A Bibliometric Analysis on Green Human Resource Management Using Scopus Database

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ABSTRACT

The study of Green Human Resource Management (GHRM) has recently garnered significant attention from both academics and practitioners due to its vital role in incorporating sustainable environmental practices into traditional HRM processes. A key research objective is to comprehend the overall structure of existing research and what has been accomplished so far, in order to develop a robust research program to tackle future GHRM challenges. Conducting a bibliometric analysis of the current state of GHRM aims to provide insights into the existing body of knowledge, identify trends, and understand the research landscape. Numerous literature reviews focusing on various aspects of GHRM have been published between 2014 and 2024. Consequently, this study employed a bibliometric approach to assess the current level of research on GHRM. The Scopus database, a leading independent global citation database, was utilized to search for documents related to GHRM. A bibliometric tool called Biblioshiny was executed to examine the data collected from the search, which generated 446 documents. This software was used to build maps based on scientific publication network data, revealing relationships between researchers, countries, and journals. This comprehensive mapping of the field serves to graphically depict the evolution of publications over time as well as identify current research interests. Finally, the findings of the bibliometric analysis point out a growing trend in GHRM studies around the world, indicating that people are becoming more conscious of the need for environmental management and protection, as well as sustainable development.

Keywords: Bibliometrics analysis, Green Human Resource Management, Literature Review, Sustainability

INTRODUCTION

In recent years, the concept of Green Human Resource Management (GHRM) has gained significant traction among scholars and practitioners. GHRM integrates sustainable environmental practices into traditional HRM processes, aiming to enhance organizational sustainability and environmental performance. This emerging field addresses the growing need for businesses to adopt environmentally responsible practices in response to global environmental challenges and increasing regulatory pressures (Wang, Z., & Mohamed Makhbul, Z. K., 2024; Benjamin, E., 2024).

Interest in GHRM has surged over the past decade, as it is recognized as a potential green management strategy that can assist companies in minimizing their environmental impact and promoting sustainability. Nowadays, the significance of GHRM research has grown markedly among scholars (Dumont et al., 2016; Jabbour and Renwick, 2018; Yong et al., 2019; Yusliza et al., 2017). Consequently, the study of GHRM has spread widely.

Increasing awareness of environmental issues has led Human Resource (HR) practitioners to adopt Green Human Resource (GHR) practices, emphasizing a paperless approach, reducing the carbon footprint, and managing waste (Ahmad, 2015).

Human Resource Management (HRM) is widely recognized for its significant potential in promoting sustainability (Jabbour & Santos, 2008). However, the successful integration of environmental measures within a company necessitates diverse contributions from various organizational functions, especially HRM (del Brio et al., 2007). According to Cohen et al. (2012), the HR function plays a crucial role in developing and implementing sustainable business strategies across an organization. It can help in setting and achieving environmental and social objectives while balancing these with traditional financial performance metrics. Additionally, HRM practices can act as a partner in shaping corporate values and sustainability strategies.

The increasing attention of GHRM research, varying significance for exploring the connection under HRM and sustainability focus areas. Therefore, it is essential to develop a comprehensive concept of the framework and provide an overview of the existing GHRM research. Currently, the field lacks extensive literature reviews that thoroughly examine and analyze the growing body of GHRM literature. Thus, a detailed and expanded literature review on GHRM is needed. This paper aims to offer an analysis and insights in detail of GHRM research published in leading academic journals.

Our research relies on previous literature reviews and bibliometric articles on the GHRM using the Scopus database from the year 2014 to 2024 to achieve the following research questions:

1. What is the current state of GHRM research?
2. Which authors are the most prolific in GHRM?
3. Which authors are the most frequently cited in GHRM research?
4. What are the most productive organizations, countries, and journal outlets in GHRM?

To run the research, this report uses an analysis of bibliometrics on GHRM collected from the Scopus database to respond to these research questions. The remainder of this paper is structured as follows: The research methodology is presented in Section 2. Our findings and discussion are presented in Section 3. Finally, section 4 of the study provides a step-by-step guide for conducting future research.

METHODOLOGY

A bibliometric analysis is becoming more popular as a method for revealing study trends and patterns (Ahmi & Mohamad, 2019). The patterns of the studies can be seen by distinguishing them by year, author, organization, or country of publication. The influence and performance of a publication can also be assessed using matrices such as citations per year, number of citations, g-index, and h-index. Besides, depending on numerous indications such as co-citation, co-authorship, phrases or occurrences of keywords, and bibliographic coupling, the state of the art of the publications can be mapped and visualized (Abdul Rahim et al., 2024).

The analysis in this bibliometric study was carried out using specialist software, specifically Bibliometric, which is one of the most recent open-source tools built in the R environment for systematic scientific literature mapping (Aria & Cuccurullo, 2017). The Bibliometric R package contains a collection of tools for bibliometrics and scientometric quantitative research. Specifically, we utilized Biblioshiny, a shiny interface for Bibliometrics. The presence of extensiveness, statistical algorithms effectiveness, high-quality numerical routines accessibility, and data visualization integration capabilities are possibly the highest significant reasons to use R for scientific computation compared to other languages. For the analysis, we also used Microsoft 365 (Excel) to compute the frequencies and percentages of the published documents and to generate the appropriate charts and graphs. The data was collected on 14th December 2024 from the Scopus database, which is recognized as the largest abstract and citation database of peer-reviewed literature globally (Perez-Gilbe, 2024). This extensive database includes a comprehensive range of scientific journals, conference proceedings, and books, ensuring high-quality data through rigorous selection and curation processes (Baas et al., 2020).

Considering the limited effort in bibliometric analysis on Green Human Resource Management (GHRM), we

focus on papers related to GHRM by filtering based on the document titles. The following query was used in searching the documents: (TITLE ("green human resource management")) to accomplish the objective. The title of the articles is considered because it is the most prominent component that readers will observe and detect from online databases, which remains crucial for visibility and impact in the digital age (Akma, Yasin, & Perdhana, 2024). It characterizes the relevant topic to the research field and aligns with the purpose of the study. Then, the research was further refined to include publications from 2014 to 2024 to identify the global trend in GHRM research. Figure 1 displays the results of the search strategy conducted in the Scopus database, which generated a significant number of documents comprising all records that were published until 2024 in various types of publications, such as articles, reviews, conference proceedings, books, book chapters, and editorials. For bibliometric analysis, exactly 446 record documents were included in the exploration after erratum, and retracted document types were eliminated to prevent multiple or erroneous counting of documents. Based on these findings, the hot themes of GHRM can be studied using keyword co-occurrence mapping, and the emerging frontiers of its evolution can be analyzed using mutation word detection.

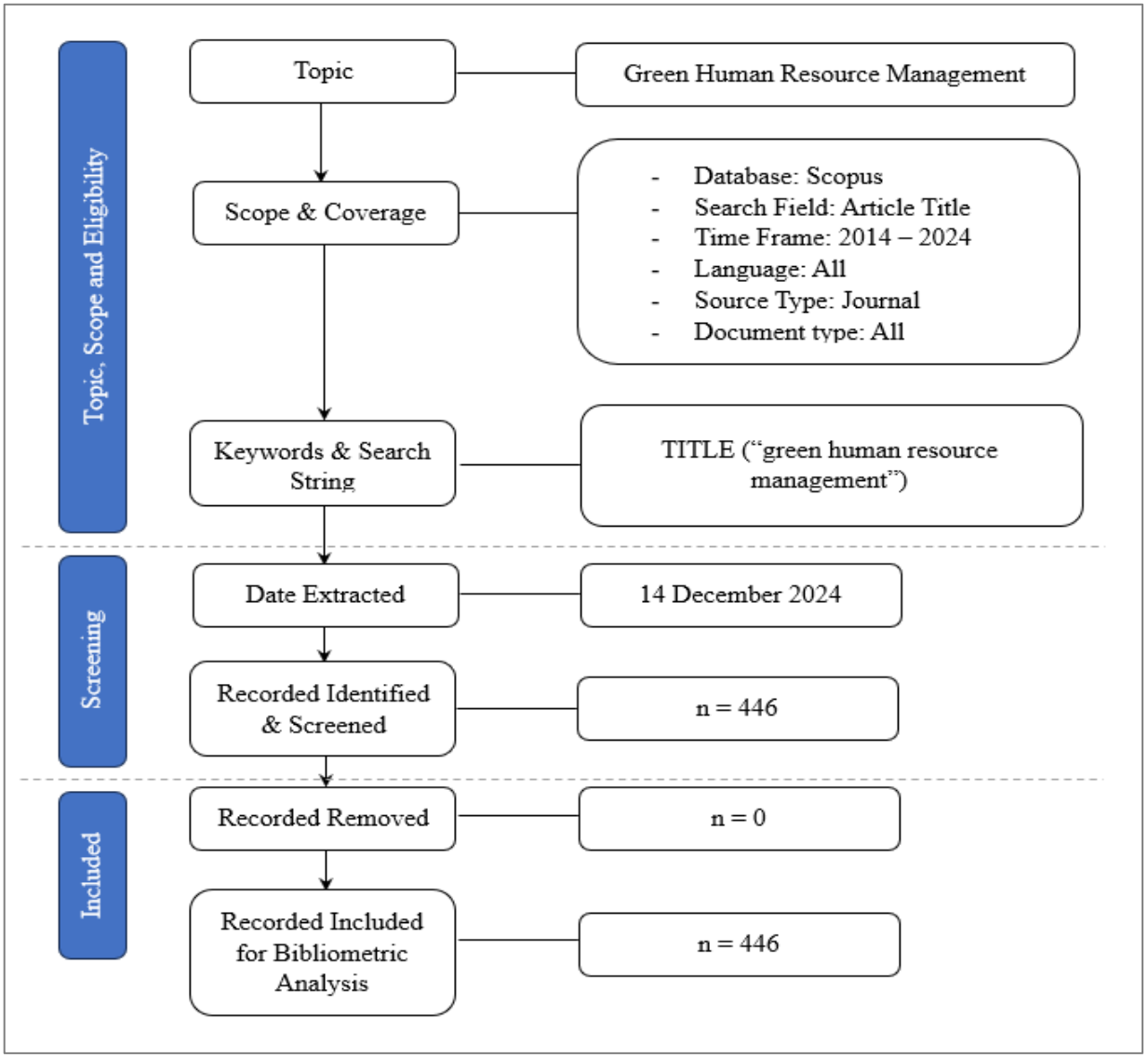

Figure 1: Flowchart for The Search Strategy

RESULT AND DISCUSSION

The study analysis utilized various features of academic works to achieve the research questions outlined in the previous section. These features included document types, publication by year, source types, publication by source title, productive authors, cited papers, productive countries, publication by institutions, frequent journals and keywords, network analysis, co-citation analysis, collaboration analysis, and co-word analysis in GHRM. Consequently, the next sections will outline and examine the significant results of our bibliometric analysis.

Primary Publications in Scopus Related to Green Human Resource Management

Table 1 summarizes the key features of the dataset extracted from the Scopus database comprising papers related to GHRM. The table delivers a variety of useful information. For example, we find that articles (358 documents) are the most common type of document, followed by conference papers (37 documents), book chapters (22 documents), and reviews (24 documents).

Table 1: Primary Publications in Scopus related to Green Human Resource Management

Description	**Results**
MAIN INFORMATION ABOUT DATA	
Timespan	2014:2024
Sources (Journals, Books, etc.)	209
Documents	446
Annual Growth Rate %	43.78
Document Average Age	1.92
Average citations per doc	44.42
References	25935
DOCUMENT CONTENTS	
Keywords Plus (ID)	801
Author's Keywords (DE)	1013
AUTHORS	
Authors	1151
Authors of single-authored docs	38
AUTHORS COLLABORATION	
Single-authored docs	43
Co-Authors per Doc	3.39
International co-authorships %	37.67
DOCUMENT TYPES	
article	358
book	3
book chapter	22
conference paper	37
note	2
review	24

Primary Sources of Annual Scientific Production

The trend of scientific publications on GHRM in the Scopus database from 2014 to 2024 is shown in Figure 2. Between 2014 and 2017, only a small number of GHRM-related papers were published annually. A notable increase occurred in 2018 with 17 publications, followed by steady growth, reaching 19 publications in 2019. The number of articles published related to GHRM increased to 42 in 2020, peaking at 96 in 2023. These observations suggest that while GHRM research was in its nascent stage since 2014, it has experienced

significant growth, indicating a geometric increase in interest and scholarship in this field.

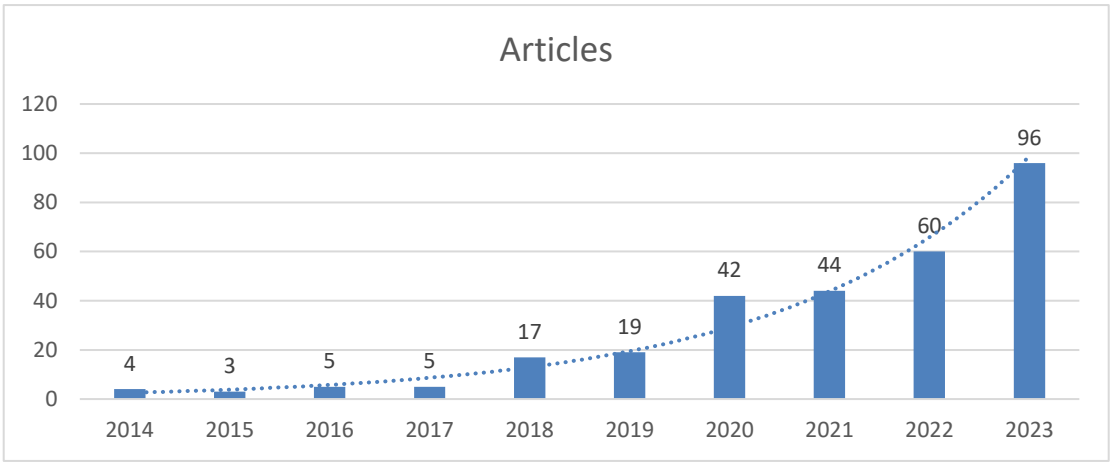

Figure 2: Annual Scientific Production

Figure 3 highlights the top 20 most influential sources on GHRM, comprising a total of 210 articles. The Sustainability (Switzerland) leads the list with 31 publications, followed by the Journal of Cleaner Production with 29 publications. Green Human Resource Management: A View from Global South Countries ranks third with 12 articles, followed by Corporate Social Responsibility and Environmental Management and Business Strategy and The Environment, each recorded 11 articles, followed by Cogent Business and Management contributing 10 publications. The remaining journals published fewer than 10 documents on the GHRM topic.

Figure 3: Top 20 Sources of Publication on GHRM Research

Source Growth Dynamics

Table 2 highlights the source growth dynamics for GHRM papers published in the Scopus database. Five journals demonstrating the most significant growth in GHRM research were identified: Sustainability (Switzerland), Journal of Cleaner Production, Green Human Resource Management: A View from Global South Countries, Business Strategy and The Environment, and Corporate Social Responsibility and Environmental Management. Together, these journals accounted for 319 out of 358 articles, representing 89.11% of the total number of

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research articles on GHRM.

Among these, the Journal of Cleaner Production exhibited remarkable growth, publishing a total of 151 research articles as of 2015. This was followed by Sustainability (Switzerland) with 106 articles, Business Strategy and The Environment with 26 articles, Corporate Social Responsibility and Environmental Management with 24 articles, and Green Human Resource Management: A View from Global South Countries with 12 articles.

Table 2: Source Dynamics

Year	**Sustainability (Switzerland)**	**Journal Of Cleaner Production**	**Green Human Resource Management: A View From Global South Countries**	**Business Strategy And The Environment**	**Corporate Social Responsibility And Environmental Management**	
2014	0	0	0	0	0	
2015	0	2	0	0	0	
2016	0	4	0	0	0	
2017	0	5	0	0	0	
2018	2	7	0	0	0	
2019	4	12	0	1	1	
2020	9	16	0	2	2	
2021	12	23	0	2	2	
2022	17	25	0	2	4	
2023	27	28	0	8	4	
2024	35	29	12	11	11	
Total	106	151	12	26	24	319
%	33.23	47.34	3.76	8.15	7.52	100.00

Top 20 Most Contributing Authors

Table 3 presents the classification of the top 20 contributing authors and their number of published articles on GHRM in the Scopus database. The top three authors each contributed more than 10 publications, led by Jabbour CJC, Ramayah T. and Yusliza MY. In contrast, authors ranked from fourth to twentieth and produced fewer than 15 papers each.

Table 3: The Top 20 Most Contributing Authors

Rank	**Authors**	**Articles**
1	JABBOUR CJC	11
2	RAMAYAH T	10
3	YUSLIZA MY	10
4	NISAR QA	9
5	PAILLÉ P	9

6	YONG JY	8
7	YUSLIZA M-Y	8
8	CHAUDHARY R	7
9	KARATEPE OM	7
10	PHAM NT	7
11	CHIAPPETTA JABBOUR CJ	6
12	FAWEHINMI O	6
13	MARCO-LAJARA B	6
14	TANG G	6
15	ZAID AA	6
16	CHEN Y	5
17	DE SOUSA JABBOUR ABL	5
18	IQBAL J	5
19	MUISYO PK	5
20	REN S	5

Top 10 Most Performing Organizations

Table 4 demonstrates the top 10 most contributing or performing organizations based on the number of articles contributed to the area of GHRM available in the Scopus database. The University Malaysia Terengganu (1st position) has the most articles published with 36 documents, followed by University of Alicante in second place with 29 documents and the University Sains Malaysia ranked the third position with 18 documents. The university Putra Malaysia is in fourth place with 16 documents, followed by the fifth position the Montpellier Business School with 14 documents.

Table 4: Top 10 Most Performing Organizations

Rank	**Affiliation**	**Articles**
1	UNIVERSITI MALAYSIA TERENGGANU	36
2	UNIVERSITY OF ALICANTE	29
3	UNIVERSITI SAINS MALAYSIA	18
4	UNIVERSITI PUTRA MALAYSIA	16
5	MONTPELLIER BUSINESS SCHOOL	14
6	EASTERN MEDITERRANEAN UNIVERSITY	13
7	SHANDONG UNIVERSITY	13
8	JIANGSU UNIVERSITY	11
9	WUHAN UNIVERSITY OF TECHNOLOGY	11
10	UNIVERSITI KEBANGSAAN MALAYSIA	10

GHRM Highly Cited Paper

The distribution of the most cited papers in the Scopus database report is presented in Table 5. According to the Scopus database, the paper published by SINGH SK in 2020 has the most total citations (1112), followed by the paper by KIM YJ, in 2019 with 700 citations. Sarkis J., in 2011, who has 1042 total citations in the Scopus database, PAILLÉ P, in 2014, are in third place. ROSCOE S, 2019, is ranked fourth with 550 total citations, while TANG G, 2018 is placed fifth with 534 total citations. Other than that, having a citation of less than 500. Based on the data, it's safe to state that all the authors are among the most influential authors in the GHRM.

Table 5: The Top 10 Most Globally Cited Papers in GHRM

Rank	Paper	Total Citations	TC per Year
1	SINGH SK, 2020, TECHNOL FORECAST SOC CHANGE	1112	222.40
2	KIM YJ, 2019, INT J HOSP MANAGE	700	116.67
3	PAILLÉ P, 2014, J BUS ETHICS	638	58.00
4	ROSCOE S, 2019, BUS STRATEGY ENVIRON	550	91.67
5	TANG G, 2018, ASIA PAC J HUM RESOUR	534	76.29
6	ZAID AA, 2018, J CLEAN PROD	498	71.14
7	REN S, 2018, ASIA PAC J MANAGE	468	66.86
8	AHMAD S, 2015, COGENT BUS MANAG	397	39.70
9	YONG JY, 2020, BUS STRATEGY ENVIRON	395	79.00
10	MOUSA SK, 2020, J CLEAN PROD	395	79.00

Top 10 Scientific Productions and Highly Cited Countries Related to GHRM

The illustration of the scientific output on GHRM by country as published in the Scopus database is shown in Table 6. China is clearly in the lead, with a total of 226 documents, followed by Malaysia in the second place and India in the third place, respectively, with 201 and 154 documents. Pakistan ranked in the fourth position with 152 documents, while Indonesia ranked fifth with 73 documents. Spain and the UK are in the sixth and seventh positions with 45 documents respectively. The other four countries on this restricted list have published less than 40 publications: France (40), Saudi Arabia (40), and Australia (35). Table 7 shows that China has the most total citations (3350), followed by Malaysia with 2181 total citations, India with 1441 total citations, France with 1282 total citations, the United Arab Emirates with 1441 total citations, and the United Kingdom with 1038 citations. The other top countries on this list have less than 1000 total citations (between 565 and 962). Both Table 6 and Table 7 confirmed that Asia, America, and Europe have dominated the literature on the GHRM field. This could also contribute to gaining an awareness of sustainable environmental practices in these countries, which produce much and affect the world's pollution.

Table 6: Countries of Scientific Production

Rank	Country	Freq
1	CHINA	226
2	MALAYSIA	201
3	INDIA	154
4	PAKISTAN	152
5	INDONESIA	73

6	SPAIN	45
7	UK	45
8	FRANCE	40
9	SAUDI ARABIA	40
10	AUSTRALIA	35

Table 7: Top 10 Most Cited Countries

Rank	Country	TC
1	CHINA	3350
2	MALAYSIA	2181
3	INDIA	1441
4	FRANCE	1282
5	UNITED ARAB EMIRATES	1138
6	UNITED KINGDOM	1038
7	USA	962
8	PAKISTAN	778
9	CANADA	688
10	BRAZIL	565

World Cloud and Frequent Words Related to GHRM

The word cloud associated with GHRM is displayed in Figure 4 based on the Scopus database. The word cloud is generated by the software with the most frequent terms highlighted in larger and bold fonts and the less common words in smaller fonts. The word cloud can be used to determine the most common keywords and themes in research articles (Birko et al., 2015). Table 8 highlighted the most common words used by authors in their paper, human resource paper with 78 times and human resource management with 76 times ranked first and second position. This illustrates the importance of environmental management and sustainable development related to GHRM. The third most common word is environment management with 64 occurrences, followed by resource allocation with 62 occurrences, resource management and sustainability with 61 each, green human resource management with 57, and Human resource management with 55 occurrences. Other words recorded fewer than 50 occurrences. All of the words that count in the top six places might be used to describe the current issues in GHRM research.

Table 8: Most Frequent Used Word in GHRM Research

Rank	Terms	Frequency
1	human resource	78
2	human resource management	76
3	environmental management	64
4	resource allocation	62
5	resource management	61
6	sustainable development	61
7	green human resource management	57

8	human resources management	55
9	green economy	30
10	sustainability	30

Figure 4: Word Cloud Related to GHRM Research

GHRM Co-occurrence Network

The co-occurrence network visualization in Figure 5 highlights key thematic areas and relationships within the literature on human resource management (HRM) and sustainability (Aria & Cuccurullo, 2017). The network is divided into two main clusters: a red cluster and a blue cluster. The red cluster focuses on topics such as human resource management, environmental management, resource allocation, and sustainability, indicating studies that connect HRM with environmental and sustainable practices. The blue cluster, on the other hand, encompasses broader sustainability practices, featuring keywords such as green economy, workplace, environmental economics, innovation, and stakeholder, which suggest the integration of sustainability concepts into organizational frameworks. Prominent keywords, including "Human Resource Management," "Sustainable Development," and "Environmental Management" in the red cluster, and "Sustainability" and "Green Economy" in the blue cluster. These insights offer opportunities for further research to explore underexamined areas. This analysis provides a foundation for identifying dominant themes, aligning with trending topics, and addressing gaps in HRM and sustainability literature.

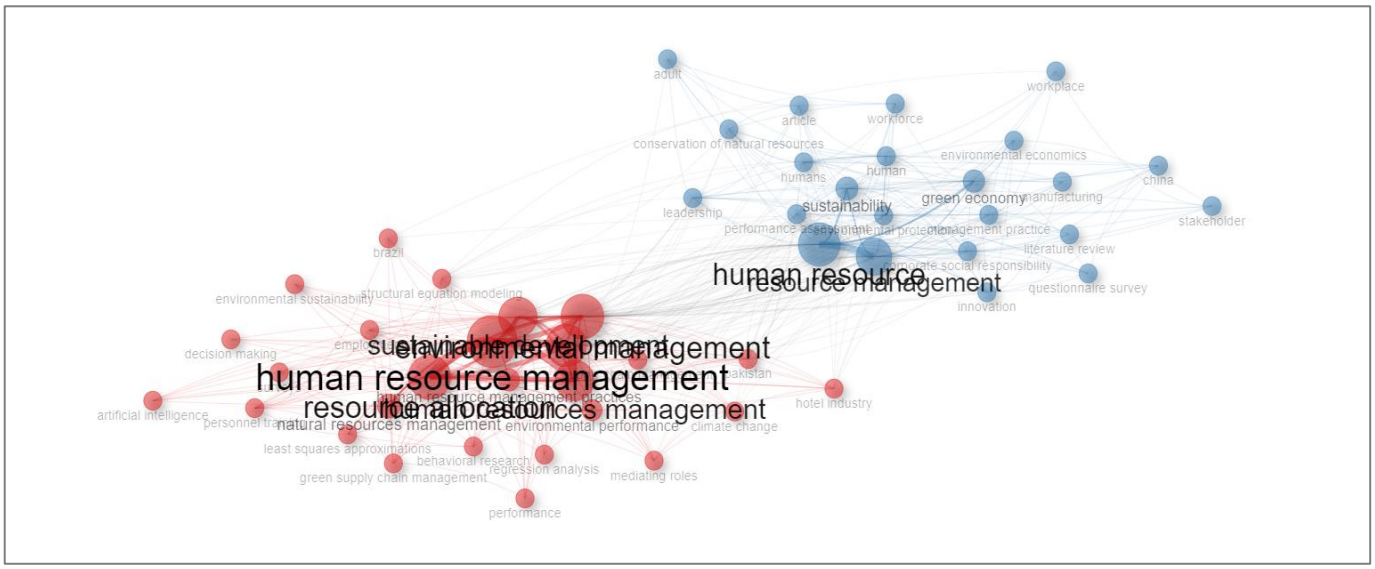

Figure 5: GHRM Conceptual Co-occurrence Network

CONCLUSIONS

Conducting a retrospective bibliometric analysis of a journal is crucial in deciding the field's overall growth and structure (Strandberg et al., 2018). This form of research is important in many ways since it contributes by providing a comprehensive view of the area from various perspectives. This study delivers a comprehensive overview of the GHRM field's evolution between 2014 and 2024. We carried out a bibliometric analysis and data gathered from the Scopus database to analyze the publication trends of GHRM to achieve our goal. The following were some of the significant takeaways: (1) the most prolific authors, organizations, and countries in the green human resource management; and (2) the highly cited authors, countries, and journal outlets in the GHRM research. For instance, the analysis discovered that most GHRM-related documents pulled from the Scopus database were 358 articles. As a result, future research may examine changing the portfolio and landscape of GHRM-related publications, such as case studies and teaching cases. The use of data analytics tools to measure and analyze sustainability metrics is on the rise. Companies are leveraging big data analytics to gain insights into the sustainability of human resource management.

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