

Mapping the Intellectual Landscape of Green Human Resource Management Research: A Bibliometric Review

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ABSTRACT

Green Human Resource Management (GHRM) is an emerging management approach that integrates environmental sustainability into human resource policies and practices. GHRM enables organizations to align workforce management with environmental objectives through green recruitment, training, performance appraisal, and reward systems. As sustainability becomes a global priority, research on GHRM has increased rapidly, particularly between 2016 and 2025. However, despite the growing number of publications, there is limited understanding of the intellectual structure, collaboration patterns, and thematic development of this field. To better understand the evolution of GHRM research, it is important to systematically map and analyze existing publications using bibliometric techniques. Currently, there is no recent bibliometric study focusing specifically on the 2016–2025 growth phase of GHRM research. Realizing the importance of identifying research trends and influential contributors, this study aims to review and analyze GHRM publications indexed in Scopus between 2020 and 2025. It addresses the following questions: 1) What are the publication and citation trends of GHRM research? 2) Who are the most productive and influential contributors? 3) What themes dominate contemporary GHRM scholarship? This study employed a bibliometric methodology to investigate the development of GHRM research. A total of 1,601 documents were retrieved from the Scopus database and analyzed. The screening process followed the PRISMA 2020 Statement to ensure systematic identification and transparency. Through this bibliometric analysis, the most recent structure and trends of GHRM research are presented. The findings may assist researchers and policymakers in understanding the development of sustainability-oriented HRM practices.

Keywords: Green Human Resource Management · GHRM · Sustainability · Bibliometric Analysis · Environmental Performance · Research Trends

INTRODUCTION

In recent years, environmental sustainability has become a central concern for organizations worldwide. Climate change, environmental degradation, and increasing stakeholder expectations have compelled businesses to integrate sustainability into their strategic and operational practices. Sustainability is no longer confined to corporate social responsibility initiatives but is increasingly embedded within core organisational functions. Among these developments, Green Human Resource Management (GHRM) has emerged as a strategic approach that integrates environmental objectives into human resource policies and practices.

GHRM focuses on aligning workforce management with environmental sustainability through practices such as green recruitment, green training, green performance appraisal, and green reward systems. By promoting environmentally responsible employee behaviour, GHRM contributes to improved environmental performance and sustainable organisational competitiveness. Over the past decade, scholarly interest in GHRM has grown steadily, reflecting the expanding role of human resource management in sustainability transformation. Between 2016 and 2025, the volume of GHRM publications increased substantially. While early research focused primarily on conceptual development and scale validation, more recent studies examine empirical relationships between GHRM practices and outcomes such as employee green behaviour, green innovation, environmental performance, and sustainable performance. The accelerated growth observed particularly after

2020 indicates that GHRM has evolved into a mature and expanding research domain. Similar growth patterns have been documented in bibliometric studies across sustainability and management fields (Mansour et al., 2021; Hu et al., 2023).

Despite the increasing number of publications, the intellectual structure and collaboration networks within GHRM research remain dispersed. Existing studies predominantly examine empirical relationships but rarely provide a systematic mapping of publication trends, influential contributors, institutional productivity, country-level performance, and thematic evolution. Bibliometric analysis has proven to be an effective approach for analyzing research development, citation performance, and knowledge structures within scientific domains (Zakaria et al., 2021; Mansour et al., 2021). However, comprehensive bibliometric mapping of GHRM research covering the 2016–2025 period remains limited. Recognizing this gap, the present study aims to systematically map and analyze GHRM research indexed in the Scopus database between 2016 and 2025. Specifically, this study addresses the following research questions:

- What are the publication and citation trends of GHRM research between 2016 and 2025?
- Who are the most productive and influential authors, institutions, and countries?
- What collaboration patterns characterize the GHRM research community?
- What are the dominant and emerging research themes within the field

Through bibliometric performance analysis and science mapping, this study provides a structured overview of the intellectual and social architecture of GHRM research and offers insights into its future direction.

METHODOLOGY

This study employed a bibliometric research design to systematically map the intellectual landscape of Green Human Resource Management (GHRM) research. The Scopus database was selected as the primary data source due to its extensive coverage of high-quality, peer-reviewed journals across the fields of management, sustainability, and social sciences. A comprehensive literature search was conducted using a combination of keywords related to Green Human Resource Management, including “green human resource management,” “green HRM,” “environmental HRM,” and “sustainable human resource management”. The search was applied to the title, abstract, and author keywords fields to ensure both precision and recall.

The search was restricted to English-language journal articles and review papers to ensure consistency and scholarly rigor, with no geographical limitations imposed. The retrieved records were screened following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to enhance transparency and replicability. A total of 1691 documents were initially retrieved and after applying the exclusion criteria, 1601 documents were included in the bibliometric analysis. Table 1 summarizes the inclusion and exclusion criteria used in this study. Titles and abstracts were reviewed to exclude documents unrelated to human resource management or environmental sustainability.

All eligible records were subsequently exported from Scopus in Excel format, including complete bibliographic information such as authors, titles, abstracts, keywords, publication year, source titles, and citation counts. Citation metrics were further verified using Harzing’s Publish or Perish software to ensure accuracy and completeness. The final dataset served as the basis for data cleaning and subsequent bibliometric analyses.

Table 1: Inclusion and exclusion criteria

Criterion	Inclusion	Exclusion
Timeline	2016 - 2025	2015 and earlier
Document type	Article, review article, chapter in a book, book, conference proceeding	None

Language	English	Non-English
Subject area	Information technology and social science	Engineering, medicine, energy, environmental science and other non-social science studies

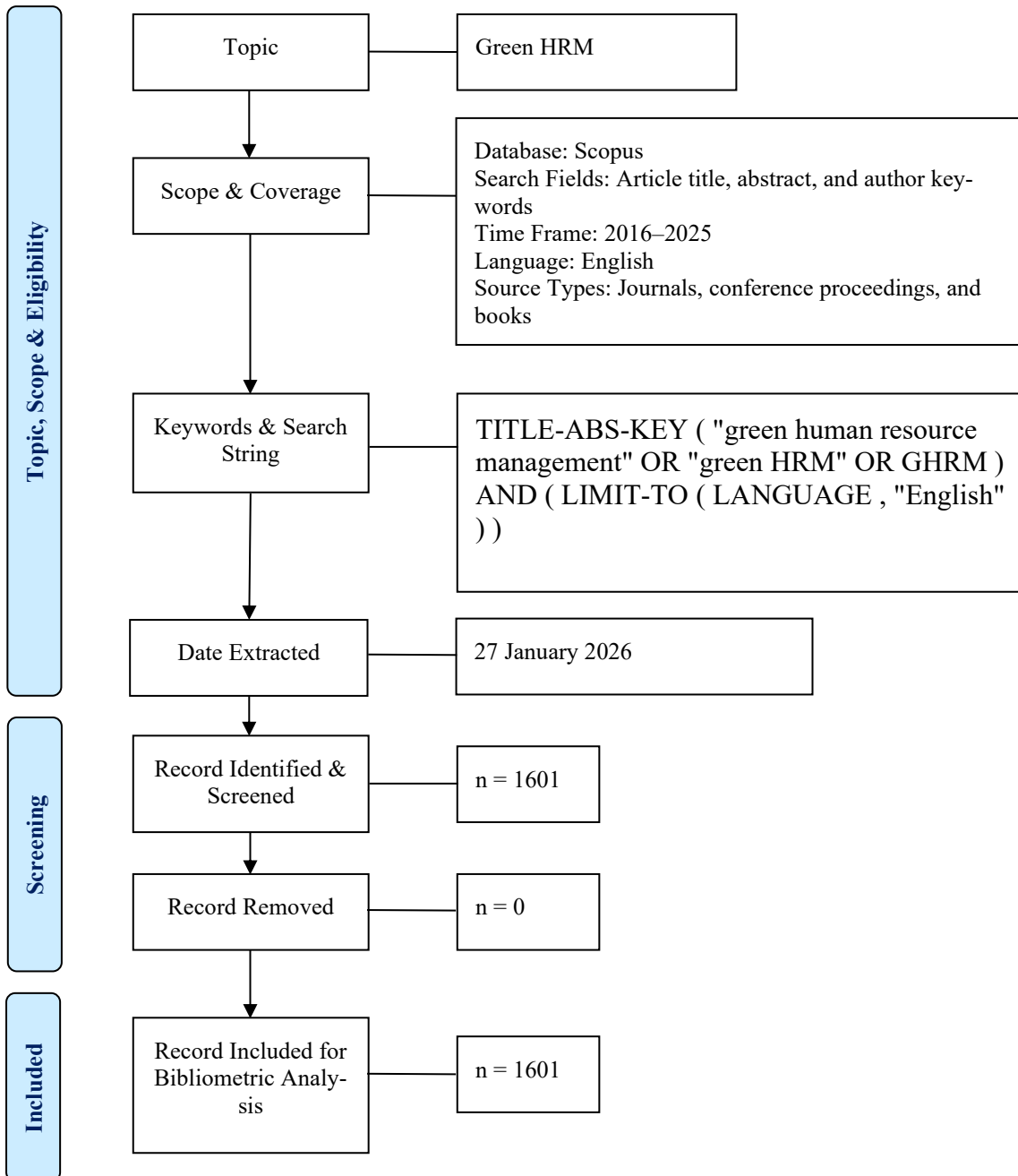


Figure 1. Flow diagram of the search strategy.

Source: Zakaria et al. (2021), Moher et al. (2009)

Data Analysis

The bibliometric analysis in this study was conducted using two complementary approaches, namely performance analysis and science mapping. These approaches are widely used in bibliometric research to evaluate both the productivity and structural dimensions of a research field (Mansour et al., 2021; Zakaria et al., 2021). Performance analysis was applied to assess research productivity and impact. This included examining the

annual publication trend, document types, subject areas, most productive authors, leading institutions, contributing countries, and source titles. Citation indicators such as total citations, average citations per paper, h-index, and g-index were analysed to evaluate research influence and visibility. These indicators provide quantitative insights into the development and maturity of the Green Human Resource Management (GHRM) research domain.

In addition to performance analysis, science mapping techniques were employed to explore the intellectual and social structure of the field. Co-authorship analysis was conducted to identify collaboration patterns among authors, institutions, and countries. This analysis reveals the extent of research networking and the formation of collaborative clusters within the GHRM community.

Furthermore, keyword co-occurrence analysis was performed to identify dominant and emerging research themes. By examining the frequency and co-occurrence relationships among author keywords, the study was able to visualise thematic clusters and determine the conceptual structure of GHRM research. This approach enables identification of core research areas and evolving topics within the field. Together, performance analysis and science mapping provide a comprehensive overview of both quantitative growth and structural development of GHRM research between 2016 and 2025.

Tools

Several analytical tools were utilised to ensure systematic and accurate bibliometric analysis. First, Microsoft Excel was used for data cleaning, organisation, and descriptive statistical analysis. Publication frequencies, citation counts, and ranking of authors, institutions, and countries were calculated and tabulated using Excel functions. Second, citation metrics were verified using Harzing's Publish or Perish software. This tool was used to calculate citation indicators such as total citations, average citations per paper, h-index, and g-index. The use of citation software enhances the accuracy and reliability of bibliometric performance evaluation.

Third, VOSviewer software was employed to construct and visualise bibliometric networks. VOSviewer is widely used for mapping co-authorship networks, citation networks, and keyword co-occurrence structures (Van Eck & Waltman, 2010). The software enables graphical representation of clusters, link strengths, and thematic relationships within a research field. In this study, VOSviewer was specifically used to generate visualisations for author collaboration networks and keyword co-occurrence analysis.

The combination of Microsoft Excel, Publish or Perish, and VOSviewer ensured a systematic and transparent analytical process. These tools allowed both quantitative performance evaluation and structural mapping of the intellectual landscape of GHRM research.

RESULTS

This section presents the bibliometric results of Green Human Resource Management (GHRM) research based on 1,601 publications indexed in the Scopus database between 2016 and 2025. The analysis focuses on document profiles, publication trends, leading contributors, source outlets, citation performance, and dominant keywords.

Documents Profiles

The document profile analysis shows that journal articles dominate GHRM research, accounting for 1,160 publications (72.45%). This indicates that scholarly output in this field is primarily disseminated through peer-reviewed journals. Book chapters represent the second-largest document type with 216 publications (13.49%), followed by conference papers with 120 publications (7.50%).

Other document types, including reviews (4.81%), books (0.75%), errata, editorials, and letters, together account for less than 3% of the total dataset. This distribution suggests that empirical and conceptual journal articles form the core knowledge base of GHRM research.

Table 2. Document Type

Document Type	Total Publication (TP)	Percentage %
Article	1160	72.45%
Book Chapter	216	13.49%
Conference Paper	120	7.50%
Review	77	4.81%
Book	12	0.75%
Erratum	5	0.31%
Retracted	5	0.31%
Editorial	3	0.19%
Letter	3	0.19%
Total	1601	100%

The distribution of source types indicates that journals are the dominant outlet for scholarly publications, accounting for 1,254 documents (78.33%) out of a total of 1,601 records. This strong concentration highlights the central role of peer-reviewed journals in disseminating high-quality and rigorously validated research, underscoring the academic maturity and consolidation of the research field. Books represent the second-largest source type with 170 publications (10.62%), reflecting the contribution of monographs and edited volumes in providing in-depth theoretical discussions and comprehensive insights. Conference proceedings, comprising 104 publications (6.50%), indicate active scholarly engagement and serve as platforms for the dissemination of emerging or preliminary research findings. Book series, accounting for 73 publications (4.56%), further support thematic and longitudinal scholarly discourse within the field.

Overall, the predominance of journal publications reinforces the scholarly rigor and methodological robustness of the research domain, while the presence of books, conference proceedings, and book series highlights complementary channels that facilitate interdisciplinary dialogue and knowledge expansion. Table X summarizes the source type distribution.

Table 3. Source Type

Source Type	Total Publication (TP)	Percentage %
Journal	1254	78.33%
Book	170	10.62%
Conference Proceeding	104	6.50%
Book Series	73	4.56%
Total	1601	100%

The subject area distribution reveals that GHRM research is predominantly anchored in Business, Management and Accounting, which accounts for 59.53% of the total publications. This is followed by Social Sciences (32.92%) and Environmental Science (31.61%), highlighting the interdisciplinary nature of the field.

Additional contributions are observed in Economics, Econometrics and Finance, Energy, Computer Science, Engineering, and Decision Sciences, suggesting increasing integration of technological, analytical, and

systems-based perspectives. Overall, the results indicate that while GHRM research remains management-centred, it continues to expand across multiple academic disciplines.

Table 4. Subject Area

Subject Area	Total Publication (TP)	Percentage %
Business, Management and Accounting	953	59.53%
Social Sciences	527	32.92%
Environmental Science	506	31.61%
Economics, Econometrics and Finance	327	20.42%
Energy	270	16.86%
Computer Science	252	15.74%
Engineering	200	12.49%
Decision Sciences	183	11.43%
Psychology	73	4.56%
Mathematics	59	3.69%
Multidisciplinary	46	2.87%
Arts and Humanities	40	2.50%
Medicine	35	2.19%
Earth and Planetary Sciences	27	1.69%
Agricultural and Biological Sciences	26	1.62%
Materials Science	18	1.12%
Physics and Astronomy	17	1.06%
Biochemistry, Genetics and Molecular Biology	16	1.00%
Chemical Engineering	13	0.81%
Pharmacology, Toxicology and Pharmaceutics	6	0.37%
Health Professions	5	0.31%
Nursing	5	0.31%
Chemistry	3	0.19%
Neuroscience	3	0.19%
Total	1601	100%

Publication Trends

The annual publication trend demonstrates a strong upward trajectory in GHRM research output. Between 2016 and 2019, annual publications remained relatively low, with fewer than 50 documents per year, indicating an early developmental stage. A notable increase occurred in 2020, when publications rose to 96 documents, marking the beginning of accelerated growth.

The most significant expansion is observed between 2023 and 2025, with 255 publications in 2023, 383 in 2024, and a peak of 464 publications in 2025, representing 28.98% of the total output. This rapid growth

reflects increasing academic interest in sustainability-oriented HRM practices. Lower average citations for recent years are expected due to the shorter citation window.

Table 5. Year of Publication

Year	TP	%	Cumm. %	NCP	TC	C/P	C/CP	h	g
2016	19	1.19%	100.00%	18	3692	194.32	205.11	16	18
2017	14	0.87%	98.81%	14	2799	199.93	199.93	12	14
2018	36	2.25%	97.94%	35	4409	122.47	125.97	19	35
2019	47	2.94%	95.69%	47	7439	158.28	158.28	30	47
2020	96	6.00%	92.75%	90	10745	111.93	119.39	47	90
2021	109	6.81%	86.76%	106	7985	73.26	75.33	46	89
2022	178	11.12%	79.95%	170	8257	46.39	48.57	53	85
2023	255	15.93%	68.83%	236	6653	26.09	28.19	45	68
2024	383	23.92%	52.90%	325	4191	10.94	12.90	34	45
2025	464	28.98%	28.98%	237	1107	2.39	4.67	13	18

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

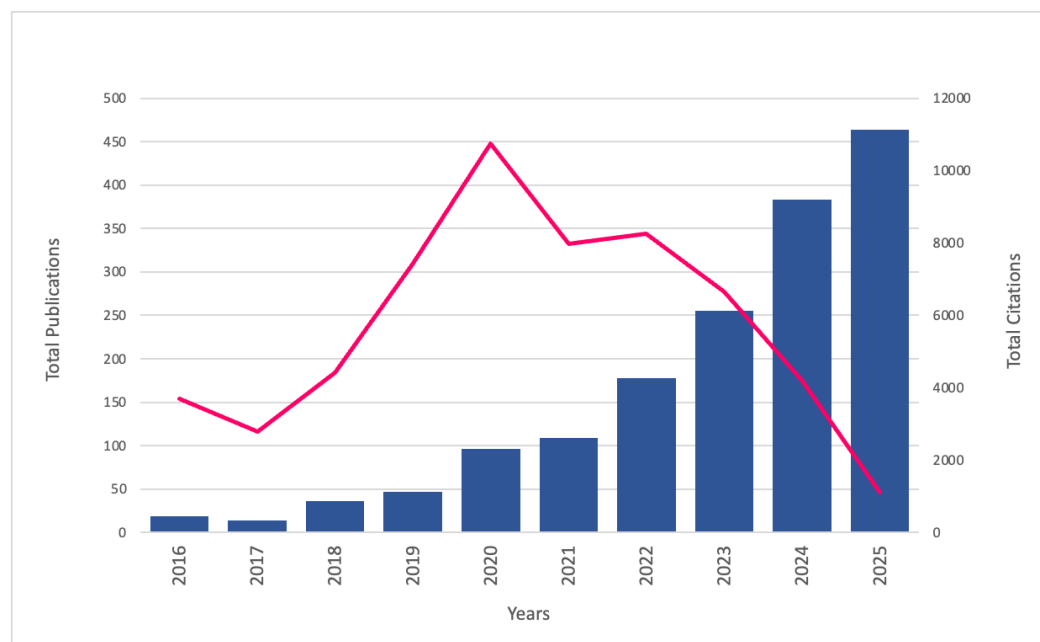


Figure 1. Total Publications and Citations by Year

Publications by Authors

The author productivity analysis reveals that GHRM research is influenced by a concentrated group of prolific authors. Yusliza, M.Y. is the most productive contributor with 39 publications and 3,043 total citations, indicating both high output and strong impact. Other prominent authors include Ramayah, T., Jabbour, C.J.C., Paillé, P., and Nisar, Q.A., each contributing consistently to the literature with substantial citation performance.

While a core group of authors dominates in terms of productivity and influence, the broader distribution of authorship suggests an expanding research community engaging with GHRM topics.

Table 6. Most Productive Authors

Author's Name	Affiliation	Cou ntry	T P	N C P	T C	C/P	C/ CP	h	g
Yusliza, M.Y.	Universiti Malaysia Terengganu, Kuala Terengganu	Malaysia	39	35	3043	78.03	86.94	16	39
Ramayah, T.	Universiti Sains Malaysia, Gelugor	Malaysia	17	14	2059	121.12	147.07	10	14
Nisar, Q.A.	CQUniversity Australia, Rockhampton	Australia	13	13	884	68.00	68.00	12	13
Paillé, P.	NEOMA Business School, Mont-Saint-Aignan	France	13	13	1170	90.00	90.00	8	13
Renwick, D.W.S.	Nottingham University Business School China, Ningbo	China	13	13	725	55.77	55.77	9	13
Yong, J.Y.	Taylor's University Malaysia, Subang Jaya	Malaysia	13	12	606	46.62	50.50	9	12
Fawehinmi, O.	UMT University	Malaysia	12	12	1301	108.42	108.42	9	12
Jabbour, C.J.C.	NEOMA Business School, Mont-Saint-Aignan	France	12	12	2740	228.33	228.33	10	12
Marco-Lajara, B.	Universitat d'Alacant, Alicante	Spain	11	9	488	44.36	54.22	6	9
Karatepe, O.M.	Eastern Mediterranean University, Famagusta	Turkey	10	9	637	63.70	70.78	7	9
Pham, N.T.	International University - Vietnam National University HCM City, Ho Chi Minh City	Vietnam	10	10	449	44.90	44.90	7	10
Sánchez-García, E.	Universitat d'Alacant, Alicante	Spain	10	7	153	15.30	21.86	5	7

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

Following the analysis of leading contributors, the authorship pattern provides further insight into collaboration practices within the field. Publications authored by three authors constitute the largest share, with 401 documents (25.05%), indicating that small research teams are the most common mode of scholarly production. This is closely followed by two-author publications (21.92%) and four-author publications (18.74%), suggesting a strong preference for collaborative research over single-authored work. Single-authored publications account for 150 documents (9.37%), reflecting a moderate level of individual scholarship, while papers involving five authors represent 15.30% of the total output. Publications with six or more authors collectively constitute a smaller proportion of the dataset, indicating that large research teams are relatively uncommon in this field.

Overall, the distribution highlights a collaboration-oriented research culture, dominated by small- to medium-sized author teams. This pattern suggests that knowledge development in the field is largely driven by cooperative efforts, facilitating interdisciplinary exchange and strengthening the collective advancement of research. Table X summarizes the authorship distribution.

Table 7. Number of Author(s) per document

Author Count	Total Publications (TP)	Percentage (%)
1	150	9.37%
2	351	21.92%
3	401	25.05%
4	300	18.74%
5	245	15.30%
6	101	6.31%
7	30	1.87%
8	9	0.56%
9	6	0.37%
10	4	0.25%
11	2	0.12%
0*	2	0.12%
Total	1601	100%

Publications by Institutions

At the institutional level, Universiti Malaysia Terengganu emerges as the most productive institution with 45 publications, followed closely by Universiti Sains Malaysia with 44 publications. Both institutions also record high citation performance, each exceeding 3,200 total citations, indicating not only high productivity but also strong research influence.

Other notable contributing institutions include The Superior University, Lahore (28 publications), King Faisal University (25 publications), and Taylor's University Malaysia (24 publications). Although some institutions publish fewer papers, several demonstrate high average citations per publication. For instance, Montpellier Business School and Tomas Bata University in Zlin record exceptionally high citations per paper, suggesting strong research impact relative to output volume. Overall, the results indicate that GHRM research is supported by a combination of highly productive institutions and impact-oriented research centres.

Table 8. Most productive institutions with minimum of five publications.

Affiliation	Country	TP	NCP	TC	C/P	C/CP	h	g
Universiti Malaysia Terengganu	Malaysia	45	41	3248	72.18	79.22	19	41
Universiti Sains Malaysia	Malaysia	44	35	3265	74.20	93.29	18	35
The Superior University, Lahore	Pakistan	28	28	1380	49.29	49.29	17	28
King Faisal University	Saudi Arabia	25	20	658	26.32	32.90	13	20
Taylor's University Malaysia	Malaysia	24	23	661	27.54	28.74	15	23
Jiangsu University	China	20	17	514	25.70	30.24	10	17
Universiti Kebangsaan Malaysia	Malaysia	18	16	450	25.00	28.13	10	16
Tomas Bata University in Zlin	Czech Republic	17	16	1822	107.18	113.88	11	16
Sukkur IBA University	Pakistan	17	13	1139	67.00	87.62	9	13

Universiti Utara Malaysia	Malaysia	16	13	975	60.94	75.00	10	13
Chandigarh University	India	16	8	59	3.69	7.38	5	7
Montpellier Business School	France	16	16	3443	215.19	215.19	15	16

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

Publications by Countries

The country-level analysis shows that China is the most productive contributor to GHRM research, with 291 publications, followed by India (275 publications), Pakistan (241 publications), and Malaysia (230 publications). Together, these four countries account for a substantial proportion of the total publications, highlighting Asia's dominant role in advancing GHRM research.

In contrast, countries such as France, Australia, the United States, and Italy exhibit higher average citations per paper. For example, France records more than 119 citations per paper, indicating strong research influence despite a lower publication volume. This pattern suggests a distinction between productivity-driven countries and impact-driven countries within the GHRM research landscape.

Table 9. Top 20 Countries contributed to the publications

Country	TP	NCP	TC	C/P	C/CP	h	g
China	291	256	14429	49.58	56.36	57	114
India	275	189	5242	19.06	27.74	35	68
Pakistan	241	210	11640	48.30	55.43	56	103
Malaysia	230	198	9881	42.96	49.90	47	95
Indonesia	119	81	1216	10.22	15.01	16	32
United Kingdom	117	103	6390	54.62	62.04	39	79
Saudi Arabia	111	92	3522	31.73	38.28	29	58
Australia	75	69	6573	87.64	95.26	36	69
France	62	59	7429	119.82	125.92	32	59
United States	56	50	5158	92.11	103.16	24	50
Turkey	54	43	1395	25.83	32.44	16	37
Viet Nam	54	38	1054	19.52	27.74	11	32
Jordan	50	37	564	11.28	15.24	11	23
Bangladesh	49	35	1030	21.02	29.43	16	32
United Arab Emirates	48	38	3650	76.04	96.05	22	38
Spain	47	38	2283	48.57	60.08	20	38
Poland	42	36	1006	23.95	27.94	13	31
Egypt	38	33	815	21.45	24.70	16	28
Thailand	36	33	1505	41.81	45.61	11	33
Italy	35	31	5846	167.03	188.58	22	31

Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index.

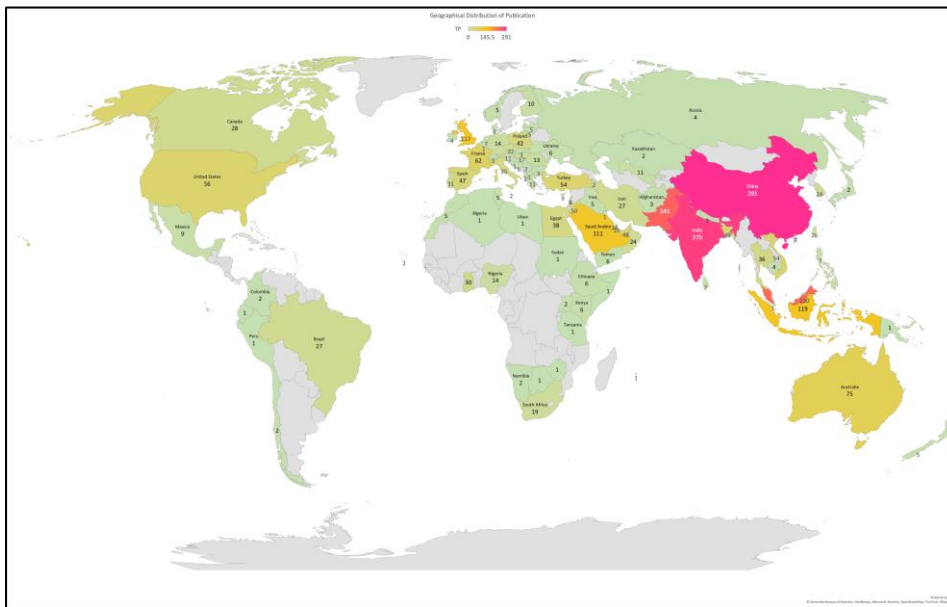


Figure 2. Worldwide scientific production indexed by Scopus on labour relations

Publications by Source Titles

The analysis of source titles reveals that GHRM research is distributed across a range of academic journals, with no single outlet overwhelmingly dominating the field. The Journal of Information Systems records the highest number of publications (19 documents) and a substantial citation count (856 citations). Other prominent outlets include the International Journal of Accounting Information Systems and the Journal of Emerging Technologies in Accounting, both of which demonstrate notable citation impact.

In addition, interdisciplinary outlets such as Lecture Notes in Computer Science and International Journal of Accounting and Information Management contribute to the dissemination of GHRM research, reflecting the integration of sustainability and technology-related perspectives. Overall, the results indicate a diverse yet concentrated set of source titles supporting GHRM scholarship.

Table 10. Most active source titles

Source Title	TP	TC	Publisher	Cite Score	SJR 2020	SNIP 2020
Journal of Information Systems	19	856	American Accounting Association	N/A	N/A	N/A
International Journal of Accounting Information Systems	17	34	Elsevier B. V.	N/A	N/A	N/A
New Dimensions of Business Reporting and XBRL	11	69	Springer	2.44	0.9	1.252
International Journal of Digital Accounting Research	10	405	University of Huelva	1.78	0.464	1.099
Ceur Workshop Proceedings	9	1	Sun SITE Central Europe	N/A	N/A	N/A

Notes: TP=total number of publications; TC=total citations; CiteScore = average citations received per document published in the source title; SJR = SCImago Journal Rank measures weighted citations received by the source title; SNIP = source normalised impact per paper measures actual citations received relative to citations expected for the source title's subject field.



publications have received a minimum of 118 citations each. Additionally, the g-index of 205 reflects strong cumulative citation performance among highly cited works.

These citation indicators suggest that GHRM research has attained considerable academic visibility and influence, reinforcing its position as a well-established research domain within sustainability and human resource management literature.

Table 11. Citations metrics

Metrics	Data
Papers	1601
Citations	57281
Years	10
Cites Year	5728.10
Cites Paper	35.78
Cites Author	19967.54
Papers Author	605.18
Authors Paper	3.44
h_index	118
g_index	205

Highly Cited Documents

The analysis of highly cited documents indicates that the most influential studies predominantly focus on the relationship between GHRM practices and employee green behavior, environmental performance, and green leadership. The most cited article, authored by Singh et al. (2020), has received 1,557 citations, highlighting its foundational role in linking green innovation, leadership, and GHRM.

Other highly cited studies emphasize psychological green climate, organizational culture, green innovation, and sustainable performance. Collectively, these influential documents form the intellectual foundation of GHRM research and continue to shape subsequent empirical and theoretical developments in the field.

Table 12. Top 20 highly cited articles

No.	Authors	Title	Cites	Cites per Year
1	S.K. Singh, M.D. Giudice, R. Chierici, D. Graziano (2020)	Green innovation and environmental performance: The role of green transformational leadership and green human resource management	1557	259.50
2	J. Dumont, J. Shen, X. Deng (2017)	Effects of Green HRM Practices on Employee Workplace Green Behavior: The Role of Psychological Green Climate and Employee Green Values	1107	123.00

3	Y.J. Kim, W.G. Kim, H.-M. Choi, K. Phetvaroon (2019)	The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance	923	131.86
4	B.B. Saeed, B. Afsar, S. Hafeez, I. Khan, M. Tahir, M.A. Afridi (2019)	Promoting employee's proenvironmental behavior through green human resource management practices	754	107.71
5	S. Roscoe, N. Subramanian, C.J.C. Chiappetta Jabbour, T. Chong (2019)	Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development	741	105.86
6	G. Tang, Y. Chen, Y. Jiang, P. Paill��, J. Jia (2018)	Green human resource management practices: scale development and validity	734	91.75
7	C.J.C. Chiappetta Jabbour, A.B. Lopes de Sousa Jabbour (2016)	Green Human Resource Management and Green Supply Chain Management: Linking two emerging agendas	671	67.10
8	A.A. Zaid, A.A.M. Jaaron, A. Talib Bon (2018)	The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study	635	79.38
9	S. Ren, G. Tang, S. Jackson (2018)	Green human resource management research in emergence: A review and future directions	632	79.00
10	S.U. Rehman, S. Kraus, S.A. Shah, D. Khanin, R.V. Mahto (2021)	Analyzing the relationship between green innovation and environmental performance in large manufacturing firms	619	123.80
11	N.T. Pham, Z. Tu��kov��, C.J.C. Chiappetta Jabbour (2019)	Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study	603	86.14
12	S.K. Mousa, M. Othman (2020)	The impact of green human resource management practices on sustainable performance in healthcare organisations: A conceptual framework	554	92.33
13	J.Y. Yong, M.Y. Yusliza, T. Ramayah, C.J. Chiappetta Jabbour, S. Sehnem, V. Venkatesh (2020)	Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management	508	84.67
14	H.A. Masri, A.A.M. Jaaron (2017)	Assessing green human resources management practices in Palestinian manufacturing context: An empirical study	500	55.56
15	V.N. Amrutha, S.N. Geetha (2020)	A systematic review on green human resource management: Implications for social sustainability	487	81.17
16	R. Chaudhary (2020)	Green Human Resource Management and Employee Green Behavior: An Empirical Analysis	478	79.67

17	N. Anwar, N.H. Mahmood, M.Y. Yusliza, T. Ramayah, J.N. Noor Faezah, W. Khalid (2020)	Green Human Resource Management for organisational citizenship behaviour towards the environment and environmental performance on a university campus	456	76.00
18	J.Y. Yong, M.-Y. Yusliza, T. Ramayah, O. Fawehinmi (2019)	Nexus between green intellectual capital and green human resource management	445	63.57
19	S.K. Singh, A.-N. El-Kassar (2019)	Role of big data analytics in developing sustainable capabilities	429	61.29
20	N. Chams, J. Garc�a-Bland�n (2019)	On the importance of sustainable human resource management for the adoption of sustainable development goals	427	61.00

Top Keywords

The keyword analysis confirms that “Green Human Resource Management” is the most frequently used keyword, appearing in 596 publications (37.23%), underscoring its central role in structuring the research domain. Related terms such as “Green HRM” and “GHRM” further reinforce the conceptual focus of the field.

Other frequently occurring keywords include sustainability, environmental performance, sustainable development, green innovation, and corporate social responsibility, indicating that GHRM research is strongly linked to sustainability outcomes and strategic organizational practices. The distribution of keywords reflects both conceptual consolidation around core GHRM themes and increasing thematic diversification.

Table 13. Top author’s keywords

Keywords	Total Publication (TP)	Percentage %
Green Human Resource Management	596	37.23%
Sustainability	274	17.11%
Human Resource	245	15.30%
Green Hrm	234	14.62%
Sustainable Development	228	14.24%
Human Resource Management	227	14.18%
Environmental Performance	204	12.74%
Resource Management	188	11.74%
Human Resources Management	183	11.43%
Environmental Management	174	10.87%
Ghrm	135	8.43%
Green Economy	125	7.81%
Resource Allocation	120	7.50%
Environmental Sustainability	98	6.12%
Green Innovation	98	6.12%
Corporate Social Responsibility	85	5.31%

Human	82	5.12%
Green Development	78	4.87%
Sustainable Performance	74	4.62%
Human Resource Management Practices	71	4.43%

Co-authorship Analysis

Co-authorship analysis was conducted to examine collaboration patterns among authors, institutions, and countries in GHRM research. Network visualisations generated using VOSviewer provide insights into the structure, intensity, and geographical distribution of research collaboration within the field.

Co-authorship by author

The co-authorship network at the author level reveals that GHRM research is characterised by clustered collaboration structures, where a relatively small number of authors act as central nodes connecting different research groups. Prominent authors such as Yusliza, M.Y., Ramayah, T., Jabbour, C.J.C., and Paillé, P. occupy central positions in the network, indicating their strong collaborative ties and influence within the field. The presence of multiple interconnected clusters suggests that collaboration in GHRM research is largely organised around established research teams rather than isolated individual authors. At the same time, the network indicates limited cross-cluster integration, implying opportunities for broader collaboration across research groups.

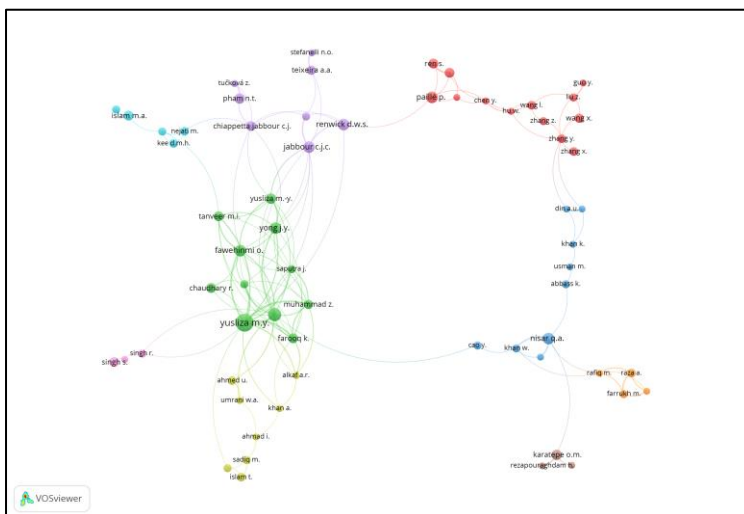
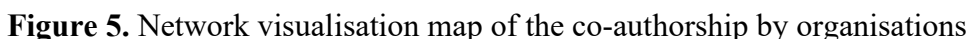


Figure 4. Network visualisation map of the co-authorship by authors

Co-authorship by organisations

At the organisational level, the co-authorship network highlights several institutions as key collaboration hubs. Universiti Malaysia Terengganu, Universiti Sains Malaysia, Montpellier Business School, and The Superior University, Lahore exhibit strong collaborative linkages, reflecting sustained institutional partnerships.

The network structure indicates that intra-national collaboration is more prevalent than international collaboration, particularly among institutions within Malaysia, Pakistan, and China. However, notable cross-border institutional collaborations are observed between Asian and European universities, suggesting increasing internationalisation of GHRM research.



The country-level co-authorship network demonstrates that China, Malaysia, Pakistan, India, and the United Kingdom play central roles in international collaboration. These countries show dense collaboration links, indicating their importance in connecting different regional research communities.

Co-occurrence Analysis

Co-occurrence analysis of author's keywords

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Additional clusters highlight emerging and complementary themes, including green innovation, corporate social responsibility, green economy, and resource management, reflecting the strategic and performance-oriented dimensions of the field. The presence of these clusters suggests that GHRM research has evolved beyond a narrow HRM focus to incorporate broader sustainability and organisational perspectives. Overall, the co-occurrence analysis reveals both conceptual consolidation around core GHRM themes and thematic diversification into related sustainability domains, indicating a mature and evolving research field.

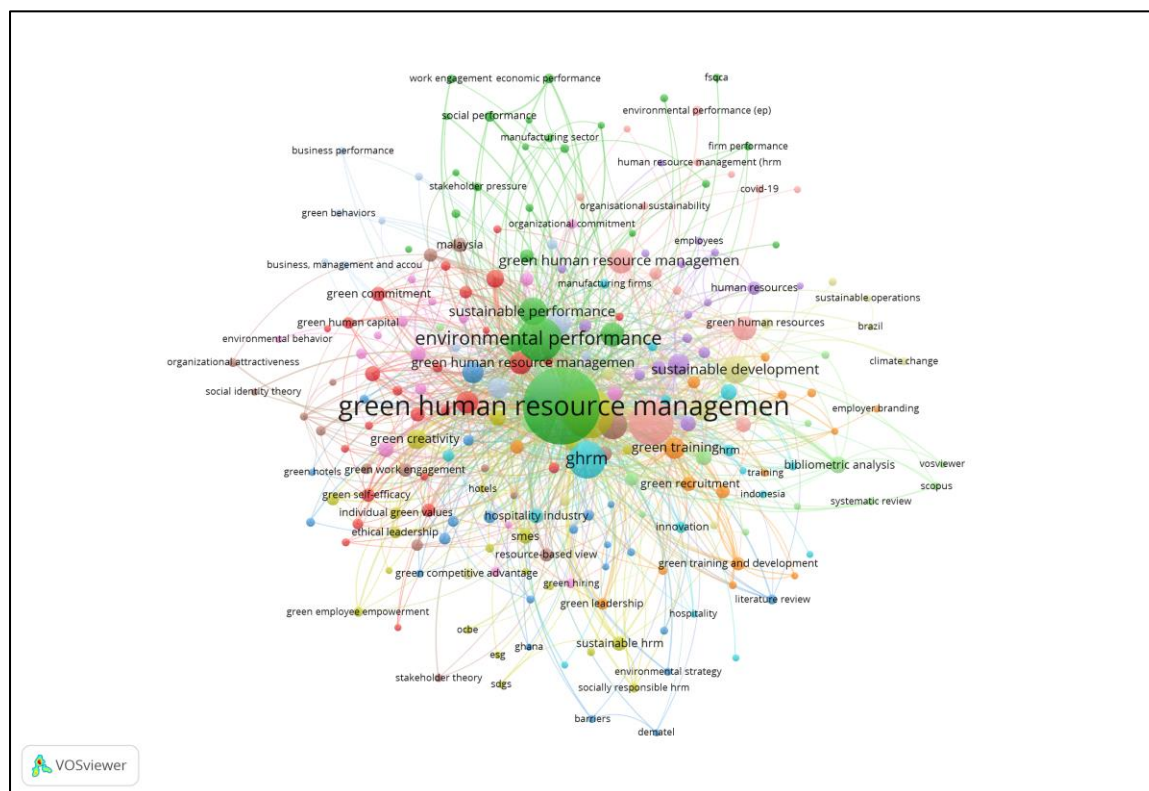


Figure 7. Network visualisation of the author's keywords

CONCLUSION

The 21st century has witnessed growing global attention toward environmental sustainability and responsible management practices. Organisations across industries are increasingly required to align their strategies with environmental objectives and sustainable development goals. Within this transformation, human resource management plays a critical role in shaping employee behaviour, organisational culture, and long-term sustainability performance. As a result, Green Human Resource Management (GHRM) has emerged as a prominent research domain that integrates environmental considerations into HR policies and practices.

Over the past decade, particularly between 2016 and 2025, scholarly interest in GHRM has expanded substantially. The findings of this bibliometric analysis reveal a strong upward trend in publication output, especially from 2020 onwards. This growth reflects the increasing strategic importance of sustainability-oriented HRM practices. Similar expansion patterns have been observed in bibliometric studies within sustainability and management research (Mansour et al., 2021; Zakaria et al., 2021). The dominance of journal articles within the dataset further indicates that GHRM research has achieved methodological maturity and scholarly consolidation.

At the geographical level, China, India, Pakistan, and Malaysia emerge as the most productive contributors to GHRM research. Malaysian institutions demonstrate notable productivity and citation performance, reflecting regional research strength. However, while Asian countries dominate in publication volume, several European

countries demonstrate higher citation impact per publication. This distinction highlights differences between productivity-driven and impact-driven research environments and reflects the increasingly global character of GHRM scholarship.

Collaboration analysis shows that GHRM research is primarily conducted through small- to medium-sized author teams, with clustered co-authorship networks centred around influential researchers and institutions. Although international collaboration exists, intra-national collaboration remains more dominant, suggesting opportunities for stronger global research integration. The science mapping analysis conducted using VOSviewer (Van Eck & Waltman, 2010) confirms the presence of interconnected thematic clusters within the field.

Thematic analysis further reveals that sustainability remains the core anchor of GHRM research. Environmental performance, green innovation, employee green behaviour, corporate social responsibility, and sustainable development are among the most prominent themes identified. These findings indicate that GHRM research has progressed beyond conceptual discussions and increasingly emphasises empirical validation and performance-related outcomes. The structured mapping conducted in this study, guided by transparent and systematic procedures adapted from the PRISMA 2020 framework (Page et al., 2021), enhances the reliability and replicability of the analysis.

Overall, this study provides a comprehensive bibliometric mapping of 1,601 GHRM publications indexed in Scopus between 2016 and 2025. By analysing publication trends, citation performance, collaboration structures, and keyword networks, this research contributes to a clearer understanding of the intellectual and social architecture of GHRM scholarship. The findings may assist researchers in identifying influential contributors and emerging themes, while policymakers and organisational leaders may gain insights into the strategic relevance of sustainability-oriented HRM practices.

Despite its contributions, this study has several limitations. The analysis was limited to English-language publications indexed in the Scopus database and relied primarily on bibliometric indicators. Consequently, relevant studies indexed in other databases or published in other languages may not have been captured. Furthermore, bibliometric analysis identifies publication patterns, intellectual structures, and thematic relationships but does not provide an in-depth evaluation of the theoretical arguments, research contexts, or empirical findings reported in individual studies.

Future Research Directions

Future research should extend the current bibliometric findings through empirical investigations involving organisations from different industries, institutional settings, and geographical locations. Such studies would improve the generalisability of existing knowledge and clarify whether the effectiveness of Green Human Resource Management (GHRM) varies across organisational and cultural contexts. Researchers should also examine specific GHRM practices, including green recruitment and selection, green training and development, green performance appraisal, and green rewards, as distinct constructs. Assessing their individual and combined effects would provide a more precise understanding of how particular practices influence employee green behaviour, environmental performance, and broader organisational sustainability outcomes.

Further research could investigate the mechanisms and organisational conditions that support successful GHRM implementation. In particular, leadership support, green organisational culture, employee engagement, psychological green climate, and employees' environmental values may be examined as mediating or moderating factors. Mixed-method research designs that combine questionnaires with interviews, focus groups, or organisational case studies would provide deeper insights into implementation barriers, employee experiences, and managerial challenges that may not be adequately captured through quantitative data alone. Longitudinal studies are also recommended to determine whether GHRM practices generate sustained improvements in employee behaviour and organisational performance over time. From a bibliometric perspective, future studies could incorporate additional databases, such as Web of Science, analyse thematic

evolution across different time periods, and combine science mapping with systematic qualitative content analysis to strengthen the theoretical interpretation of emerging GHRM research directions.

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