

# Green Human Resource Management: Exploring Past, Present and Future through Bibliometric Analysis

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**Abstract:** *Green Human Resource Management is a prominent concept within the broader context of sustainable development, aligning human resource practices with environmental sustainability goals. Despite its growing significance, GHRM is relatively new, and there is limited analysis of its development, trends, and collaborative networks. To address this gap, a study was carried out to answer three research questions such as What is the total number of articles related to Green-HRM, and how are they distributed globally between developed and developing countries, Which journals received the highest number of citations in the area of Green Human Resource Management, and Who are the most prominent authors and those with the highest citation counts in the area of Green Human Resource Management. The study analysed dataset from the Scopus database which consists of 422 records from 2018 to 2024. The selection criteria included articles published in the fields of business, management, and accounting. The findings showed that the majority of international GHRM research is published in the Journal of Cleaner Production. The Prominent authors contributing to the field of Green Human Resource Management are Yusliza MY, Ramayah T, Ren S, Tang G, and Chaudhary R. Additionally, the study found that GHRM documents have an annual growth rate of 35.93 percent. The research indicated that trending topics in GHRM include green voice behavior, green HRM practices, and environmental sustainability. These insights provide valuable information for future researchers and can help policymakers understand the role of HRM in different fields. This study highlights the need for cross-cultural and multicultural studies in GHRM and provides a roadmap for future scholarly inquiry in this field. The analysis of the dataset has shown that interest in GHRM has increased and identified key contributors and influential publications. These results enable future researchers to learn about existing themes and find new research opportunities. Policymakers might find these results essential for understanding the present role of HRM in different sectors, supporting further studies for robust outcomes. The study not only clarifies the past and present landscape of GHRM but also provides a roadmap for future scholarly inquiry, contributing to the advancement of both theory and practice in this vital field.*

**Keywords:** *Bibliometric Analysis, Environmental Sustainability, Green Human Resource Management, Sustainable Development, VOS viewer*

## Introduction

Green HRM involves use of HR policies to enhance resource and environmental sustainability within organizations which is increasingly important as awareness of environmental management grows in modern businesses. GHRM incorporates sustainability into HR practices, promoting eco-friendly policies to balance economic performance and environmental stewardship, thereby advancing sustainable development and corporate social responsibility (Renwick et al.,2012). GHRM has emerged as novel idea centered on the preservation and safeguarding of natural resources influenced by organisational operations (Hameed et al.,2023). Countries globally, whether developing or developed, are increasingly prioritizing environmental concerns due to adverse effects of heavy industrial operations on the ecosystem (Jehan et al.,2020). There is limited scholarly research on greenhouse gas reduction and recycling in Compared to green human resource management (Acuff & Kaffine,2013; Chestar et al.,2008; Dunn et al.,2012). Recently the concept “triple bottom line” has gained popularity in recent years as Human Resource Management has expanded from economic considerations to include environmental and social aspects (Mohammad et al.,2020; Yong et al.,2020). In order to improve the global business environment as well as to remain competitive in the market this place provides a better emphasis and the organization’s responsibility (Scott & Eakins,2009; Yussof et al.,2020). The significance of Green HRM is evident in its ability to deliver mutually beneficial outcomes for both organisations and the environment (Praveen Kumar & Raja Shree,2019). while employees benefit from a healthier and greener workplace, which promotes commitment and job satisfaction (Setyaningrum & Muafi,2023). Furthermore, exposure to environmental issues also influences employees’ adoption of eco-friendly behaviours (Ren et al.,2020). Knowledge of the environment, prudence, and moral creativity influence employee acceptance of Green HRM, prompting

organizations to align with environmental expectations by hiring individuals with these traits (Ahmad S,2015). The growing trends and various fields within the same domain are expanding daily, highlighting the need for a comprehensive paper that compiles all existing work and research published to date (AkhtarUK,2023). There are several qualitative and quantitative methods to analyse and interpret findings from previous studies, with bibliographic data analysis being one such method. Bibliometric analysis, in particular, is more objective and reliable for evaluating literature compared to other approaches. Bibliometric analysis is especially useful in the present era, where people can navigate extensive amounts of information, data, and new perspectives. It allows for the systematic study of themes, recent research trends, and developments across various fields, facilitating the identification of the most productive countries, authors, and institutions while providing a comprehensive overview of the research landscape within a particular field. This rationale underpins the study of Green HRM using bibliometric analysis to better understand the concept. Researchers begin this research with these questions in mind.

RQ1: What is the overall count of articles pertaining to Green human resource management, and how are they distributed globally between developed and developing countries?

RQ2: Which journals have the highest number of citations?

RQ3: Who are the prominent authors with highest citation counts in the field of Green human resource management?

## Literature Review

The study conducted by Sharma, A. et al. (2010), Singh, S.K. et al. (2020), and Tang, G. et al. (2018) reveals that Green human resource management prioritizes the sustainable use of resources while promoting environmental sustainability through human resource management practices. This

includes preserving knowledge capital and implementing eco-friendly practices as integral components of Corporate Social Responsibility. Renwick, D.W. et al. (2013) observed that organisations are integrating green human resource management principles in their recruitment strategies by emphasizing environmental responsibilities in job advertisements and questioning candidates regarding their experience with sustainable development during interviews. These efforts improve the organization's image and credibility, attracting high-quality candidates who share the company's values. GHRM serves as a strategic management tool designed to minimize the carbon footprint of employees and organisation while enhancing talent retention (Mishra, 2017). An incentive system that rewards eco-friendly actions among employees, through financial bonuses and non-monetary benefits like sabbaticals and gifts, can enhance both organizational performance and environmental sustainability (Daily & Huang, 2001). Additionally, employee performance ensures alignment with business objectives. Employers can encourage eco-friendly behavior by implementing green policies, such as prohibiting toxic waste discharge and providing training on handling hazardous materials safely (Robertson & Barling, 2015). The need for Green HRM stems from the goal of environmental preservation, achieved by integrating green HR practices with traditional HR procedures. Previous research highlights the importance of combining HRM strategies with environmental considerations to improve resource efficiency, reduce waste, and prevent pollution (Renwick, D.W. et al., 2013). Implementing green initiatives through GHRM can enhance overall performance by increasing productivity and reducing costs through more efficient resource use (Ren, S. et al., 2018). By encouraging a culture of environmental stewardship Green HRM contributes to the improvement of organisational performance and environmental outcomes (Arasli et al., 2020; Kim et al., 2019). Businesses can enhance their environmental friendliness through waste reduction programs, minimizing energy consumption, shifting towards renewable energy sources, engaging in materials recycling, and encouraging alternative modes of transportation such as public transit and

carpooling (Ahmad, S. 2015). To improve employee performance, it is crucial to empower them with job-specific skills and resources, fostering a positive work environment that motivates them to achieve organizational sustainability goals (Renwick, D.W. et al., 2013).

Ultimately, Green HRM enables organizations to provide environmentally sustainable products and services, promote corporate environmental initiatives effectively, and address implementation challenges. By adopting a comprehensive sustainability approach, companies can create value for diverse stakeholders while ensuring the planet's preservation for future generations. Therefore, exploring Green HRM is essential for businesses aiming to address environmental issues and advance sustainability goals. Integrating HR strategies and fostering a workplace culture focused on ecological responsibility can significantly improve environmental performance and promote a sustainable future.

### **Research Gap**

With the aim of studying the academic landscape in Human Resource Management (HRM), bibliometric analysis has grown significantly as a systematic approach. (Smith & Bititci, 2017) state that the authorship patterns in HRM research are complex, emphasizing networks that collaborate with prominent authors. (Kim et al., 2019) analysed HRM research trends globally, emphasizing regional distribution and global collaboration levels. This study extends the findings of prior research conducted by Pamela Jo Stewart 2020 & Hoyer et al., 2018. While our comprehension of the broader HRM domain has significantly advanced, there remains a notable deficiency in research concerning Green HRM. There is a need for bibliometric investigations specifically focusing on the evolution, patterns, and collaborative networks within environmentally sustainable HR practices. By utilizing the comprehensive Scopus database, this analysis aims to fill this void in Green HRM literature.

## Objectives of the Study

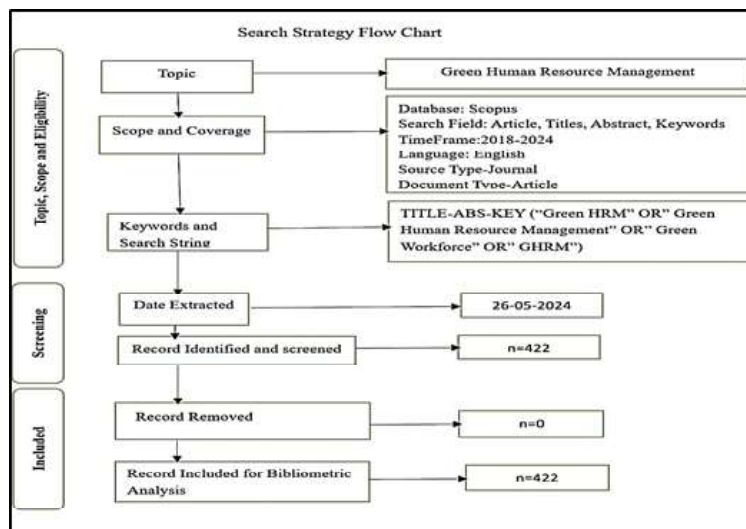
- To analyse the total number of articles published in the area of Green HRM and analyse the global distribution of articles between developed and developing nations.
- To determine the Journals with the highest Citation count in the field of Green HRM.
- To identify the most prolific authors with the highest citation count in the area of Green HRM.

## Research Methodology

The aim of conducting a bibliometric literature review is to systematically and objectively compile research findings relevant to a particular study. Unlike traditional systematic reviews, bibliometric analysis employs statistical methods to identify variations in topic exploration. This approach uncovers new research opportunities within the field, facilitating its growth and development (Bhandal et al., 2022; Mishra et al., 2016). In this study, the bibliometric analysis was performed using the Scopus database. Scopus was selected due to its reputation as one of the premier citation databases globally, containing a vast collection of abstracts and citations for peer-reviewed articles, books, and conference papers from around the world. On May 26, 2024, a

bibliometric analysis was performed using Scopus, focusing on keywords such as “Green HRM,” “Green Human Resource Management,” “Green Workforce,” and “GHRM.” The initial search yielded 958 documents, which were narrowed down to 879 documents covering the period from 2018 to 2024. By focusing on social science and Business Management and Accounting, the number of documents was further reduced to 524. Excluding non-research articles like editorials, review papers, and book chapters resulted in a final count of 424 documents, 422 of which were in English. These 422 documents were analysed, and their citation and bibliographic details, along with summaries, abstracts, keywords, and funding information, were downloaded in CSV format.

The bibliometric analysis was performed using R Studio and the VOSviewer software. The study incorporated Bibliometrix, a library designed for R statistical tool (Aria & Cuccurullo, 2017; Team, 2013). Additionally, VOSviewer was employed for citation and co-occurrence network analysis (Van Eck and Waltman, 2011). The structure and framework of this research were guided by the methodologies established by Houghton et al. (2007) and Zakaria et al. (2021). Figure 1 illustrates the methodology overview adopted for the study.



**Figure 1:** Search strategy flow chart

**Source:** (Houghton et al., 2007; Zakaria et al., 2021)

## Data Analysis and Interpretations

Table 1 presents descriptive findings of the documents examined for the study. In total 422 documents were included in the bibliometric analysis, with 151 sources publishing these articles over a span of 7 years. The articles were authored by 1106 researchers with 26 of them being single authors. The average number of

citations per document was notably high at 40.95 indicating considerable attention given by academic scholars to the field of green human resource management. Additionally, the data shows that 47.39% of these scholarly documents involved cross-border collaboration, demonstrating the global cooperation among authors in emphasizing the significance of GHRM research.

**Table 1: Main Information about Publication**

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2018:2024
Sources (Journals, Books, etc)	151
Documents	422
Annual Growth Rate %	35.93
Document Average Age	2.04
Average citations per doc	40.95
References	24864
DOCUMENT CONTENTS	
Keywords Plus (ID)	443
Author's Keywords (DE)	1051
AUTHORS	
Authors	1106
Authors of single-authored docs	26
AUTHORS COLLABORATION	
Single-authored docs	32
Co-Authors per Doc	3.47
International co-authorships %	47.39
DOCUMENT TYPES	
article	422

**Source:** Author's Analysis

### Global Cited Documents

The citations of global documents are assessed based on the number of citations they receive in the Scopus database. Table 2 presents the top ten most cited documents globally in the area of green human resource management. The most cited global document, according to bibliometric analysis, was authored by Singh, S.K., et al. (2020). The study investigated the existing literature on green human resource management and found that implementing green HRM practices significantly influences the effect of green transformational leadership on green

innovation, which in turn influences the environmental performance of organisations. The study revealed the importance of both additive and interactive effects of leadership and innovation, supporting all hypotheses and underscoring significant theoretical and practical implications for HRM-performance relationships. The second most cited article, an empirical study by Kim, Y.J., et al. (2019), reported that implementing green human resource management can enhance employee commitment, encourage environmentally responsible behavior, and enhance the environmental performance of hotels. This indicates that senior executives and HR

managers in the hotel industry should consider adopting green HRM policies to achieve these benefits. Another study by Saeed, B.B., et al. (2018), found that integrating green human resource management practices, such as recruitment, training, performance management, rewards, and empowerment, can significantly enhance employees' green behaviours. The relationship is mediated by Pro-environmental psychological capital with environmental knowledge serving as a moderator enhancing the influence of green human resource management on pro-environmental behaviour across industries such as coal, power, food, chemical, and Pharmacy. (Tang, G et al.,2018) conducted a study where they have created and validated a tool for assessing green HRM which identified five key

dimensions such as green recruitment, training, performance management, compensation and reward, and Employee involvement. The validity was supported by Confirmatory factor analysis which offered a robust tool for future study and practical implementation in environmental management. (Roscoe, S et al.,2019) in their study found that environmental sustainability constitutes recruitment, training, Performance appraisal, and motivation. This practice fosters a green organisational culture and enhances the connection between leadership, message authenticity, peer participation, and employee empowerment. These factors act as mediators in the constructive association between green human resource management practices and environmental performance.

**Table 2: Top 10 Global Cited Documents**

SL No	TITLE	AUTHOR(S)	SOURCE	PY	TC	TC/Y
1	Green innovation and environmental performance: The role of green transformational leadership and green human resource management	Sanjay Kumar Singh, Manlio Del Giudice, Roberto Chierici, Domenico Graziano	Technological Forecasting and Social Change	2020	918	183.60
2	The Effect of Green Human Resource Management on Hotel Employees' eco-friendly Behavior and Environmental Performance	Yong Joong Kim, Woo Gon Kim, Hyung-Min Choi, Kullada Phetvaroon	International Journal of Hospitality Management	2019	586	97.67
3	Promoting employee's pro-environmental behaviour through green human resource management practices	Bilal Bin Saeed, Bilal Afsar, Shakir Hafeez, Imran Khan, Muhammad Tahir, Muhammad Asim Afridi	Corporate Social Responsibility and Environmental Management	2018	447	74.50
4	Green human resource management practices: scale development and validity	Guiyao Tang, Yang Chen, Yuan Jiang, Pascal Paille, Jin Jia	Asia Pacific Journal of Human Resources	2018	435	62.14
5	Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development	Samuel Roscoe, Nachiappan Subramanian, Charbel J.C. Jabbour, Tao Chong	Business Strategy and the Environment	2019	434	72.33

6	The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study	Ahmed A. Zaid, Ayham A.M. Jaaron, Abdul Ta lib Bon	Journal of Cleaner Production	2018	427	61.00
7	Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behaviour in hotels? A mixed-methods study	NhatTan Pham, Zuzana Tuckove, Charbel Jose Chiappetta Jabbour	Tourism Management	2019	387	387
8	Green Human Resource Research in Emergence: A Review and Future Directions	Shuang Ren, Guiyao Tang & Susan E. Jackson	Asia Pacific Journal of Management	2018	368	52.57
9	Analysing the relationship between green innovation and environmental performance in large manufacturing firms	Shafique Ur Rehman, Sascha Kraus, Syed Asim Shah, Dmitry Khanin, Raj V. Mahto	Technological Forecasting and Social Change	2021	335	83.75
10	Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management	Jing Yi Yong, Mohd-Yusoff Yusliza, Thurasamy Ramayah, Charbel Jose Chiappetta Jabbour, Simone Sehnem, Venkatesh Mani	Business Strategy and the Environment	2020	313	62.60

Source: Author's Analysis

#### Local Cited Documents

Locally cited documents provide the most relevant information based on previous studies in the field of bibliometric analysis as they are evaluated based on the citations they receive within the study. Table 3 represents top 10 most locally cited documents. The topmost local cited documents were authored by (Kim, Y. J et al.,2019) Their study investigated the influence of green human resource management in the hospitality sector and found that GHRM increases organizational commitment and cultivates green behaviour among employees which subsequently enhance the environmental performance of hotels. The result highlights how crucial it is for hotel management and HR managers to implement GHRM policies to promote sustainable practices. Tang, G. et al., 2018 authored the second top local cited document. Their study addresses the lack of validated measurement tools for Green Human Resource Management. The study employs both

exploratory and confirmatory analyses to reveal five key dimensions of GHRM such as green recruitment, training, performance management, compensation and rewards, and Employee involvement. The validated instrument offers a significant contribution to both research and practice in the field of environmental management. (Ren, S et al.,2018) in their study addresses the gap in Green Human Resource Management research emphasizing the need for improved conceptualization and measurement. It proposes an integrated model, that considers antecedents, consequences, and contingencies of GHRM focusing on multi-level applications and employee perceptions and providing a roadmap for advancing theoretical and empirical understanding of GHRM. (Saeed, B. B. et al.,2019) in their study investigated the effects of Green Human Resource management practices on the pro-environmental behavior of employees, with pro-environmental psychological capital acting as a mediator and environmental knowledge as a

moderator. Their Findings highlight the importance of incorporating sustainability into HR policies to promote eco-friendly behaviour which is essential to improve organisational environmental performance. (Roscoe, S et al., 2019) investigated the interrelationship among green human resource management practices, elements

of green organisational culture factors, and environmental indicators within Chinese manufacturing firms. They found that implementing pro-environmental HRM practices can enhance leadership emphasis and employee empowerment ultimately influencing environmental performance.

**Table 3: Top 10 Local Cited Documents**

SL No	Title	Author(s)	Source	PY	LC	GC	LC / GC Ratio (%)
1	The effect of green human resource management on Hotel Employees' eco-friendly behavior and Environmental Performance	Yong Joong Kim, Woo Gon Kim, Hyung-Min Choi, Kullada Phetva roon	International Journal of Hospitality Management	2019	180	586	30.72
2	Green human resource management practices: scale development and validity	Guiyao Tang, Yang Chen, Yuan Jiang, Pascal Paillé, Jin Jia	Asia Pacific Journal of Human Resources	2018	140	435	32.18
3	Green Human Resource Management research in emergence	Shuang Ren, Guiyao Tang & Susan E. Jackson	Asia Pacific Journal of Management	2018	138	368	37.50
4	Promoting employee's pro-environmental behavior through green human resource management practices	Bilal Bin Saeed, Bilal Afsar, Shakir Hafeez, Imran Khan, Muhammad Tahir, Muhammad Asim Afridi	Corporate Social Responsibility and Environmental Management	2019	129	447	28.86
5	Green human resource management and the enablers of green organisational culture: Enhancing a firm's environmental performance for sustainable development	Samuel Roscoe, Nachiappan Subramanian, Charbel J.C. Jabbour, Tao Chong	Business Strategy and the Environment	2019	121	434	27.88
6	Greening the hospitality industry: How do green human resource management practices influence organizational citizenship behavior in hotels? A mixed-methods study	NhatTan Pham , Zuzana Tuckova ,Charbel Jose Chiappetta Jabbour	Tourism Management	2019	116	387	29.97
7	The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study	Ahmed A. Zaid, Ayham A.M. Jaaron, Abdul Talib Bon	Journal of Cleaner Production	2018	79	427	18.50
8	Green Human Resource Management and Employee Green Behavior: An Empirical Analysis	Richa Chaudhary	Corporate Social Responsibility and Environmental Management	2020	78	268	29.10
9	Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management	Jing Yi Yong, Mohd-Yusoff Yusliza, Thurasamy Ramayah, Charbel Jose Chiappetta Jabbour, Simone Sehnem, Venkatesh Mani	Business Strategy and the Environment	2020	72	313	23.00
10	Do green HRM practices influence employees' environmental performance?	Zahid Hameed, Ikram Ullah Khan, Tahir Islam, Zaryab Sheikh, Rana Muhammad Naeem	International Journal of Manpower	2020	59	224	26.34

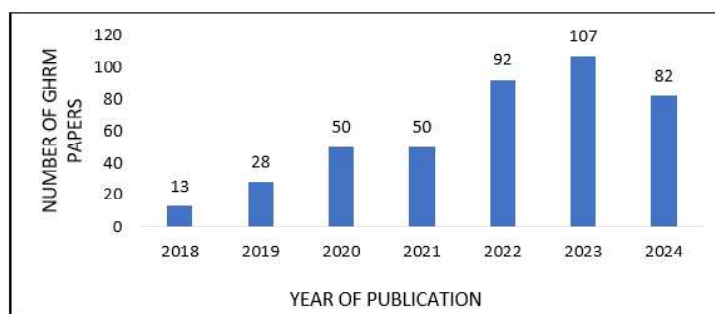
**Source:** Author's Analysis



### Yearly Publishing Pattern

Figure 2 illustrates the trend in annual research paper publications in GHRM. Initially, in 2018, only 13 studies were conducted in this field. However, after 2018, the number of studies began to rise, with significant increases observed in 2022, 2023, and 2024. A total of 422 articles have

been published during these years, reflecting a strong commitment to environmental preservation. Furthermore, this upward trend indicates that Green HRM is still evolving. Since the year 2024 has not yet concluded, it is anticipated the overall count of publications will increase by the end of the year.



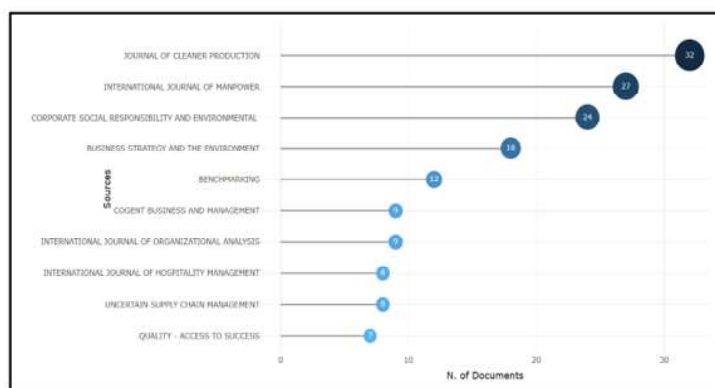
**Figure 2:** Annual Scientific Production

**Source:** Author's own analysis using biblioshiny

### Top 10 Prominent Journals

Figure 3 illustrates the journals with the highest citation impact factor for publishing GHRM articles. These leading journals are responsible for 422 GHRM-related documents, which account for 35.93 percent of the total. The distribution pattern of research articles across these journals signifies the academic relevance of GHRM. Figure 2 illustrates the rankings of each journal based on citation impact. According to the Scopus database significant number of GHRM publications are found in the journals of

business, management, and accounting. Details on these topics can be found in various periodicals that highlight the publishing trends of GHRM papers. Additionally, among journals in the same category, the Journal of Cleaner Production holds a higher ranking based on citations. Its publication trends and citation impact highlight the significant focus of GHRM on environmental preservation and sustainability through efficient natural resource utilization.



**Figure 3:** Top 10 prominent journals

**Source:** Author's own analysis using biblioshiny

Fig 4 displays information about the various keywords that appeared more than five times in research articles in the Scopus database from 2018 to 2024. This investigation reveals the frequency of these keywords in publications on

**Source:** Author's own analysis using Vosviewer

Several esteemed academic institutions have contributed to the literature on Green-HRM, as depicted in Figure 5. Leading the list is Universiti Malaysia Terengganu with an impressive 40

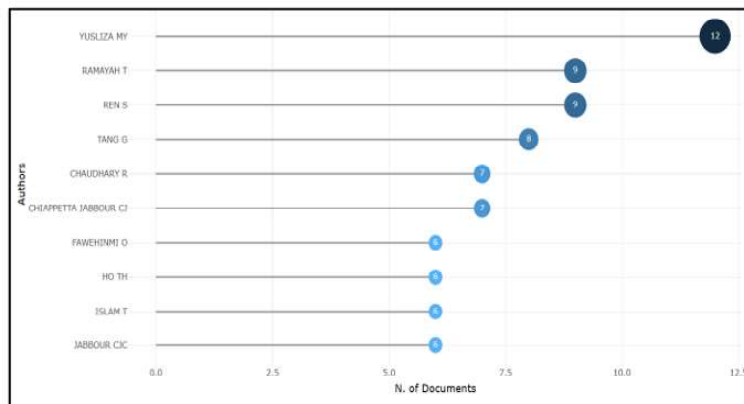
Affiliation	Articles
UNIVERSITI MALAYSIA TERENGGANU	42
XI'AN JIAOTONG UNIVERSITY	22
UNIVERSITI SAINS MALAYSIA	18
UNIVERSITI PUTRA MALAYSIA	17
ISKUTER BIL UNIVERSITY	14
EASTERN MEDITERRANEAN UNIVERSITY	13
MONTPELLIER BUSINESS SCHOOL	12
UNIVERSITY OF ALICANTE	12
UNIVERSITY OF THE PULHAB	12
SHANDONG UNIVERSITY	11

**Source:** Author's own analysis using Biblioshiny

### Most Prolific Authors

Fig 6 is a dot graph representing key authors and the quantity of documents they have authored. This visual representation uses a dot to illustrate the correlation between two variables. On the x-axis, we have number of documents while y-axis denotes the authors. The Axes serving as horizontal and vertical lines exhibit the scale and categories of data. The blue circle emphasizes the

most relevant citation. The graph shows that YUSLIZA MY is the most prolific author in the area of green human resource management with 12 articles in core sources, followed by RAMAYAH H and REN S, each with 9 articles. These authors have played a crucial role in advancing the research in the area of Green Human Resource Management, as reflected from the wide citation of their work by other researchers.



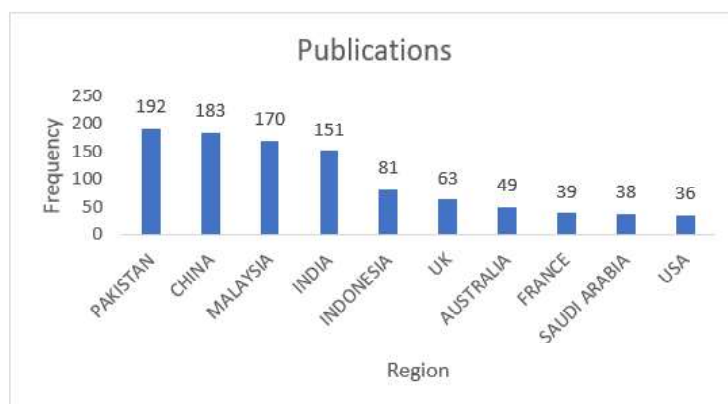
**Figure 6:** Prolific Authors

**Source:** Author's analysis using Biblioshiny

### Top Publishing Nations

This analysis outlines key nations reflecting the prominent nations according to the author's publication trend from 2018 to 2024. Pakistan stands out with the highest number of scientific production frequency demonstrating a significant

research output with 192 publications. Followed by China with 183 publications. India demonstrates a moderate output with 151 publications. These findings offer insights into the scientific output of different countries, emphasizing their contributions to the research landscape.



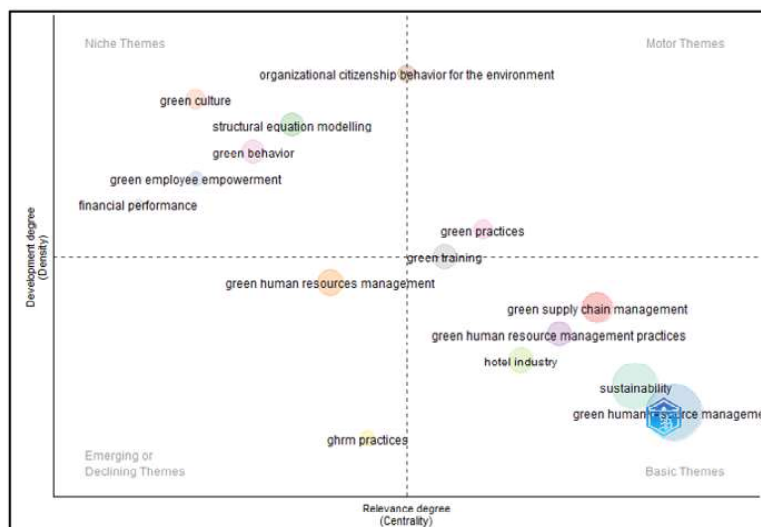
**Figure 7:** Countries in Publications

**Source:** Author's analysis

## Thematic Map

The Figure 8 shows the thematic map analysis which is used to find the emerging topics in the field without excluding keywords. The unit of analysis chosen was author keywords with a study conducted on 100 author keywords. The threshold of the author's keywords was set at 10 words per 1,000 with 1 label established, resulting in 5 clusters visible on the map. A thematic map illustrates a two-dimensional matrix where the x-axis denotes centrality and the y-axis denotes density. Centrality reflects the degree of interaction among various clusters showing the contribution of a particular word in the development of a particular domain, while density indicates the extent to which the words in a specific cluster are interconnected and thus the extent to which a theme is developed (Forliano and de Bernardi, 2021). Fig 8 illustrates green practices cluster represents a central theme within the field as the quadrant is characterized by both high density and centrality. This suggests that this theme is interconnected with other themes in this area and the keywords associated with this cluster are closely related to one another. Some of the major keywords within in this cluster

include “green recruitment”, “circular economy,” and “green human resources. “On the other hand, the cluster related to the “ghrm practices” is positioned in a quadrant with low density and low centrality suggesting a declining theme within the domain (Cobo et al., 2011). In contrast, the “green cluster” exhibits a relatively higher density, while the “green human resource management” shows the lowest density. This distinction is reflected in the keywords associated with each cluster. For example, the “green training” theme encompasses various interconnected keywords such as green empowerment, green performance management, green recruitment and selection, and green training and development. In contrast, the “green human resource management” theme includes keywords like green values, green work engagement, Job Performance, Organizational Pride, and performance which are loosely connected. Finally, the analysis indicates the cluster of “organizational citizenship behavior for the environment” cluster partially falls within the first quadrant indicating its significance in the field but also highlighting the need for further development by researchers (Cobo et al., 2011).



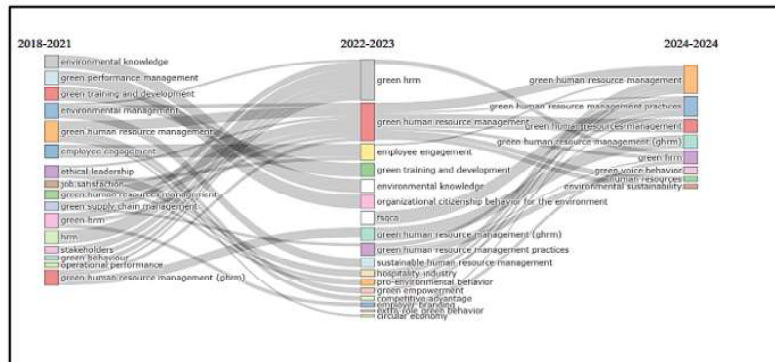
**Figure 8:** Thematic Map

**Source:** Author's analysis using Biblioshiny

## Thematic Evaluation

Furthermore, to determine the latest and trending topic we divided the 7 years into 3 time slices that is, 2018-21, 2022-23, and 2024 as shown in Fig 9. This time frame highlights the significant topics of research in the area of green human

resource management. The study suggests that green human resource management practices, green voice behavior, human resources, and environmental sustainability are presently the trending topics in the domain of green human resource management.



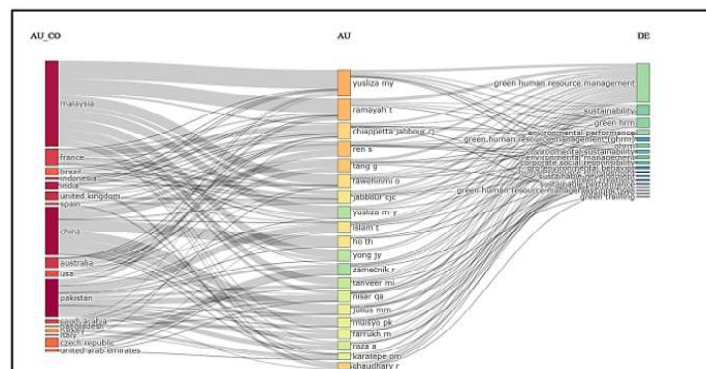
**Figure 9:** Thematic Evaluation

Source: Author's analysis using Biblioshiny

## Thematic Trend Analysis

The thematic trend analysis of the bibliometric data over the last 7 years shows the range of most significant countries and authors contributed to the most trending topics in the field of green human resource management. Fig 10 presents a three-field plot that illustrates the countries of the corresponding authors on the left, the most prominent authors contributing to the field of green human resource management in the middle, and the keywords that define the

concept at the right. The map demonstrates that Malaysia, France, Brazil, Indonesia, and India are among the countries from where prominent authors like Yusliza My, Ramayah T, Chappetta Jabbour CJ, Ren S, Tang G, Chaudhary R have been associated and they have contributed to the conceptual understanding and development of green human resource management, sustainability, Environmental Management, Corporate Social Responsibility, Pro-environmental Behaviour, green human resource management practices and green training.



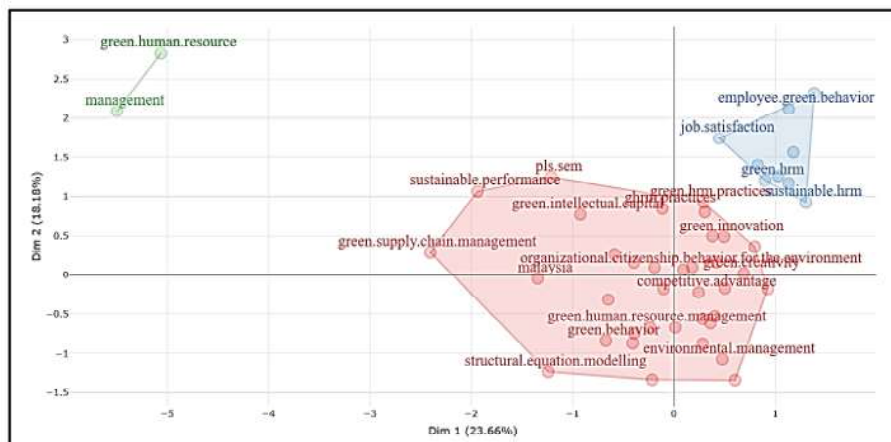
**Figure 10:** Thematic trend analysis

Source: Author's analysis using Biblioshiny

## Conceptual structure of topics for Green Human Resource Management

The Researcher created the conceptual structure map of green human resource management using the Bibliometrix conceptual structure function as shown in Fig 11. This function performs a multiple correspondence analysis of the keywords used by different authors. Multiple Correspondence Analysis in the bibliometrix R package helps to analyse the categorical bibliometric data, reduce the dimensionality, visualize the relationships, determine the research trends, and support exploratory data analysis. It converts complex data into structures that can be interpreted, identifying the patterns among authors,

keywords, journals, and research themes. The map shows three clusters distinguished by red, blue, and green colour. These clusters of keywords show that they are often used together by various authors in the research. The cluster 1 includes some of the important keywords like organisational citizenship behaviour for the environment, competitive advantage, green behaviour, green supply chain management, Environmental Management, green HRM practices, sustainable performance, green innovation, and green intellectual capital. The cluster 2 includes keywords like green HRM, sustainable HRM, job satisfaction, and employee green behaviour. The cluster 3 consists of green human resource and management.



**Figure 11:** conceptual structure of topics

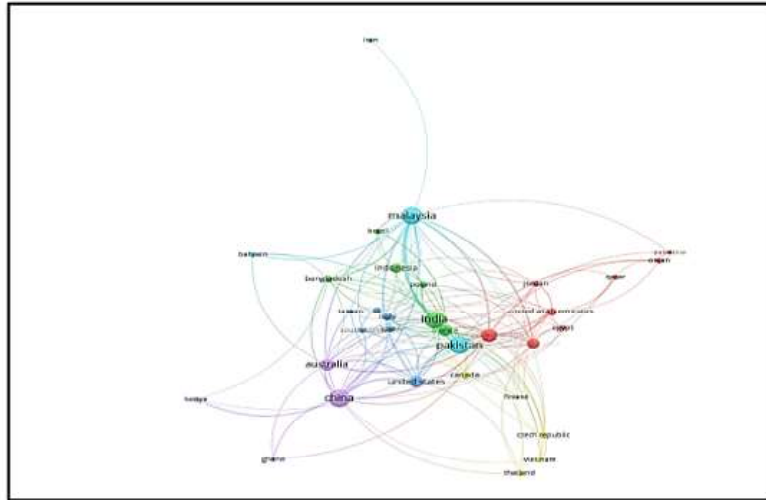
**Source:** Author's analysis using Biblioshiny

## Co-authorship Map

Figure 12 illustrated the co-authorship distribution across different nations. This analysis aims to provide clearer insights into the nations that have engaged in the most significant number of international author collaborations. In total, 65 countries were identified in the GHRM dataset. Based on the findings from the VOS Viewer software, only 33 of these countries were linked through co-authorship. Six clusters emerged from this analysis: Cluster 1 includes

countries like Egypt, Jordan, Oman, Palestine, Qatar, Saudi Arabia, the United Arab Emirates, and the United Kingdom; Cluster 2 comprises countries like Bangladesh, Brazil, France, India, Indonesia, and Poland; Cluster 3 includes countries like Italy, South Korea, Spain, Taiwan, Turkey, United States, cluster 4 include countries like Canada, Crez republic, Finland, Thailand, Vietnam, cluster 5 includes countries like Australia, China, Ghana, Kenya. cluster6 includes countries like Bahrain, Iran, Malaysia, and Pakistan.





**Figure 12:** co-authorship country collaboration

**Source:** Author's own analysis using Vosviewer

## Discussion and Conclusion

This study aimed to explore the evolution of green human resource management from 2018 to 2024 by analysing bibliometric scientific metadata obtained from the Scopus database. The data was analysed with the help of biblioshiny software from the bibliometrix R-tool package. The study provided an in-depth analysis of scientific production, sources, authors, countries, and key trends in GHRM. The annual growth rate of GHRM documents is 35.93%, with an average of 40.95 citations per document, encouraging further research in this field. The International Journal of Cleaner Production was identified as a leading source, publishing the most articles on GHRM, followed by International Journal of Manpower, Corporate Social Responsibility and Environmental Management, Business Strategy and the Environment, Benchmarking, and Cogent Business and Management. The contributions of several authors were notably recognized and frequently cited by others in the field. These include YUSLIZAMY, RAMAYAH H, REN S, TANG G, and CHAUDHARY R. This makes them eminent contributors to the discipline of green human resource management. Further, the collaboration and co-citation networks among the authors were

analysed to illustrate the combined, cooperative, and cumulative efforts who contribute to the concept of GHRM. Furthermore, the keywords of the bibliometric data were analysed to reveal the trending topic on which future research can be conducted. Currently, the trending topics include green human resource management practices, green voice behavior, human resources, and environmental sustainability. This provides an opportunity for current and new researchers to further investigate in the domain of green human resource management. Thematic trend analysis illustrates the contribution made by authors from different countries in identifying these emerging topics which will shape the future research directions in the field of GHRM.

## Limitations and Scope for Future Research

In recent years, Green Human Resource Management (GHRM) has seen extensive global expansion, resulting in a significant impact. Additionally, studies on GHRM have highlighted differences between developed and developing nations, underscoring the need for cross-cultural and multicultural research. It is recognized that every study has its limitations, implying that no research can be entirely without constraints. This paves the way for future exploration in this

domain. One major limitation of this study is its exclusive reliance on the Scopus database. Although Scopus is a highly reputable database encompassing high-quality journals globally, other platforms like the Web of Science also contain valuable journal databases. Researchers should therefore consider these additional platforms to gain a more comprehensive understanding of this field. This study does not take these other platforms into account. Moreover, while this research focuses on environmentally friendly Green Human Resource Management, its findings can guide future studies within the broader scope of GHRM.

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