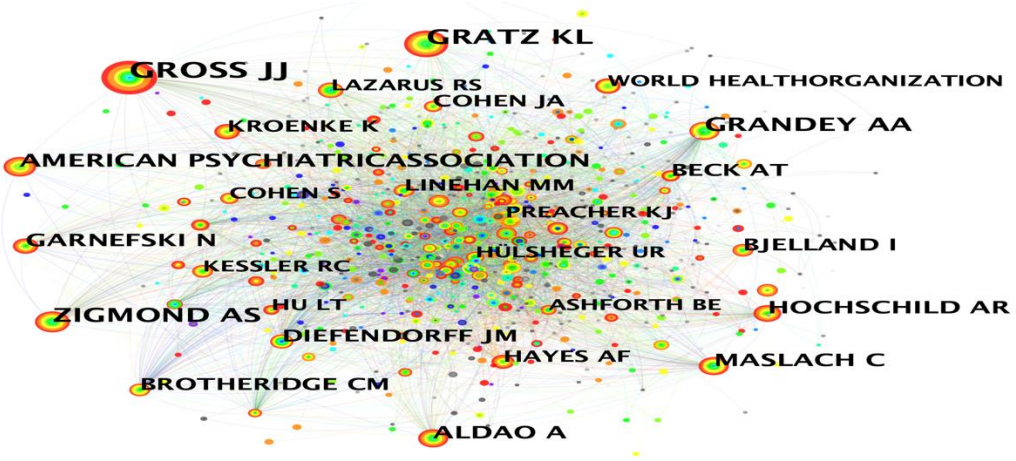

Figure 6. Author Co-Citation Network Map

Keyword Co-Occurrence and Clustering

Keyword Co-occurrence Analysis

Keywords can represent the core topic of the article and its primary content. Conducting a frequency analysis of keywords can reveal the research hotspot within a given field. Using CiteSpace's keyword co-occurrence analysis, visual analysis was performed on crucial literature within the field of emotional labor in healthcare (see Figure 7), and the top 10 high-frequency keywords were extracted (see Table 6). The analysis revealed that "emotion regulation" is the largest node in the network (co-occurrence frequency: 213, centrality: 0.63), positioned centrally with high centrality, indicating its prominence as a research focus involving multiple sub-themes and related concepts. Related keywords include "cognitive emotion regulation," "cognitive reappraisal," and "quality of life," underscoring the close connection between emotion regulation and aspects such as quality of life and cognitive-behavioral therapy, emphasizing its importance for mental health and well-being.

Another notable node, "emotional labor" (co-occurrence frequency: 99, centrality: 0.4), is strongly associated with keywords like "emotion work," "job satisfaction," "deep acting," and "surface acting," highlighting the significance of emotional labor for workplace mental health and employee satisfaction, particularly in roles that demand emotional control. This node is also linked to terms like "job stress," "emotional exhaustion," and "burnout," indicating the relationship between emotional labor and job-related stress and emotional depletion, suggesting that stress and burnout may be prevalent issues in professions with high emotional labor demands.

With rising awareness of mental health concerns and focus on high-stress professions (e.g., healthcare workers), keywords such as "mental health," "social support," and "healthcare workers" have shown increasing frequency in recent years, reflecting growing attention to emotional labor and mental health in the healthcare sector. Social support may serve as a moderating factor in mitigating the adverse effects of emotional labor. Future research could explore how emotion regulation strategies impact quality of life and mental health under high-stress conditions.

Table 6
Top10 Keywords in the Field of Healthcare Emotional Labor

Rank	Keywords	Count	Centrality	Year
1	Emotion Regulation	213	0.63	2005
2	Emotional Labor	99	0.4	2004
3	Mental Health	38	0.07	2009
4	Job Satisfaction	22	0.02	2008
5	Qualitative Research	22	0.01	2018
6	Emotion Work	18	0.07	2001
7	Emotion Dysregulation	17	0.17	2009
8	Healthcare Workers	14	0.09	2020
9	Randomized Controlled Trial	12	0.18	2018
10	Quality of Life	12	0.03	2014

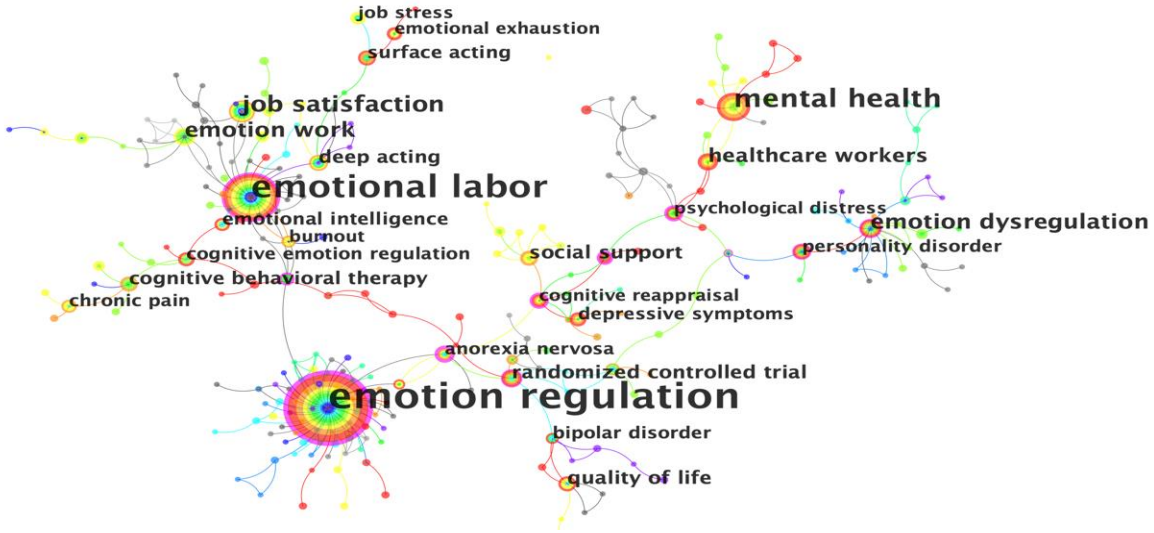

Figure 7. Keyword Co-occurrence Map

Keyword Clustering Analysis

Keyword clustering refers to using distinctive terms in a field's complex network as clustering objects, applying algorithms in complex data mining to aggregate and classify terms. CiteSpace evaluates the effectiveness of mapping based on the modularity value (Q-value) of clustering. Generally, when Q > 0.3, the community structure is considered significant and reasonable. Therefore, conducting cluster analysis based on the keyword co-occurrence network can provide a more intuitive view of the research hotspots in emotional labor among healthcare professionals. Using CiteSpace, a keyword clustering network of research articles in this field was generated (see Figure 8). This clustering map presents 337 nodes, 1,369 links, and a modularity value of Q = 0.754.

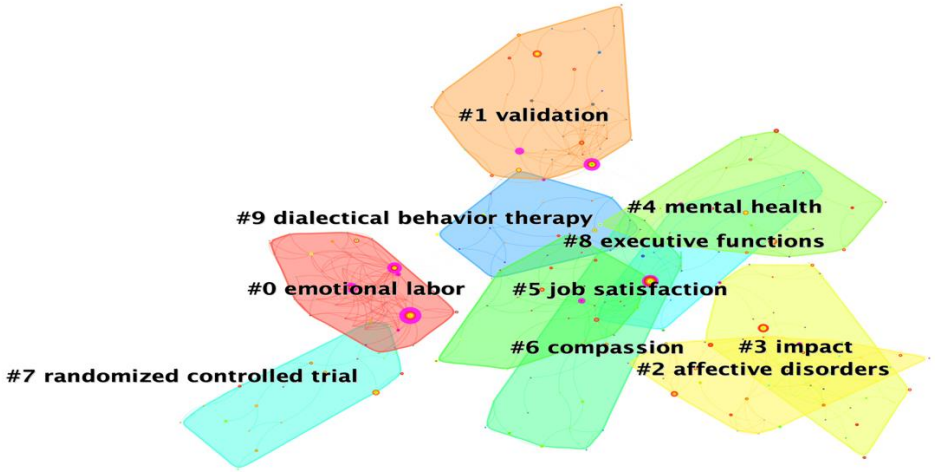

Figure 8. Keyword Clustering Map

In Figure 8, different clusters represent distinct research themes, with the size of each module indicating the cluster size. The labels #0, #1, #2, and so forth denote the ranking of keywords within the clusters. Figure 7 displays the multidimensional research themes within the field of emotional labor among healthcare professionals, highlighting the broad impact of emotional labor on aspects such as mental health, job satisfaction, and empathy among healthcare staff.

Emotional labor is closely linked to mental health, with the potential to trigger affective disorders and impair executive functioning, thereby posing challenges to healthcare professionals' work performance and overall quality of life. Research also addresses methods for assessing and intervening in emotional labor, including emotion management strategies validated through randomized controlled trials and psychological interventions like dialectical behavior therapy aimed at mitigating the adverse effects of emotional labor on healthcare workers. This mapping provides a comprehensive view of emotional labor research in the healthcare sector, underscoring the importance of this field in supporting mental health, enhancing job satisfaction, and developing strategies for emotional management.

Hotspots and Frontiers

Analysis of Keyword Time-Zone Visualization

To visually present keywords' evolution and development trends across different periods, we performed a time-zone visualization to analyze the characteristics and mainstream directions of research on emotional labor among healthcare workers from 1992 to 2024 (see Figure 9). A higher volume of literature during a specific period indicates greater scholarly attention to the field. The connecting lines between nodes from different periods represent the continuity of research, with the number of lines reflecting the degree of interconnectedness across stages.

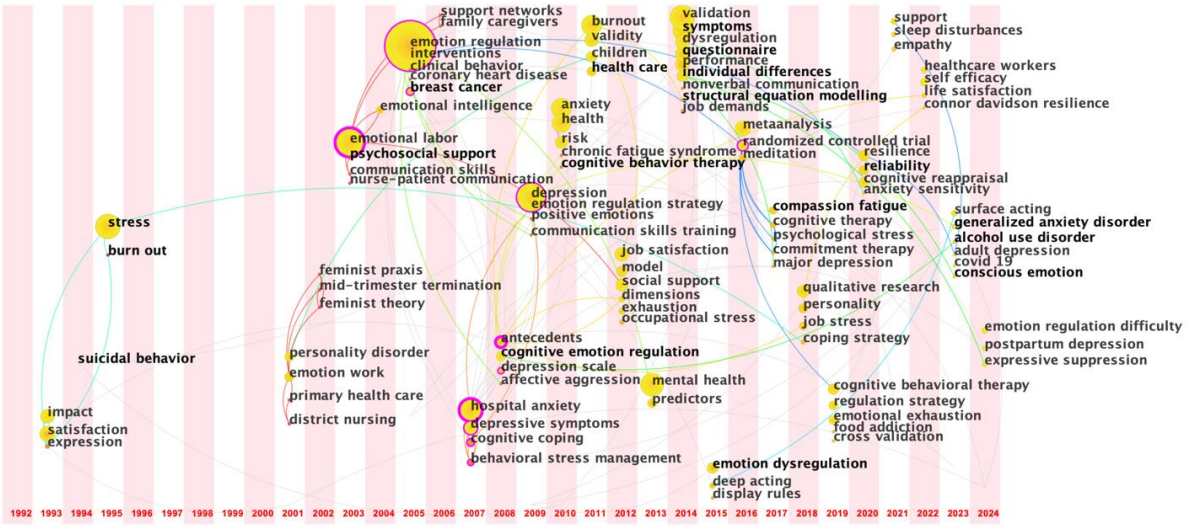

Figure 9. Time-Zone Visualization of Keywords in Healthcare Emotional Labor

As shown in Figure 9, from 1992 to 2000, keywords were relatively sparse, limited to terms such as "expression," "stress," "burnout," and "suicidal behavior," with few links among nodes. As research progressed, these keywords gradually formed the foundation for studies on emotional labor. From 2001 to 2004, keywords expanded to include "emotion work," "emotional labor," and "emotional intelligence," indicating that the academic community began to address issues of emotional labor in healthcare work. This period marks the initial research phase on emotional labor among healthcare professionals.

From 2005 to 2015, research on emotional labor among healthcare professionals entered an in-depth stage. with keywords focusing on areas such as "emotion regulation," "emotion regulation strategy," "communication skills training," and "social support." It shows that researchers are beginning to explore practical strategies and supportive interventions to cope with emotional labor. At the same time, mental health issues such as "depression" and "anxiety" have also been introduced, highlighting the psychological challenges of healthcare workers in emotional labor. With a wide range of research topics, this stage is the peak of research on emotional labor in medical care. Especially in 2014, keywords such as "validation," "questionnaire," and "structural equation modeling" appeared, reflecting the application of quantitative methods in research.

After 2015, the research was further refined and entered a period of steady deepening, focusing on emotional labor strategies and theoretical concepts such as "emotion dysregulation," "deep acting," and "display rules," showing a deep understanding of the complexity and mechanism of emotional labor. In recent years, the emergence of keywords such as "Generalized anxiety disorder," "emotional regulation difficulty," and "surface acting" indicate that research has begun to focus on the specific impact of emotional labor on mental health. Additionally, keywords such as "support," "empathy," and "compassion fatigue" highlight increased attention to the issue of empathy depletion in the emotional labor of healthcare professionals. Since 2020, keywords such as "healthcare workers," "self-efficacy," and "life satisfaction" suggest a further focus on enhancing positive psychological qualities among healthcare professionals to mitigate the negative impacts of emotional labor. With the continued exploration of emotional labor (deep acting and surface acting), future research

may delve deeper into emotion regulation techniques or social support mechanisms to help healthcare workers improve their capacity to cope with emotional labor.

Analysis of Keyword Citation Burst

Using CiteSpace's Burstness function to detect keyword bursts can reveal significant shifts in research trends by highlighting sudden increases or decreases in citation frequency. Figure 10 shows that, from 1992 to 2024, the three keywords with the highest burst strengths were "mental health" (8.26, 2021-2024), "anxiety" (8.15, 2021-2024), and "stress" (7.32, 2021-2022), indicating a heightened academic focus on mental health, anxiety, and stress management among healthcare workers. This reflects the growing recognition of the emotional labor and psychological burdens faced by healthcare personnel working in high-pressure environments such as hospitals, particularly under the widespread psychological impact of the pandemic. Looking forward, as work-related stress and mental health issues continue to intensify, effective stress management and mental health promotion in healthcare workers' emotional labor will likely remain prominent research areas.

In addition, the emergence of keywords such as "cognitive behavioral therapy" (2019–2024), "self-compassion" (2020–2024), "resilience" (2020–2022), and "social support" (2021–2024) indicates an increasing academic focus on psychological interventions, emotional management, and related support measures to address the mental health challenges posed by emotional labor among healthcare professionals. Future research may delve deeper into the role of interventions like social support in alleviating emotional labor and explore how to establish more effective support systems to help healthcare professionals better manage the pressures associated with emotional labor.

Top 19 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	1992 - 2024
expression	1993	3.85	**1993**	2015	
predictors	2013	3.93	**2015**	2017	
meditation	2016	4.24	**2016**	2020	
association	2018	4.22	**2018**	2024	
depressive symptoms	2007	4.09	**2018**	2019	
personality	2005	3.71	**2018**	2019	
cognitive behavioral therapy	2019	6.56	**2019**	2024	
hospital anxiety	2007	4.23	**2019**	2020	
psychopathology	2015	3.83	**2019**	2021	
nurses	2003	6.4	**2020**	2021	
symptoms	2010	4.64	**2020**	2024	
self compassion	2020	4.63	**2020**	2022	
resilience	2012	4.13	**2020**	2022	
fatigue	2013	4.07	**2020**	2021	
validity	2011	3.87	**2020**	2022	
mental health	2009	8.26	**2021**	2024	
anxiety	2010	8.15	**2021**	2024	
stress	1995	7.32	**2021**	2022	
social support	2007	4.17	**2021**	2024	

Figure 10. Keyword Citation Burst

Conclusion

This paper presents a quantitative analysis of the healthcare emotional labor literature in the WoS database from 1992-2024 using CiteSpace visualization software, focusing on publication volumes, national outputs, institutional collaborations, journals, and the evolution of research themes. The main findings are presented below:

(1) Regarding publication volume, research on emotional labor in healthcare has shown a sustained upward trend over the past several decades, with explosive growth observed since 2015. This trend suggests that the field will continue attracting researchers, contributing to a steady increase in publications and further expanding the depth and breadth of research.

(2) From a national and institutional perspective, emotional labor research in healthcare is mainly concentrated in the USA, China, and the United Kingdom, with significant attention from developed countries, while research in emerging markets is also increasing. University College London and Harvard University hold prominent positions in the global collaboration network, especially UCL, a critical bridge across multiple research clusters due to its centrality. As the worldwide shortage of healthcare personnel intensifies, emotional labor research is expected to expand further into more countries and regions.
(3) Regarding research themes, future studies on emotional labor in healthcare will likely focus on the effectiveness of support systems and emotional management interventions, particularly in alleviating the pressures of emotional labor caused by work stress and mental health challenges. Specifically, psychological interventions such as cognitive behavioral therapy, self-compassion, resilience training, and social support are expected to become critical focus areas to explore their roles in enhancing healthcare workers' mental health and promoting the development of more comprehensive support systems.

References

Chen, C. (2006). CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature. Journal of the American Society for Information Science and Technology, 57(3), 359–377. https://doi.org/10.1002/asi.20317

Chen, C.-C., Lan, Y.-L., Chiou, S.-L., & Lin, Y.-C. (2022). The effect of emotional labor on the physical and mental health of health professionals: Emotional exhaustion has a mediating effect. Healthcare, 11(1), 104. https://doi.org/10.3390/healthcare11010104

Cui, J., Miao, X., Yanghao, X., & Qin, X. (2023). Bibliometric research on the developments of artificial intelligence in radiomics toward nervous system diseases. Frontiers in Neurology, 14, 1171167. https://doi.org/10.3389/fneur.2023.1171167

Hochschild, A. R. (1983). The managed heart: Commercialization of human feeling. University of California Press.

Ninkov, A., Frank, J. R., & Maggio, L. A. (2021). Bibliometrics: Methods for studying academic publishing. Perspectives on Medical Education, 11(3), 173–176. https://doi.org/10.1007/S40037-021-00695-4

Riforgiate, S. E., Howes, S. S., & Simmons, M. J. (2022). The impact of daily emotional labor on health and well-being. Management Communication Quarterly, 36(3), 391–417. https://doi.org/10.1177/08933189211041352

Shu, Y., Li, H., & Wang, L. (2019). The current status and development trends of psychobiography research in China: A knowledge mapping analysis based on CiteSpace. Journal of Central China Normal University (Humanities and Social Sciences Edition), 58(4), 185–192.

Yuan, M.-Z., Chen, H.-F., Yang, C.-C., Chow, T.-H., & Hsu, C.-H. (2022). The relationship between medical staff's emotional labor, leisure coping strategies, workplace spirituality, and organizational commitment during the COVID-19 pandemic. International Journal of Environmental Research and Public Health, 19(10), 6186. https://doi.org/10.3390/ijerph19106186

Zaghini, F., Biagioli, V., Proietti, M., Badolamenti, S., Fiorini, J., & Sili, A. (2020). The role of occupational stress in the association between emotional labor and burnout in nurses: A cross-sectional study. Applied Nursing Research, 54, 151277. https://doi.org/10.1016/j.apnr.2020.151277