EVOLUTION OF RESEARCH ON EMPLOYEE WELL-BEING, RETENTION, PRODUCTIVITY, AND JOB SATISFACTION IN HEALTHCARE: A COMPARATIVE BIBLIOMETRIC STUDY OF 2006–2016 AND 2016–2026

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ABSTRACT

Healthcare companies now know that employee well-being is critical to workforce stability, organisational effectiveness, and patient care. In the last 20 years, academic study has evolved from occupational stress and burnout to employee retention, job satisfaction, resilience, engagement, and sustainable work practices. The study combines bibliometric analysis of worldwide research on well-being, retention, productivity and work satisfaction of healthcare professionals during 2006–2016 and 2016–2026. Bibliometric studies were conducted in R using a curated dataset of 417 articles for the first decade and 998 papers for the second decade. Performance indicators and scientific mapping methodologies are used to assess publication growth, leading authors and journals, institutional and national contributions, citation impact, collaboration patterns, topic advancement, and intellectual frameworks. The results demonstrate an increase in research, international cooperation and transdisciplinary themes such as mental health, organisational resilience, employee engagement, digital healthcare and workplace sustainability. New study finds technology and post-pandemic labour challenges are hurting healthcare jobs. The paper provides a review of scientific advancements over more than two decades to demonstrate how research has evolved and offers recommendations to researchers, healthcare administrators, and politicians for developing healthier, more efficient, and more sustainable healthcare systems.

Keywords: Employee Well-Being, Healthcare Workforce, Bibliometric Analysis, Job Satisfaction, Employee Retention.

INTRODUCTION

The health of health care personnel has been given growing priority in health care management since health care quality is intimately tied to the physical, psychological, and emotional health of its employees. Hospitals and health care organisations face increased workloads, emotional pressures, technical obstacles, personnel shortages, and escalating patient expectations. These scenarios impose a strain on health care personnel and their well-being is critical to performance, organisational sustainability and patient outcomes. The COVID-19 pandemic has increased the scholarly interest in the influence of employee well-being on retention, productivity, job satisfaction, resilience, and organisational performance. Research on the health and well-being of the healthcare profession has expanded beyond occupational stress and burnout to encompass psychological safety, employee engagement, virtual work, workplace flexibility, organisational support, and sustainable human resource

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management. Demographic trends, technological innovation, rising healthcare costs, and shortages of skilled people are causing unprecedented personnel issues for healthcare firms throughout the world. The changes have raised the demand for maintaining qualified staff, improving productivity, and providing effective patient care. A major aim is to retain staff, since turnover raises the costs of recruitment and training, interrupts continuity of treatment, lessens institutional knowledge, and lowers patient satisfaction. New research says employee well-being is a strategic resource that raises organisational commitment, diminishes employees' inclinations to leave, and improves long-term workforce stability.

Recently, productivity and employee well-being have been associated. Traditionally, productivity has been studied in terms of operational efficiency. Today, in modern health care management, it is seen as an outcome of healthy, motivated, and engaged workers within supportive organisational frameworks. Today's healthcare businesses are investing in employee support programs, mental health initiatives, flexible work arrangements, leadership development, and digital health technologies to increase employee experience and performance. Research shows that organisations that emphasise employee health are more productive, more creative, more cooperative, safer for patients, and better at providing services.

Job satisfaction is an important research concept in the healthcare workforce since pleased professionals are more devoted, engaged, clinically competent, and patient-centered. Healthcare personnel who think they have appropriate organisational support, equitable compensation, opportunities for career progression, and excellent working relationships are more inclined to remain and contribute to organisational goals. Dissatisfaction causes staff turnover, absenteeism, burnout, emotional tiredness, and performance decline. Employee well-being, retention, productivity, and job satisfaction have increasingly been seen by academics as linked characteristics, rather than separate organisational goals (Shanafelt et al., 2023; Gallup, 2024).

The past 20 years have seen a great growth in academic research on this subject, reflecting changes in economic interests and developments in health care systems around the world. In 2006-2016, research was on occupational stress, burnout among nurses and physicians, work-life balance, psychological well-being, and organisational commitment. The studies focused mostly on job-related concerns such as staff shortages, heavy workloads, and emotional weariness. However, there are studies from 2016 to 2026 that show a trend towards integrative approaches such as employee engagement, resilience, digital transformation, artificial intelligence, workplace innovation, organisational culture, psychological safety, sustainable healthcare management, and post-pandemic workforce recovery. "The trend now is that healthcare companies are beginning to see employee health as a strategic part of competitiveness and long-term viability, not just a health issue (OECD, 2024).

The growing number of scientific papers offers researchers both opportunities and challenges. While the expanding literature provides theoretical and empirical insights, it also complicates the task of identifying the main writers in the area, research problems, networks of collaboration, emerging issues and conceptual approaches. Qualitative syntheses are easily accessible in narrative and systematic literature reviews, but not in scientific knowledge progress across huge publishing databases. Bibliometric analysis is a complex quantitative method that may be used to map research landscapes, recognise important contributors, assess citation patterns, quantify cooperation networks, explore topic evolution, and discover new research opportunities. Bibliometric studies combine performance analysis and science mapping to give insights into the development and possible paths of scientific areas (Donthu et al., 2021; Aria & Cuccurullo, 2023).

The emergence of new bibliometric tools such as Bibliometrix R, Biblioshiny, and VOS viewer have facilitated the ease with which academics may present large amounts of

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bibliographic data. These methods include the evaluation of publication patterns, co-authorship networks, keyword co-occurrences, evolutions of subjects, bibliographic coupling, co-citation structures, Bradford's Law, Lotka's Law, and factorial analysis. These approaches provide objective evidence on the maturity, diversity, and intellectual structure of research domains to academics, practitioners, funding agencies, and policy makers, enabling evidence-based decision-making. Comparison of various time periods is vital to comprehend the scientific aims and explore the possibility for future study, given the increasing adoption of bibliometric approaches in management and healthcare research (Moral-Muñoz et al., 2024; Zupic & Čater, 2023).

To expand the knowledge, this study performs bibliometric analyses of studies on well-being, retention, productivity, and job satisfaction among healthcare workers from 2006 to 2016 and 2016 to 2026. The R software Bibliometrix is used to measure the productivity of publications, annual scientific output, citation impact, main authors, prolific institutions, top nations, dynamics of sources, networks of collaboration, conceptual frameworks and intellectual evolution. The first decade had 417 papers and the second decade 998 articles.

This is a strong sign of improved academic production and a rise of international collaboration. The study aims to compare the two periods and explain the shift in scientific focus from occupational stress and burnout to employee engagement, resilience, digital health care, workforce sustainability, and organisational well-being. The findings are designed to help scholars understand intellectual progress in this fast-moving subject and to provide healthcare executives and policymakers with evidence-based insights into changing research priorities. This comparative bibliometric study provides an overview of the global knowledge base on healthcare staff well-being and an opportunity for transdisciplinary research, policy making, and organisational initiatives to improve healthcare environments.

LITERATURE REVIEW

Over the last 20 years, employee well-being has moved into healthcare companies where human resources are critical to service delivery. Well-being was recently characterised as physical health, psychological resilience, emotional stability, job satisfaction, social connectivity, and organisational support. Previous study has investigated stress, weariness and work-related disease. This shift in thinking is driven by increasing patient expectations, worker shortages, technology, and healthcare organisational cultures. In contemporary healthcare systems, employee well-being impacts clinical performance, patient safety, innovation, and organisational sustainability (Quick & Henderson, 2016; Nielsen et al., 2017). Healthcare professionals are more vulnerable to occupational stress than other workers. Healthcare professionals' occupational stress has been connected to burnout, compassion fatigue, emotional exhaustion, and mental suffering. The stress is a consequence of patient contact, emotional labour, long working hours, ethical considerations, and resource limitations. Research shows businesses may build resilience and reduce professional stress.

Recent research indicates that when leadership is supportive, work environments are agreeable, communication is effective, and employees are empowered, healthier workplaces are created that lead to improved long-term performance (Montgomery et al., 2019; Hall et al., 2021). Across the world, healthcare organisations are struggling to retain staff. Demographic changes, an ageing population, increasing demand, labour migration, and changing employee expectations result in staffing shortages in healthcare companies. High turnover is bad for patient care, for organisational learning and institutional knowledge, and it costs money in recruitment and training. Employee retention studies have shown that employee retention is linked to organisational support, fair reward systems, opportunities for professional growth, and psychological safety. The focus of retention strategies has been

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moving away from financial incentives and towards employee wellbeing and organisational performance (Duffield, Roche & Homer, 2020; Kelly, Lefton & Fischer, 2022).

Increasingly, research is looking at the linkages between healthy workers, effective health care systems, and greater production. Healthcare productivity comprises performance indicators, quality of care, patient satisfaction, collaboration, new ideas, clinical success, and operational agility. Research suggests psychologically healthy individuals are more productive, spend less time off work, and are brighter and more adaptive than those with lower mental health. Persistent workplace stress is a symptom of medical errors, decreased creativity and collaboration, lower organisational performance and higher absenteeism. This is in line with the perception that spending on employee wellness is more of a cost than an investment for the company (McKinsey Health Institute, 2024; Cooper, Quick & Schabracq, 2019). Researchers in the healthcare industry use elements such as organisational justice, effective leadership, professional autonomy, workload balance, recognition, and career growth as indicators of job satisfaction. Workplace pleasure is strongly correlated with workers' commitment, output, organisational citizenship, and patient-centred healthcare. A recent research found that psychological safety and inclusive organisational cultures among healthcare professionals, nurses, and allied health workers had a positive impact on professional identity and a negative effect on turnover intentions. As a consequence, healthcare quality improvement is starting to focus more on the experience of workers and clinical results (Specchia et al., 2021; Santana, Sousa & Santos, 2022).

The digital revolution in healthcare has led to a growing interest in the study of worker well-being. Today, the healthcare company faces numerous new difficulties, such as artificial intelligence, telemedicine, electronic health records, wearable technology, robotics, and data-driven decision support systems. Technology is essential for operations and rehabilitation, but it also contributes to digital fatigue, information overload, technological adaptation, cybersecurity, and job displacement. Today's academics are striving to increase convergence between digital transformation and technological innovation, employee well-being, organisational readiness, and professional development (Topol, 2019; European Commission, 2023). There is also a question of the effect immersive technology has on the stress and well-being of the workplace. Virtual reality, augmented reality, mixed reality, and extended reality are becoming important to provide simulation-based education, resilience training, workplace engagement, stress reduction, and psychological rehabilitation.

Immersive technologies have been uncovered in research on organisational psychology, healthcare management, human resource development, digital health, and workplace innovation, according to a bibliometric study by (Rath et al., 2026). The purpose of this study is to identify new research clusters on themes such as virtual therapeutic environments, employee mental health, resilience in the workplace, human-centered technology, and immersive training systems, using bibliometric analysis (Bakker& Demerouti, 2022). According to research by (Rath et al.,2026) the use of immersive technology may be a suitable future alternative for organisational wellness, especially in high-stress medical situations. This is because of the expanding amount of cooperation in the globe and the breadth of challenges (Deloitte, 2023).

Healthcare organisations are complex, and hence academics use systems-based methodologies to examine worker well-being. The modern research is on organisational ecosystems, not on stress, satisfaction, productivity, and retention of individuals. Transformational leadership, supportive cultures, healthy workplaces, good communication, continual learning, diversity, and employee involvement enhance numerous organisational outcomes. Healthcare management increasingly integrates employee experience, organisational resilience, sustainability, and quality improvement (Wei, Roberts & Corbett, 2023; National Academy of Medicine, 2022). More and more scientific articles and

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theoretical developments make it difficult to provide narrative interpretations of new results. Therefore, bibliometric techniques have been used to analyse intellectual structures, productivity of research, topic development, collaborative networks, citation patterns, and emergent areas of knowledge. Objective quantitative data on the evolution and change of scientific fields may be visualised using bibliometric methodologies to assess prominent authors, corporations, governments, journals, and research efforts. Knowledge framework mapping is more productive than piecemeal empirical syntheses in the context of scientific growth in rapidly changing fields such as employee well-being (Salas et al ., 2024).

The evolution of knowledge on healthcare worker well-being 2006-2016, 2016-2026. The most studied variables among nursing professionals throughout the last 10 years were: occupational stress, burnout, work overload, absenteeism, and organisational commitment. The research studied psychological and organisational factors contributing to employee dissatisfaction and the instability of the workforce (West, Dyrbye & Shanafelt, 2022). The study environment after 2016 was excellent in terms of organisational behaviour, employee engagement, workplace resilience, sustainable human resource management, psychological capital, organisational support, digital transformation, and workplace innovation. The change from problem-focused to strengths-based research is to increase staff skills, organisational agility, and sustainable healthcare systems (Van Wyk & Pillay, 2022; Leka, Jain & Iavicoli, 2023). The COVID-19 pandemic has highlighted structural weaknesses in health care institutions internationally, which has spurred scholarly interest in worker well-being. Psychological stress was suggested by healthcare staff at high levels and was the result of heavy workloads, mental agony, infectious risks, resource restrictions and rapid changing organisational procedures. The study focuses on mental health treatment, psychological resilience, rehabilitation in the workplace, organisational preparedness, leadership effectiveness, and employee support systems. Well-being of people is the underpinning of an organization's resilience and demands supportive leadership, flexible work environments, and evidence-based workforce policies (Greenberg et al., 2021; Chirico & Magnavita, 2023).

Sustainability in health care workforce management – research findings. Sustainable businesses consider their employees as strategic assets and believe that their health and happiness have long-term consequences on performance and service. Green HRM, employee-oriented organisations, ethical leadership, and socially responsible workplaces are the darlings of academics. Recent studies show that worker well-being improves organisational sustainability with lower turnover, and increased levels of learning, innovation, and patient-centred healthcare. Labour management is not just about operational efficiency but also about integrating ESG objectives (Kramar, 2022; Ehnert et al., 2023). Bibliometric analysis is a valuable tool to evaluate the most current scientific material that has been published in the subject of healthcare management. In addition to the organisational changes that have already been introduced, there is one more. On the other hand, bibliometrics is concerned with the measurement of the growth of publications, the influence of citations, the most renowned journals, the most prolific institutions, worldwide alliances, intellectual frameworks, and the process of discussion on the evolution of themes. This differs from literature evaluations that are focused on information regarding the development of issues. Software tools such as Bibliometrix, Biblioshiny, and VOS Viewer enable researchers to track the complex information networks that arise from hundreds of articles. The relevance of the level of maturity of transdisciplinary research and the discovery of new research topics in bibliometric studies is shown by (Martínez-López et al., 2023; Cobo et al., 2021).

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RESEARCH METHODOLOGY

This study used a comparative bibliometric research approach to investigate the growth of scientific literature on employee well-being, retention, productivity, and work satisfaction in the healthcare industry over two consecutive periods, 2006–2016 and 2016–2026. The choice of bibliometric analysis is driven by its systematic and quantitative method to evaluate the intellectual structure, publishing performance, cooperation patterns, theme development, and developing research trends of a certain topic. The bibliographic information was extracted from the Scopus database. Only journal articles in the English language were used to guarantee consistency, quality, and complete coverage. The organised screening procedure followed the PRISMA paradigm and allowed the exclusion of duplicate records, conference papers, book chapters, editorials, and non-relevant publications. The final dataset consisted of 417 articles for the period 2006-2016 and 998 publications for the period 2016-2026, which is the scientific output evaluated in this work (Brough et al., 2023).

Bibliographic data were retrieved and evaluated using the Bibliometrix R Package (Biblioshiny interface) , which allows for complete scientific mapping and performance analysis. Research performance was evaluated by the examination of descriptive bibliometric variables comprising scientific output per year, citation analysis, productive authors, prominent journals, institutional productivity, contribution of countries and international cooperation trends. A comparative analysis of two decades was carried out to identify the changes in the increase of publications, the intensity of cooperation, the development of themes and the priorities of research. The findings were interpreted through tables, network visualisations, thematic maps, and performance indicators generated using the Bibliometrix package, which provided a broad view of the evolution of employee well-being research and pointed out future research directions for scholars, practitioners, and policymakers in healthcare management.

Research Objectives

- To investigate the progression of publishing growth and intellectual development on employee well-being, retention, productivity and work satisfaction in the healthcare industry in 2006–2016 and 2016–2026.
- To identify the most prominent authors, journals, institutions, nations, and cooperation networks contributing to healthcare workforce research during the two decades.
- To investigate the topic development, keyword patterns, citation networks, and emerging research hotspots in employee well-being literature by bibliometric science mapping methodologies.
- To compare intellectual structure and research goals in the two decades and to suggest future directions of healthcare workforce research.

Research Hypotheses

H1: The scientific output of employee well-being research varies significantly between 2006–2016 and 2016–2026.

H2: In 2016-2026, international research collaboration increased substantially in volume compared to 2006-2016.

H3: The thematic structure of research on employee well-being has evolved greatly between the two periods of study.

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H4: There are significant differences in citation impact and author productivity between the two decades.

H5: Employee well-being research has progressed beyond conventional themes such as occupational stress and burnout to broader areas such as digital healthcare, organisational resilience, employee engagement, and workplace sustainability.

H6: The conceptual framework of healthcare workforce research reflects a substantially greater level of interdisciplinary integration in the period 2016–2026 than in the period 2006–2016.

RESULT & DISCUSSION

A comparative bibliometric analysis provides a full overview of the intellectual development of research on employee well-being, retention, productivity, and job satisfaction in the healthcare business in two consecutive decades. The findings reveal a significant growth in scientific production and an evolution of research aims, cooperative networks, issue frameworks, and interdisciplinary integration. Overall, the results imply that research on the healthcare workforce has moved from a narrow focus on occupational stress and burnout to a broader view on organisational sustainability, employee engagement, digital healthcare, andworkforceresilience.

The PRISMA method used in this study allowed a clear and systematic identification of relevant content for both decades. The screening procedures of articles on 2006-2016 and 2016-2026 are shown in Figures 1 and 2, respectively. We thoroughly screened the data to exclude duplicate and irrelevant studies, leaving only peer-reviewed journal articles in English. The comprehensive selection procedure was the key to the consistency of the comparative research and improved the reliability of the bibliometric data. The use of the PRISMA methodology further strengthens the repeatability of the research and the validity of future bibliometric interpretations.

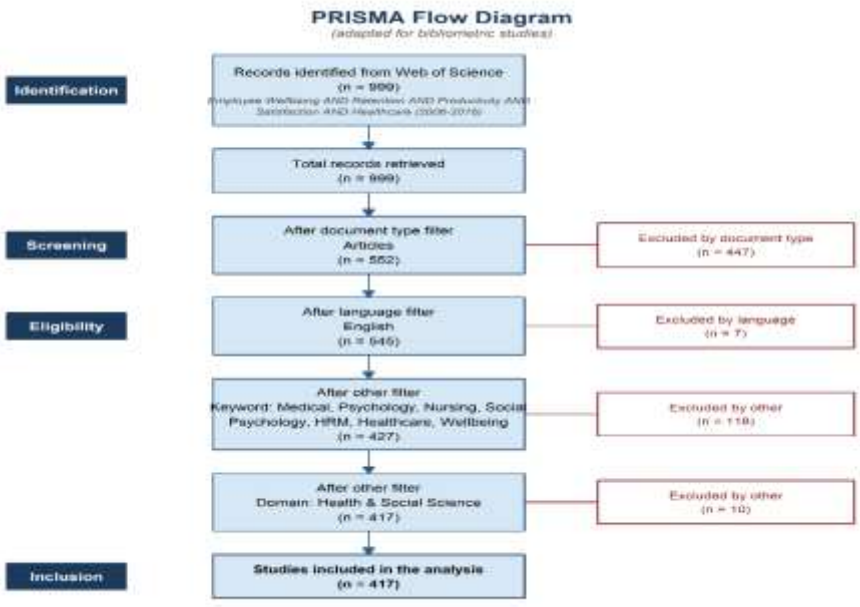

FIGURE 1: EXPLAINING PRISMA ANALYSIS OF RESEARCH FLOW FROM 2006-2016 DRAWN USING R PACKAGE

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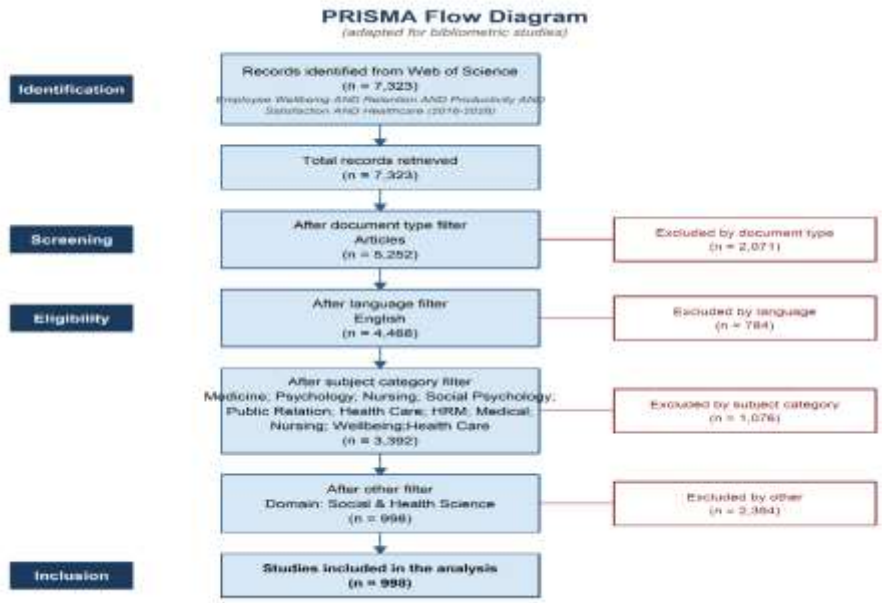

FIGURE 2: EXPLAINING PRISMA ANALYSIS OF RESEARCH FLOW FROM 2016-2026 DRAWN USING R PACKAGE

TABLE 1
EXPLAINING MAIN INFORMATION DRAWN USING R PACKAGE

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2016:2026
Sources (Journals, Books, etc)	571
Documents	998
Annual Growth Rate %	-8.24
Document Average Age	4.01
Average citations per doc	11.45
References	32699
DOCUMENT CONTENTS	
Keywords Plus (ID)	776
Author's Keywords (DE)	1246
AUTHORS	
Authors	4404
Authors of single-authored docs	211
AUTHORS COLLABORATION	
Single-authored docs	215
Co-Authors per Doc	5.03
International co-authorships %	21.24
DOCUMENT TYPES	
Article	998

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Year	Articles
2016	52
2017	50
2018	44
2019	70
2020	75
2021	81
2022	86
2023	141
2024	192
2025	185
2026	22

TABLE 2
EXPLAINING MAIN INFORMATION DRAWN USING R PACKAGE

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2006:2016
Sources (Journals, Books, etc)	239
Documents	417
Annual Growth Rate %	30.55
Document Average Age	12.5
Average citations per doc	18.59
References	14968
DOCUMENT CONTENTS	
Keywords Plus (ID)	492
Author's Keywords (DE)	808
AUTHORS	
Authors	1119
Authors of single-authored docs	234
AUTHORS COLLABORATION	
Single-authored docs	235
Co-Authors per Doc	2.84
International co-authorships %	7.194
DOCUMENT TYPES	
Article	417
Year	**Articles**
2006	8
2007	7
2008	20
2009	11

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2010	13
2011	15
2012	40
2013	59
2014	51
2015	78
2016	115

FIGURE 3: GRAPHICAL REPRESENTATION ANNUAL PUBLICATION (2016-2026)

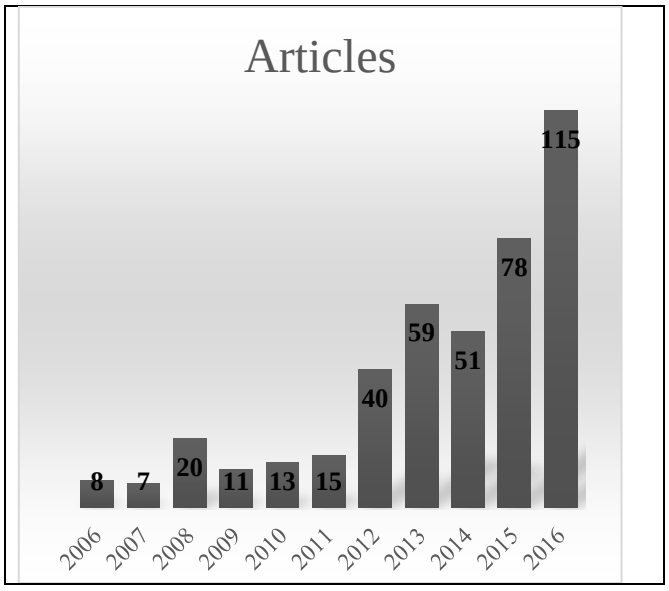

FIGURE 4: GRAPHICAL OF REPRESENTATION OF ANNUAL PUBLICATION (2006-2026)

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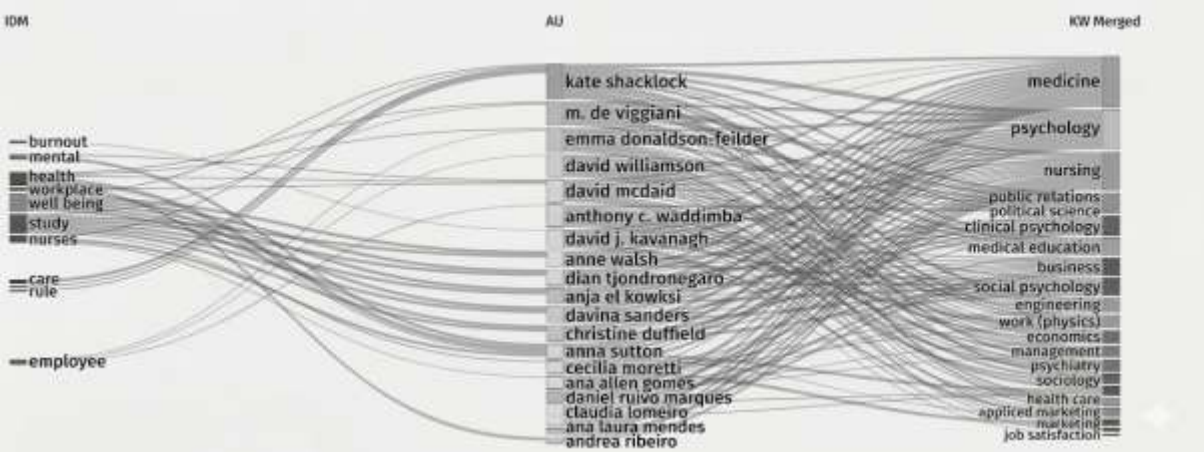

FIGURE 5: NETWORK STATING THREE FIELD PLOT (TITLE; AUTHOR; KEYWORD) FOR 2006-2016 DRAWN USING R PACKAGE

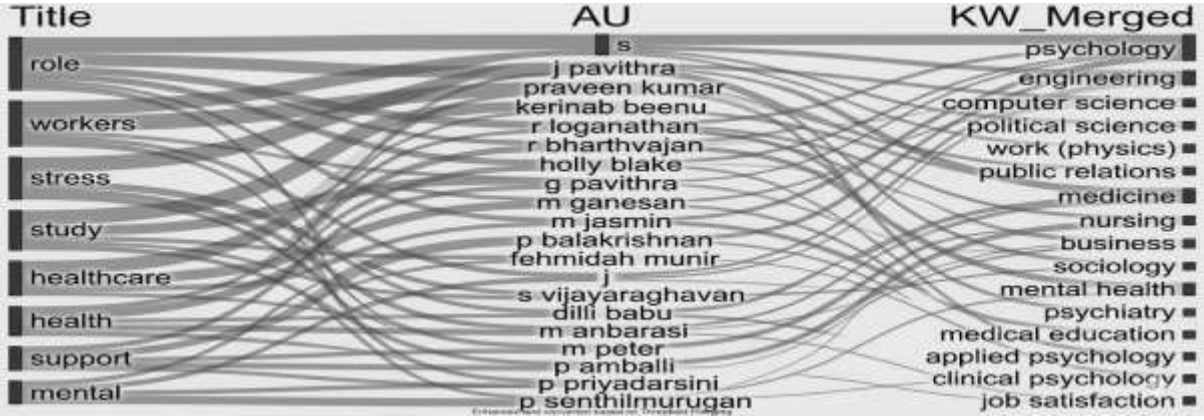

FIGURE 6: NETWORK STATING THREE FIELD PLOT (TITLE; AUTHOR; KEYWORD) FOR 2016-2026 DRAWN USING R PACKAGE

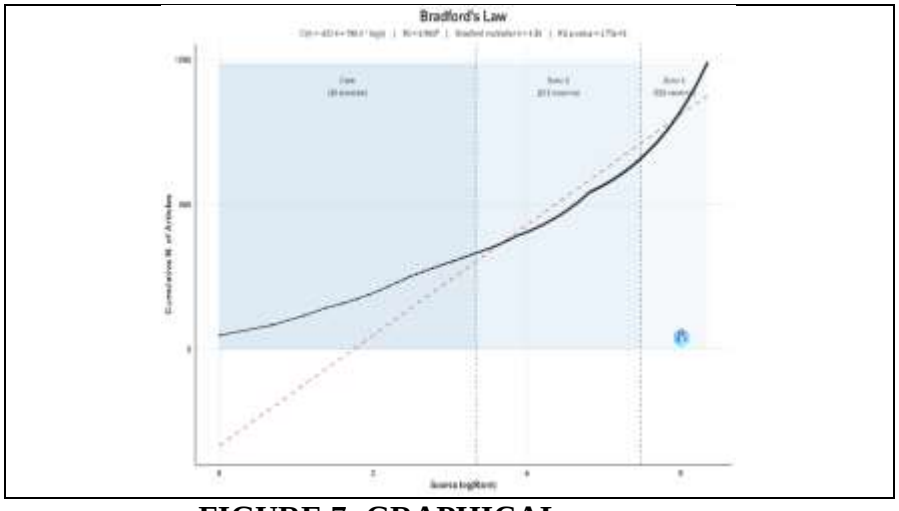

FIGURE 7: GRAPHICAL REPRESENTATION OF BRADFORD'S LAW (2016-2026

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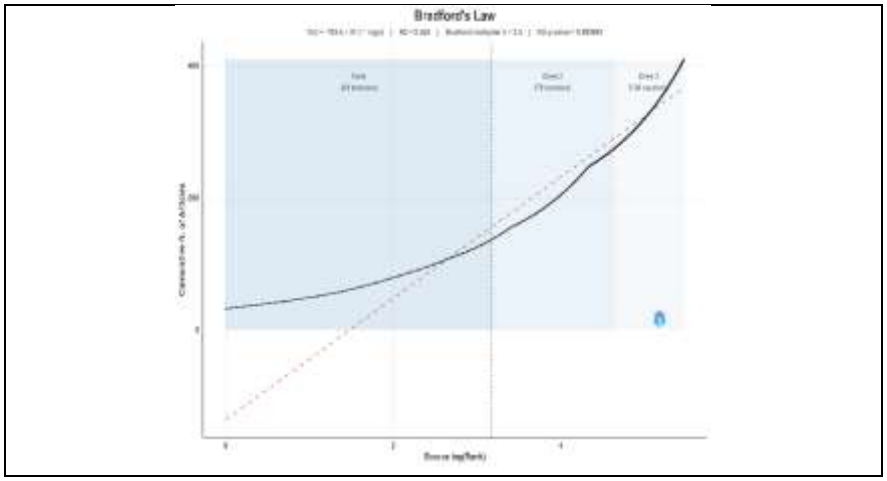

FIGURE 8: GRAPHICAL REPRESENTATION OF BRADFORD'S LAW (2006-2016) DRAWN USING R PACKAGE

TABLE 3
EXPLAINING BRADFORD'S LAW BASED ON SOURCE (2006-2016) CALCULATED USING R PACKAGE

SOURCE	Rank	Freq	cumFreq	Zone
Scholar works (Walden University)	1	32	32	Zone 1
Ohiolink Etd Center (Ohio Library and Information Network)	2	11	43	Zone 1
Circle (University of British Columbia)	3	8	51	Zone 1
Pepperdine Digital Commons (Pepperdine University)	4	7	58	Zone 1
Scholarship@Western (Western University)	5	7	65	Zone 1
BMC Health Services Research	6	6	71	Zone 1
Escholarship (California Digital Library)	7	6	77	Zone 1
Aquila Digital Community (University of Southern Mississippi)	8	5	82	Zone 1
PubMed	9	5	87	Zone 1
Australasian Journal Of Paramedicine	10	4	91	Zone 1

TABLE 4
EXPLAINING BRADFORD'S LAW BASED ON SOURCE (2016-2026) CALCULATED USING R PACKAGE

SOURCE	Rank	Freq	cumFreq	Zone
Scholar works (Walden University)	1	48	48	Zone 1
International Journal of Environmental Research and Public Health	2	36	84	Zone 1
BMC Health Services Research	3	32	116	Zone 1
BMC Nursing	4	27	143	Zone 1
Journal Of Nursing Management	5	16	159	Zone 1
BMJ Open	6	15	174	Zone 1
Frontiers In Psychology	7	15	189	Zone 1
BMC Public Health	8	14	203	Zone 1
Frontiers In Public Health	9	14	217	Zone 1
PLOS One	10	13	230	Zone 1

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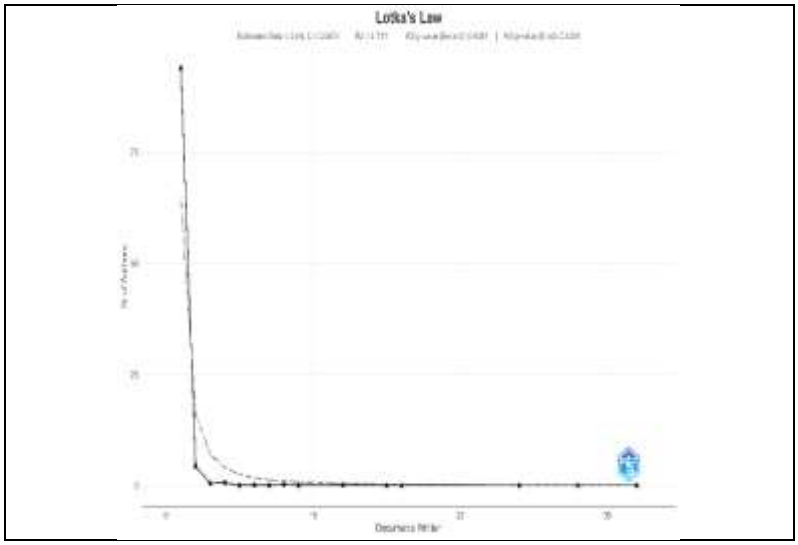

FIGURE 9: GRAPHICAL REPRESENTATION OF LOTKA'S LAW (2016-2026) DRAWN USING R PACKAGE

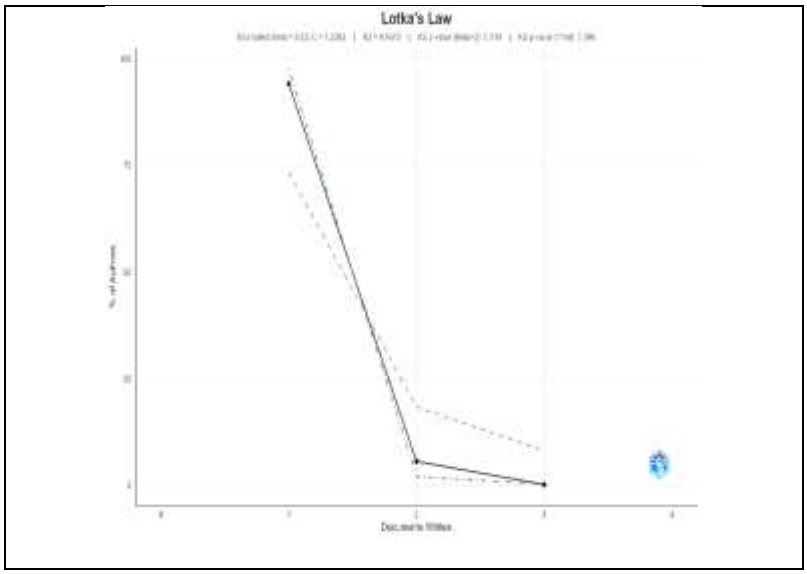

FIGURE 10: GRAPHICAL REPRESENTATION OF LOTKA'S LAW (2006-2016) DRAWN USING R PACKAGE

TABLE 5
EXPLAINING LOTKA'S LAW BASED ON AUTHORS CALCULATED USING R PACKAGE

Year (2006-2016)			Year (2016-2026)		
Documents written	**N. of Authors**	**Proportion of Authors**	**Documents Written**	**N. of Authors**	**Proportion of Authors**
1	1054	0.941912422	1	4138	0.93938706
2	63	0.056300268	2	191	0.043359818
3	2	0.00178731	3	20	0.004540295

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

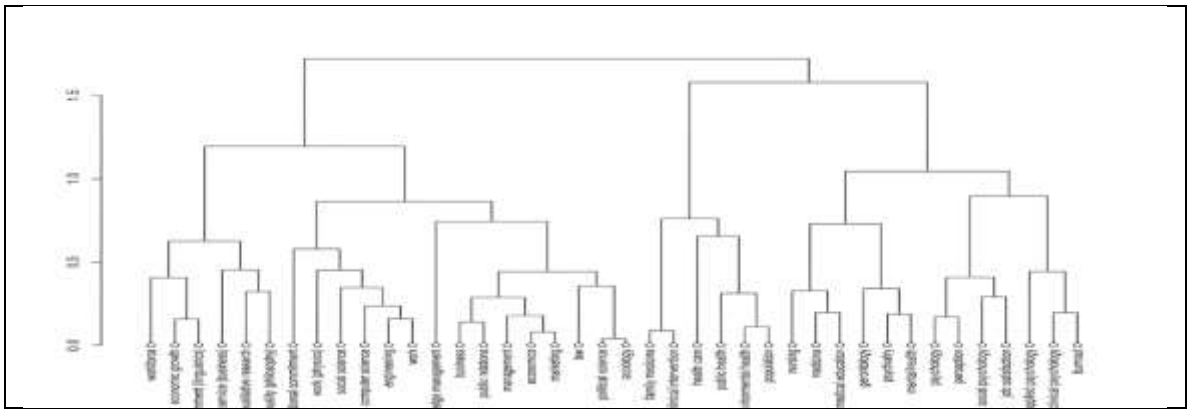

FIGURE 11: GRAPHICAL REPRESENTATION OF DENDROGRAM (2006- 2016), STATING FACTORIAL ANALYSIS

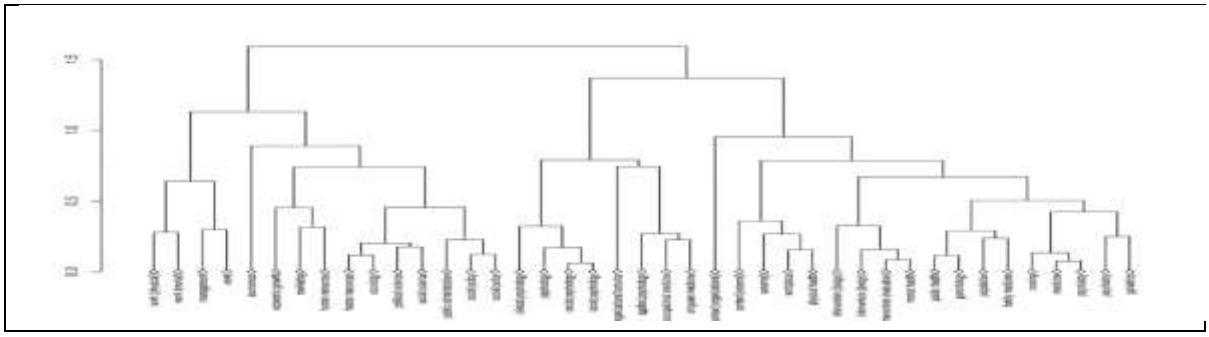

FIGURE 12: GRAPHICAL REPRESENTATION OF DENDROGRAM (2016- 2026), STATING FACTORIAL ANALYSIS

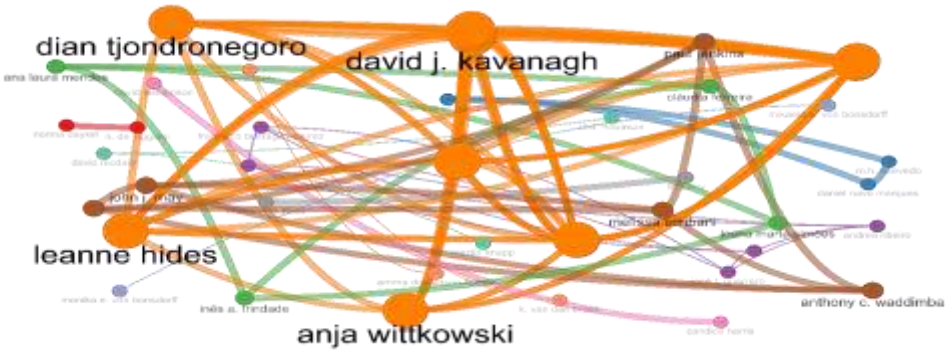

FIGURE 13: NETWORK REPRESENTATION OF AUTHOR ANALYSIS (2006-2016) DRAWN USING R PACKAGE

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

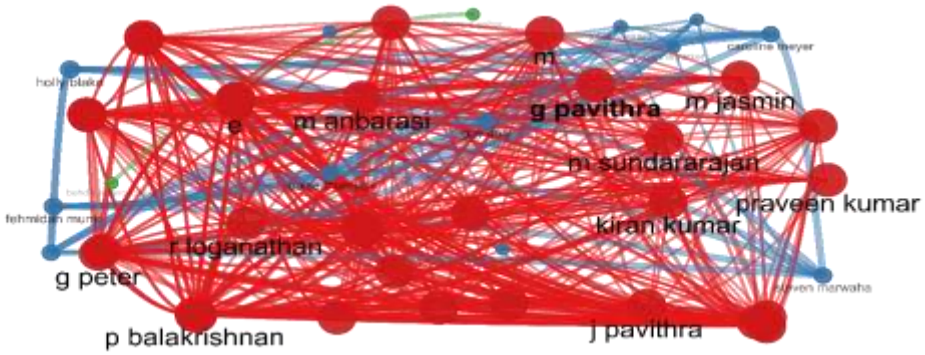

FIGURE 14: NETWORK REPRESENTATION OF AUTHOR ANALYSIS (2016-2026) DRAWN USING R PACKAGE

TABLE 6
STATING AUTHOR ANALYSIS (2006-2016) BASED ON H INDEX CALCULATED USING R PACKAGE

Author	h_index	g_index	m_index	TC	NP	PY_start
Kate Shacklock	3	3	0.1875	219	3	2011
Ana Allen Gomes	2	2	0.181818	7	2	2016
Andrea Ribeiro	2	2	0.181818	906	2	2016
Anna Sutton	2	2	0.181818	194	2	2016
Anthony C. Waddimba	2	2	0.166667	53	2	2015
Christine Duffield	2	2	0.166667	181	2	2015
Daniel Ruivo Marques	2	2	0.181818	7	2	2016
David Mcdaid	2	2	0.153846	29	2	2014
Francisco Buitrago Ramírez	2	2	0.181818	906	2	2016
Francisco P. Caballero	2	2	0.181818	906	2	2016

TABLE 7
STATING AUTHOR ANALYSIS (2016-2026) BASED ON H INDEX CALCULATED USING R PACKAGE

Author	h_index	g_index	m_index	TC	NP	PY_start
Fehmidah Munir	6	8	0.666667	174	8	2018
Holly Blake	6	9	1	148	9	2021
Behdin Nowrouzi-Kia	5	7	0.833333	70	7	2021
Caroline Meyer	5	6	1	81	6	2022
Guy Daly	5	6	1	81	6	2022
Juliet Hassard	5	5	1	80	5	2022
Louise Thomson	5	6	1	81	6	2022
Sean Russell	5	6	1	81	6	2022
Steven Marwaha	5	6	1	81	6	2022
Joanna Yarker	4	4	0.8	73	4	2022

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

TABLE 8 STATING AFFILIATION ANALYSIS (2006-2016) BASED ON H INDEX CALCULATED USING R PACKAGE	
Affiliation	**Articles**
Monash University	28
The Alfred Hospital	27
University of Queensland	26
University of South Australia	26
Walden University	21
Centro De Implantología Cirugía Oral Y Maxilofacial	19
Caulfield Hospital	16
Hunter New England Local Health District	16
La Trobe University	16
Queensland University of Technology	14

TABLE 9 STATING AFFILIATION ANALYSIS (2016-2026) BASED ON H INDEX CALCULATED USING R PACKAGE	
Affiliation	**Articles**
University of Nottingham	62
University of Toronto	62
Monash University	41
National Guard Health Affairs	25
Queensland University of Technology	25
University of Manchester	24
Karolinska Institutet	23
Mother Teresa Hospital	21
Ku Leuven	20
Austin Health	19

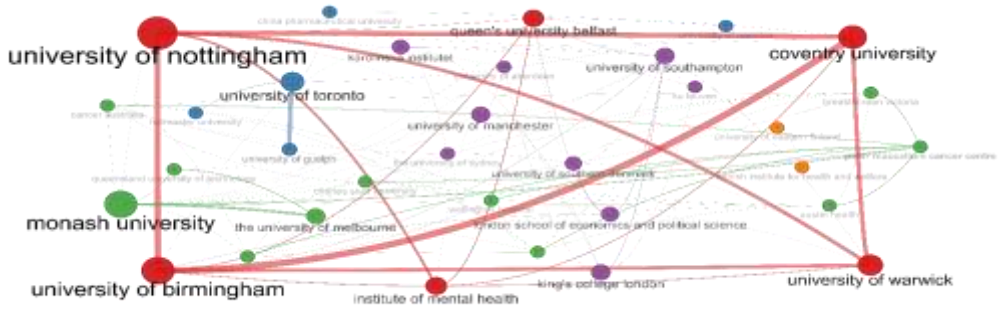

FIGURE 15: NETWORK REPRESENTATION OF AFFILIATION ANALYSIS (2016-2026) DRAWN USING R PACKAGE

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

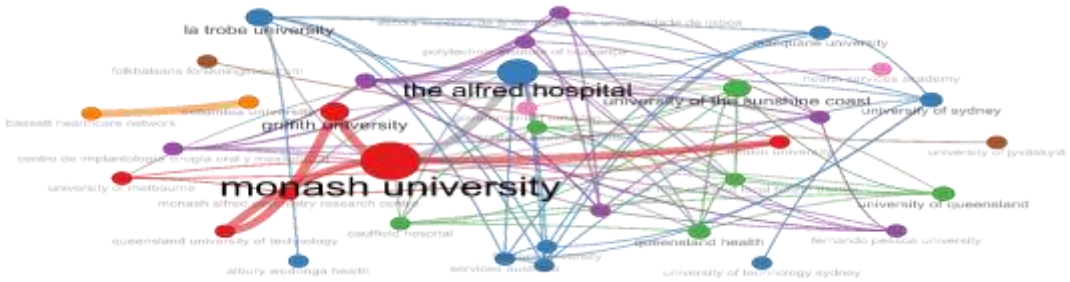

FIGURE 16: NETWORK REPRESENTATION OF AFFILIATION ANALYSIS (2006-2016) DRAWN USING R PACKAGE

TABLE 9
EXPLAINING COUNTRIES PUBLICATION BASED ON FREQUENCY CALCULATED USING R PACKAGE

Year 2016-2026		Year 2006-2016	
Country	**Freq**	**Country**	**Freq**
USA	509	AUSTRALIA	145
AUSTRALIA	326	USA	97
CANADA	236	PORTUGAL	63
GERMANY	138	CANADA	28
ITALY	117	SPAIN	25
CHINA	101	SOUTH AFRICA	19
SAUDI ARABIA	100	SWEDEN	14
SWEDEN	87	PAKISTAN	13
NETHERLANDS	82	FINLAND	12
INDIA	80	GERMANY	11

FIGURE 17: NETWORK REPRESENTATION OF COUNTRY ANALYSIS (2016-2026) DRAWN USING R PACKAGE

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

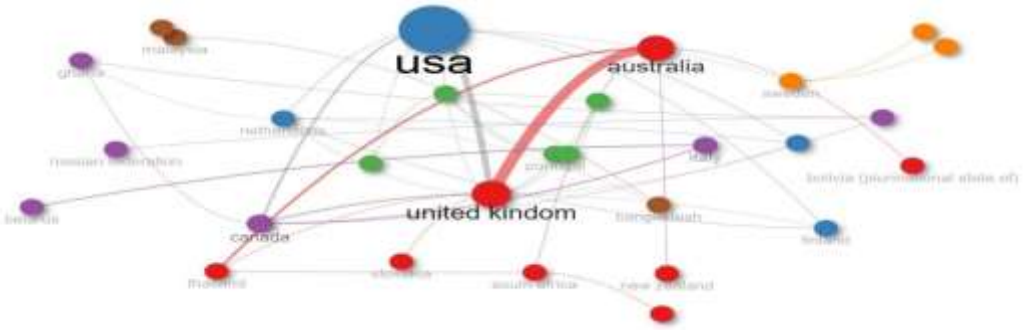

FIGURE 18: NETWORK REPRESENTATION OF COUNTRY ANALYSIS (2006-2016) DRAWN USING R PACKAGE

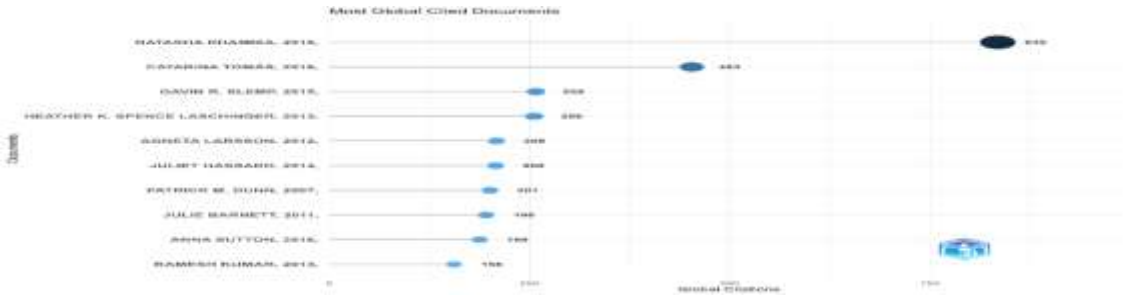

FIGURE 19: GRAPHICAL REPRESENTATION OF DOCUMENT ANALYSIS (2006-2016) DRAWN USING R PACKAGE

TABLE 11
EXPLAINING DOCUMENT ANALYSIS (2006- 2016) CALCULATED USING R PACKAGE

Paper	DOI	Total Citations	TC per Year	Normalized TC
Natasha Khamisa, 2015,	10.3390/ijerph120100652	835	69.6	29.14935926
Catarina Tomás, 2016,	10.1186/s12913-016-1423-5	453	41.2	25.97528423
Gavin R. Slemp, 2015,	10.1186/s13612-015-0034-y	259	21.6	9.041537782
Heather K. Spence Laschinger, 2013,	10.1080/1359432x.2013.804646	256	18.3	14.51795841
Agneta Larsson, 2012,	10.1186/1471-2474-13-1	209	13.9	15.74387947
Juliet Hassard, 2014,	10.2802/20493	208	16	14.81481481
Patrick M. Dunn, 2007,	10.1007/s11606-007-0363-5	201	10.1	4.008547009
Julie Barnett, 2011,	10.1186/1472-6963-11-342	196	12.2	6.150627615
Anna Sutton, 2016,	10.5964/ejop.v12i4.1178	188	17.1	10.78002966
Ramesh Kumar, 2013,	10.1186/1478-4491-11-2	156	11.1	8.846880907

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

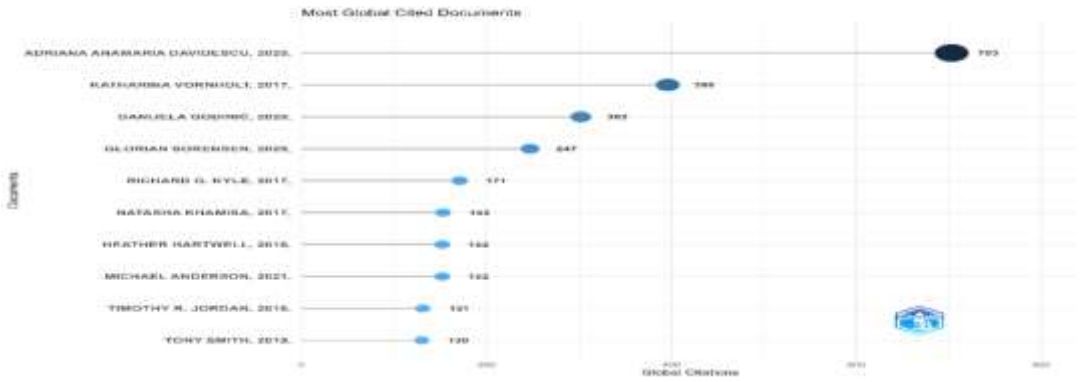

FIGURE 20: GRAPHICAL REPRESENTATION OF DOCUMENT ANALYSIS (2016-2026) DRAWN USING R PACKAGE

TABLE 12
EXPLAINING DOCUMENT ANALYSIS (2016- 2026) CALCULATED USING R PACKAGE

Paper	DOI	Total Citations	TC per Year	Normalized TC
Adriana Anamaria Davidescu, 2020,	10.3390/su12156086	704	100.6	23.373174
Katharina Vornholt, 2017,	10.1080/1359432x.2017.1387536	396	39.6	15.2307692
Danijela Godinić, 2020,	10.18775/ijied.1849-7551-7020.2015.61.2005	302	43.1	10.0265604
Glorian Sorensen, 2020,	10.1016/j.socscimed.2020.113593	247	35.3	8.20053121
Richard G. Kyle, 2017,	10.1136/bmjopen-2017-018498	171	17.1	6.57692308
Natasha Khamisa, 2017,	10.1016/j.hsag.2016.10.001	153	15.3	5.88461539
Heather Hartwell, 2016,	10.1080/13683500.2016.1223609	153	13.9	14.5447898
Michael Anderson, 2021,	10.1016/s0140-6736(21)00231-2	152	25.3	9.60374415
Timothy R. Jordan, 2016,	10.1155/2016/5843256	131	11.9	12.4533821
Tony Smith, 2019,	10.1186/s12912-019-0337-z	130	16.2	7.36632083

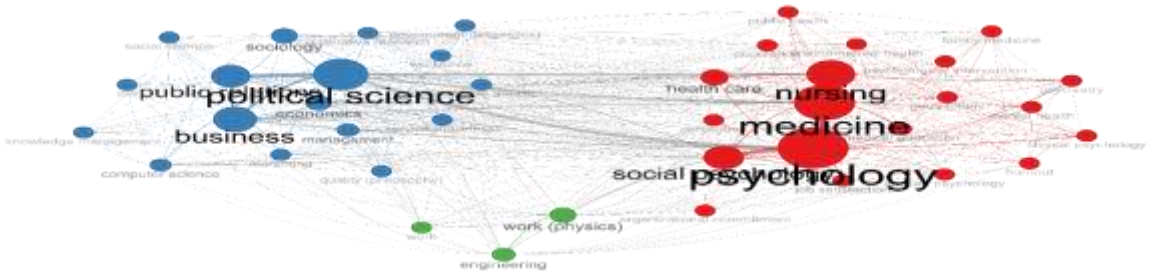

FIGURE 21: NETWORK REPRESENTING KEYWORD ANALYSIS (2006-2016) DRAWN USING R PACKAGE

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

FIGURE 22: NETWORK REPRESENTING KEYWORD CLOUD (2006-2016) DRAWN USING R PACKAGE

TABLE 13
EXPLAINING KEYWORD ANALYSIS (2006- 2016) CALCULATED USING R PACKAGE

Terms	Frequency
Psychology	302
Medicine	247
Political Science	200
Nursing	178
Business	158
Social Psychology	145
Public Relations	132
Sociology	82
Health Care	79
Work (Physics)	77

FIGURE 23: NETWORK REPRESENTING KEYWORD ANALYSIS (2016-2026) DRAWN USING R PACKAGE

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

FIGURE 24: NETWORK REPRESENTING KEYWORD CLOUD (2016-2026) DRAWN USING R PACKAGE

TABLE 12
EXPLAINING KEYWORD ANALYSIS (2016- 2026) CALCULATED USING R PACKAGE

Terms	Frequency
Medicine	745
Psychology	695
Nursing	537
Political Science	349
Social Psychology	329
Business	284
Health Care	268
Clinical Psychology	235
Work (Physics)	211
Public Relations	206

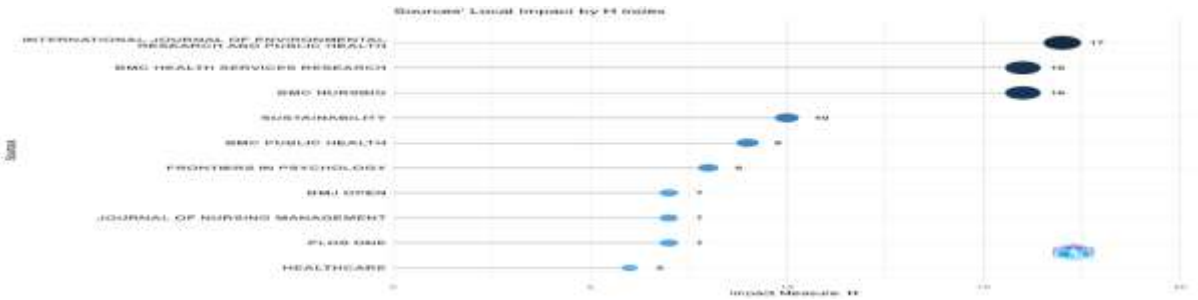

FIGURE 25: GRAPHICAL REPRESENTATION OF SOURCE ANALYSIS (2016-2026) DRAWN USING R PACKAGE

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

TABLE 13 EXPLAINING SOURCE ANALYSIS (2016- 2026) CALCULATED USING R PACKAGE						
Source	**h_index**	**g_index**	**m_index**	**TC**	**NP**	**PY_start**
International Journal of Environmental Research and Public Health	17	27	1.888889	753	36	2018
BMC Health Services Research	16	28	1.454545	805	32	2016
BMC Nursing	16	25	1.454545	659	27	2016
Sustainability	10	11	1.428571	992	11	2020
BMC Public Health	9	14	1	305	14	2018
Frontiers In Psychology	8	15	0.888889	288	15	2018
BMJ Open	7	15	0.7	370	15	2017
Journal of Nursing Management	7	12	1.166667	167	16	2021
PLOS One	7	13	0.7	339	13	2017
Healthcare	6	10	1.5	101	11	2023

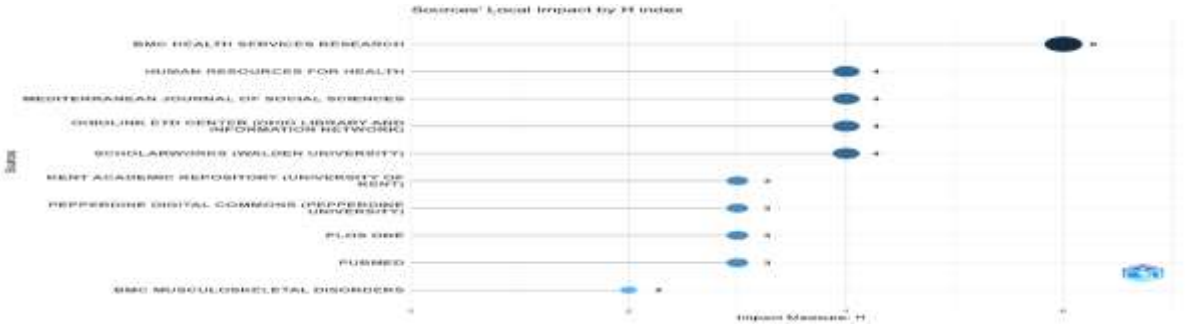

FIGURE 26: GRAPHICAL REPRESENTATION OF SOURCE ANALYSIS (2006-2016) DRAWN USING R PACKAGE

TABLE 13 EXPLAINING SOURCE ANALYSIS (2006- 2016) CALCULATED USING R PACKAGE						
Source	**h_index**	**g_index**	**m_index**	**TC**	**NP**	**PY_start**
BMC Health Services Research	6	6	0.3529412	960	6	2010
Mediterranean Journal of Social Sciences	5	5	0.3846154	43	5	2014
Human Resources for Health	4	4	0.2857143	305	4	2013
Ohiolink Etd Center (Ohio Library and Information Network)	4	4	0.1904762	26	11	2006
Scholarworks (Walden University)	4	5	0.2105263	53	32	2008
Kent Academic Repository (University of Kent)	3	3	0.1578947	60	3	2008
Pepperdine Digital Commons (Pepperdine University)	3	4	0.2	19	7	2012
PLOS One	3	4	0.2	229	4	2012
PubMed	3	5	0.15	138	5	2007
BMC Musculoskeletal Disorders	2	2	0.1333333	228	2	2012

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

The description of the bibliographic databases in Table 1 and Table 2 demonstrates the considerable growth of scholarly interest in the well-being of healthcare personnel. Between 2006-2016, 1,119 scholars from 239 sources contributed 417 articles in the field. In comparison, the period 2016–2026 has shown an increase of 998 publications, 571 publishing sources and 4,404 contributing authors, showing more than a two-fold increase in research production. Similarly, international cooperation rose from 7.19% to 21.24%, and co-authorship per document from 2.84 to 5.03, which indicates the rising collaboration in multidisciplinary and multinational research. Overall, these results indicate that research on employee well-being has become more global, collaborative, and varied.

This finding is also in line with the yearly publication trends seen in Figures 3 and 4. The scientific production increased considerably from 2006 to 2016, from just 8 papers in 2006 to 115 publications in 2016, which points out to the emergence of employee well-being as a major subject for healthcare research. The growth of publications is much higher in the next decade, from 52 articles in 2016 to 192 articles in 2024, thereafter providing a high and stable output until 2025. This surge happens with the rising organisational emphasis on healthcare workforce resilience, mental health, employee engagement, and post-pandemic recovery measures. The trend of publications shows that employee well-being has become one of the fastest-growing interdisciplinary fields of study in healthcare management. The three-field plots of Figure 5 and Figure 6 further demonstrate the intellectual diversity of healthcare workforce research by connecting article titles, leading authors, and common keywords. These images are suggestive of a growing connectivity between the researchers and subject groups in the second decade. Previous research has centred on occupational stress, the practice of nursing, organisational commitment, and burnout. More and more, the current research is considering themes like resilience, engagement of employees, sustainability of the organisation, mental health, innovation in the workplace, and digital health. The growth in topic diversity reflects the progression of employee well-being research from discipline-specific to more holistic, interdisciplinary models.

Another piece of evidence is the investigation of the concentration of prominent publishing sources with the use of Bradford's Law. From Figure 7, Figure 8, Table 3 and Table 4, it can be seen that previous research was mostly published by institutional repositories and specialised journals in the health sector, while recent publications are increasingly published by journals with international recognition including International Journal of Environmental Research and Public Health, BMC Health Services Research, BMC Nursing, BMJ Open, Frontiers in Psychology, and Frontiers in Public Health. This shift shows that employee well-being has been the subject of growing academic interest across a variety of fields, including healthcare management, psychology, occupational health, organisational behaviour, and public health. The variety of publishing sources is another indicator of the multidisciplinary character of current labour research.

The productivity of authors was studied using Lotka's Law as shown in Figure 9, Figure 10, and Table 4. The results show that the vast majority of researchers published a single article, but a small number of writers consistently authored many high-impact publications. This distribution is in line with the standard bibliometric assumption that scientific production is concentrated in a few prominent experts. However, the second decade shows more engagement of rising scholars, which suggests continuous development in the subject and more chances for cross-disciplinary cooperation. Growing institutional spending on research on employee well-being internationally also reflects the rising number of productive researchers. The factorial analyses shown in Figures 11 and 12 suggest a significant development of theme structures throughout the two decades. The previous era yielded very homogeneous clusters around occupational stress, nursing, burnout, organisational commitment, and job satisfaction. On the other hand, the latter time shows

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more diverse theme clusters that link digital transformation, organisational resilience, employee engagement, mental health, healthcare sustainability, workforce development, and psychological well-being.

These results imply that healthcare workforce research has advanced from descriptive studies to integrated organisational viewpoints that emphasise many facets of employee experience.

The author analyses in Figures 13, 14, Table 5, and Table 6 the changes of the leading scholars in the two decades. In the years between 2006 and 2016, major figures, such as Kate Shacklock and Andrea Ribeiro laid the groundwork for the study on organisational commitment, occupational health, and employee well-being. By contrast, the subsequent decade saw the development of extremely prolific academics such as Fehmidah Munir, Holly Blake, Behdin Nowrouzi-Kia, Caroline Meyer, Guy Daly, Juliet Hassard, Louise Thomson, Sean Russell, and Steven Marwaha. These scholars contributed considerably to the theoretical knowledge via integration of psychological resilience, workplace mental health, leadership, employee engagement, and organisational sustainability in healthcare workforce studies. The variety of notable writers signals growing theoretical complexity and methodological improvement within the subject.

Table 7, Table 8, Figure 15, and Figure 16 further corroborate the globalisation of healthcare personnel's well-being research in the examination of institutional productivity. The earlier research was dominated by Australian institutions, including Monash University, University of Queensland, and University of South Australia, but in the later decade, the University of Nottingham, University of Toronto, Karolinska Institutet, University of Manchester, Monash University, and other international healthcare groups have played a more prominent role. Such regional diversity is a sign of growing awareness that employee health is a global health care issue and worldwide cooperation is needed to solve it. The institutional partnership has also enabled interdisciplinary research combining healthcare management, organisational psychology, nursing science, occupational medicine, and digital health innovation.

INTERPRETATION & SUGGESTION

This comparative bibliometric study shows that the research on employee well-being in the healthcare business has evolved substantially in the previous two decades, not only in terms of scientific output but also in terms of thematic diversity. The growth from 417 publications in 2006–2016 to 998 publications in 2016–2026, coupled with the increased international collaboration and interdisciplinary participation, suggests that employee well-being has evolved into a strategic research priority within healthcare management rather than an occupational health issue. More focus has been made on occupational stress, burnout, nursing workload, and organisational commitment in recent research. There has been a steady movement in attention recently towards employee engagement, organisational resilience, digital transformation, mental health, sustainable healthcare management, and technology-driven workforce development. Moreover, the bibliometric data show an increased contribution from globally established universities, prestigious publications, and collaborative research networks. This demonstrates that the well-being of health care professionals has become an interdisciplinary field of research of international importance. The examination of the evolution of the subject using keywords, factorial mapping, and citation structures also reveals that researchers are moving towards an integrated organisational perspective, rather than distinct workforce issues.

However, this substantial growth has resulted in a fragmented literature, as most of the current research examines employee well-being, job satisfaction, employee performance,

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productivity, retention, patient care quality, organisational efficiency, and organisational performance as distinct constructs. Very little attention has been paid to understanding the interconnected linkages among these components in a single conceptual framework. Moreover, although artificial intelligence, digital health technologies, immersive technologies, and organisational innovation have been increasingly covered in the recent literature, the concept of AI-enabled Employee Well-being (AIEW) remains largely unexploited in terms of its impact on employee performance, organisational productivity, workforce retention, quality of patient care, organisational efficiency, and overall organisational performance. This is a significant research need from both theoretical and practical perspectives since AI-driven healthcare environments are rapidly affecting workplace experiences, employee decision-making, task management, clinical support systems, and organisational processes.

These findings have a variety of particular implications for academics and health care practitioners. Future empirical studies should develop integrated conceptual models to examine Employee Well-being (EW), Job Satisfaction (JS), Employee Performance (EP), Productivity (PR), Retention (RT), Patient Care Quality (PC), Organisational Efficiency (OE), Organisational Performance (OP), and AI-enabled Employee Well-being (AIEW) simultaneously by employing advanced analytical techniques such as Structural Equation Modelling (SEM) or Partial Least Squares Structural Equation Modelling (PLS-SEM). Healthcare organisations should invest in AI-supported employee assistance systems, predictive well-being analytics, intelligent workload allocation, digital mental health interventions, immersive training platforms, and personalised employee support mechanisms to boost workforce resilience and organisational sustainability. Policymakers should promote the development of evidence-based workforce strategies by promoting interdisciplinary collaborations between healthcare administrators, organisational psychologists, information technology specialists, artificial intelligence researchers, and human resource professionals that can help address future healthcare challenges. In addition, researchers are urged to conduct cross-country comparative studies, longitudinal studies, and mixed-method research to evaluate the long-term effect of AI-enabled well-being initiatives on employee behaviour and health care outcomes. Taken together, these approaches provide a comprehensive route to scale healthcare workforce research and address the existing shortfall with a shared and technology-enabled understanding of employee health and organisational performance.

CONCLUSION

This comparative bibliometric analysis gives a complete overview of the development of the research on employee well-being, retention, productivity, and work satisfaction in the healthcare industry over two successive decades (2006–2016 and 2016–2026). The results show a significant increase in scientific production, with 417 publications in the first decade and 998 in the second. Also, there is a larger degree of international cooperation, involvement of different knowledge fields, and a variety of themes. Bibliometric evidence suggests that the focus of research on the healthcare workforce has moved from occupational stress, burnout, and organisational commitment to a more comprehensive perspective that encompasses employee engagement, mental health, organisational resilience, workplace sustainability, digital transformation, and technology-enabled workforce management. The analysis of citations, author productivity, institutional contributions, keyword evolution, and collaboration networks together indicates that employee well-being has become a strategically important area in healthcare management, with contributions coming from many

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disciplines, including organisational behaviour, psychology, nursing, public health, information systems, and human resource management.

Moreover, the comparison study shows an increased knowledge creation after 2016, indicating the rising impact of healthcare reforms, digital technologies, manpower shortages, and the COVID-19 pandemic on the research objectives of organisations. The existing literature is fragmented, despite the cogent intellectual advancements, as most studies examine employee well-being, job satisfaction, employee performance, productivity, retention, patient care quality, organisational efficiency, organisational performance, and artificial intelligence individually rather than in the context of an integrated conceptual framework. Therefore, this study contributes by identifying the intellectual evolution of healthcare workforce research while emphasising the need to adopt holistic and interdisciplinary perspectives that link employee well-being with organisational and patient-related outcomes in increasingly technology-driven healthcare environments.

The current analysis offers several intriguing areas for further work. First, scholars should move beyond descriptive bibliometric investigations to develop and empirically validate integrated conceptual models that simultaneously assess Employee Well-being (EW), Job Satisfaction (JS), Employee Performance (EP), Productivity (PR), Retention (RT), Patient Care Quality (PC), Organisational Efficiency (OE), Organisational Performance (OP), and AI-enabled Employee Well-being (AIEW) using advanced methodologies such as Structural Equation Modelling (SEM), Partial Least Squares Structural Equation Modelling (PLS-SEM), or longitudinal panel analyses.

Second, there is a need for more research to explore the role of artificial intelligence, immersive technologies, digital health platforms, predictive analytics, and intelligent decision-support systems in improving employee well-being and organisational success in healthcare facilities. Third, a comparative cross-country study involving established and emerging health care systems would provide for a greater understanding of cultural, technical, and policy variables that impact worker well-being. Fourth, mixed-method and longitudinal research are necessary to study the impact of AI-enabled well-being initiatives on staff behaviours, organisational resilience, quality of patient care, and the long-term sustainability of healthcare. Such research will contribute to theoretical advances and inform evidence-based policies and organisational practices that may lead to healthier, more productive, technology-enabled, and sustainable healthcare workplaces.

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Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

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Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.

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Received: 10-July-2026, Manuscript No. AMSJ-26-17333; **Editor assigned:** 13-July-2026, PreQC No. AMSJ-26-17333(PQ); **Reviewed:** 27-July-2026, QC No. AMSJ-26-17333; **Revised:** 03-Aug-2026, Manuscript No. AMSJ-26-17333(R); **Published:** 11-Aug-2026

Citation Information: Paikray, R., Rath, N., Kar, T. & Sood, V., (2026). Evolution of research on employee well-being, retention, productivity, and job satisfaction in healthcare: a comparative bibliometric study of 2006–2016 and 2016–2026. *Academy of Marketing Studies Journal, 30*(4), 1-28.