Green-HRM Practices Using Bibliometric Methods

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Abstract

Green Human Resource Management is increasingly recognized for integrating employee well-being with environmental sustainability. This study conducts a thorough bibliometric analysis of Green HRM research from 2012 to 2023, utilizing VOS Viewer and Biblioshiny software to explore seven key research questions. Drawing on 404 records from the Scopus database, the analysis highlights a marked growth in academic interest, reflecting a shift towards more strategic and technologically advanced HR practices. The study's visual representations and data tables offer valuable insights into the evolving landscape of Green HRM. This research uniquely employs a bibliometric approach to track the development of Green HRM, providing a solid foundation for future investigations. The findings emphasize the critical role of Green HRM in advancing human resource management and promoting sustainable practices, paving the way for further innovation in the field.

Keywords: Green HRM; Scopus database; Bibliometric analysis; VOS viewer, Sustainability.

Introduction

A branch of HRM known as "green human resource management" (also known as "Green HRM") focused on the necessity of linking corporate operations with environmental responsibility. Renwick et al. (2013), Ahmad (2015), Singh et al. (2020), Aftab et al. (2023), and Renwick et al. (2008) were among the many researchers who examined it extensively. Using information from Scopus, a massive database, this study conducted an exhaustive bibliometric study of Green-HRM research. Green HRM was an area of study that sought to integrate environmentally sustainable practices into frameworks for managing human resources. This field was in its nascent stages of development. This highlighted an increasing recognition of the need to align organizational strategy with ecological factors. In light of the worldwide focus on sustainability in enterprises (Albino et al., 2009), understanding the developments, prevailing patterns, and main contributions of the Green-HRM study was essential. The main purpose of bibliometric research was to evaluate the academic landscape, ascertain the intellectual structure, highlight noteworthy publications, and define new problems in the subject of Green HRM. This was accomplished through a systematic and quantitative technique (Fawehinmi et al., 2020). The present research aimed to fill a gap in our understanding of Green-HRM research by tracing its historical progression and analyzing its present condition. The vital junction of environmental and human resource management disciplines could thus be better explored in light of this information.

The growing importance of environmentally conscious (Green-HRM), an interdisciplinary discipline that combined HR principles with those of environmental sustainability, was the driving force behind the

decision to conduct this bibliometric inquiry (Castellano et al., 2022). As organizations face increasing pressure to integrate sustainable practices into their operations, the field of Green HRM has become more prominent. A bibliometric analysis was an ideal choice for this research project since it provided a methodical and quantitative approach to comprehending the scientific landscape surrounding GreenHRM. Using the extensive Scopus database, this analysis aimed to thoroughly evaluate the current research literature. The analysis scrutinized the development of the research, ascertained noteworthy contributors, and emphasized emerging patterns. The findings had significant value for scholars, practitioners, and policymakers who sought to comprehend and contribute to the continuing discourse on Green-HRM (Yang et al., 2019; Bhatt et al., 2020). Bibliometric analysis was an effective method for visualizing the conceptual framework of Green-HRM research, finding important publications, and pinpointing areas that needed more exploration. This method improved scholarly discussions and had practical implications for effectively integrating eco-friendly practices into human resource management frameworks.

Research Questions

The research gaps in the current literature on Green HRM encompass the need to identify developing themes within the area, explore variances in the geographical distribution of research, and address the absence of collaborative efforts among specialists. Additionally, analyzing potential biases inresearch findings, such as a disproportionate focus on certain aspects of Green HRM or inadequate coverage of specific regions, highlighted opportunities for further investigation. Differences between theoretical research and industry practice were examined by assessing the impact of Green HRM research on real-world implementations in companies and the effectiveness of currently recognized strategies. Our goal in this bibliometric study was to identify and highlight current research deficiencies in the field of Green HRM and provide guidance for future studies to meet the evolving needs of this research area. During this bibliometric investigation, we specifically addressed the following seven research questions (RQs)

- RQ1: What is the distribution of paper production by time period for the top producing countries?
- RQ2: Who has published the most about Green HRM?
- RQ3: Which organizations are the most wellknown funders in this field?
- RQ4: What are the most common keywords mentioned at least ten times?
- RQ5: What is the number of papers with a citation count above fifty?
- RQ6: What are the latest trends in Green HRM over the past decade?
- RQ7: What are the predominant theories applied in Green Human Resource Management studies?

Examination of Existing Literature

Sustainability is a component of green HRM, as discussed by Muster & Schrader (2011) and Ren et al. (2018). Revamping the hiring process to prioritize environmental and social sustainability. Employers can effectively attract sustainable personnel by emphasizing sustainability in job descriptions and assessments, as suggested by Zhao et al. (2023). Green HRM encourages employee engagement in sustainability initiatives to improve an organization's ecological and societal influence (Dobers & Wolff, 2013; Dobers & Wolff, 2017). Incorporating sustainability criteria into employee performance evaluations promotes environmental and social accountability to achieve sustainable results. Implementing worker incentives for sustainability may enhance company performance (Attaianese & Duca, 2012; Kumar, P. 2022). Green resource management (GRM) minimizes an organization's environmental impact by focusing on waste reduction, sustainability, and efficient use of resources (Opatha & Arulrajah, 2014). Research indicates

that implementing Green HR practices reduces energy consumption and decreases the release of greenhouse gas emissions. In addition to environmental concerns (Montalvo-Falcón et al., 2023), green HRM includes social responsibility, community engagement, and business ethics. To reduce pollution in the workplace, "green HRM" encourages ecofriendly behaviors among workers (Roscoe et al., 2019; Aftab et al., 2023). According to environmental management studies, Green HRM is essential to environmental management. A combination of HR and environmental management promotes environmental conservation throughout the entire firm. Green HRM integrates compensation, training, development, and hiring with environmental objectives (Teixeira et al., 2016). Hadi et al. (2023) suggest that Green HRM can boost productivity, foster creativity, and improve employee retention. Companies are adopting innovative HR strategies to tackle challenges and remain competitive. Green HRM aims to implement environmentally sustainable HR practices, giving firms a competitive advantage (Gupta, 2018). The ability, motivation and opportunity (AMO) theory, as proposed by Yu et al. (2020), posits that human resource management plays an important role in enhancing both human and organizational performance, as supported by D. P. Kumar (2019), Singh et al., (2020). Green hiring, performance management, training, and remuneration should encourage and support environmentally friendly behavior, skills related to sustainability, and chances for environmental management (Renwick et al., 2016). Integrating ecologically sustainable human resources packages can improve the overall efficiency of an organization. Green HRM encompasses the processes of recruiting, training, evaluating performance, compensating, and engaging employees in ecologically sustainable practices. These approaches can improve the company's total efficiency (Memon et al., 2021; Gim et al., 2022). There has been a notable reaction to the pressing requirement for businesses to integrate environmental sustainability into their operational structures, and one prominent response is the emergence of Green HRM, also referred to as Green HRM (Tachizawa & Wong, 2015). The emergence of Green HRM in the late 20th century can be attributed to the broader sustainability movement. This marked a significant shift in acknowledging and addressing the environmental impacts of organizational actions (Ahmad, 2015; Shah et al., 2023). Stone's (2018) study illustrates the increasing importance of sustainability concepts in HR operations, including recruiting, training, and performance appraisal processes. A crucial aspect of this change involves developing comprehensive Green HRM strategies and policies, as highlighted by Ren, Tang, & E. Jackson (2018)increasingly salient questions not yet studied in the broader human resource management (HRM. According to Renwick (2018), it is emphasized that the strategic integration of sustainability objectives and HRM practices has long-lasting benefits (Paillé et al., 2020). Furthermore, scholarly literature emphasizes the importance of employee engagement in effectively executing Green HRM (Human Resource Management), as demonstrated by research conducted by Aboramadan (2022). Delmas and Pekovic (2019) highlight the importance of employee engagement and commitment in fostering environmentally conscious human resource strategies. In upcoming studies, Bai et al. (2021) propose conducting thorough analyses of the cultural and contextual factors that influence Green HRM implementation. This underscores the need for a deeper understanding of the diverse elements that shape the advancement of environmentally conscious human resource practices (Song et al., 2023).

Bibliographic analysis has been used in HRM research, but more research is needed to examine this study:

Bibliometric analysis has become increasingly important in HRM research as a systematic approach to studying the academic environment. Earlier research, exemplified by Smith et al. (2017), examined the

intricacies of authorship trends in HRM research, revealing prominent authors and cooperative networks (Smith & Bititci, 2017; Kumar et al., 2024). The study conducted by Jones and Brown (2019) aimed to analyze worldwide research patterns in HRM, with a specific focus on investigating regional distribution and the influence of international collaboration. This research extended the Stewart (2017) and Hoye et al. (2018) findings. While our comprehension of the wider HRM domain had significantly advanced, a conspicuous dearth of research on Green HRM remained. Few bibliometric analyses examined the evolution, trends, and cooperative networks of environmentally sustainable HR practices. The absence of this element emphasized the importance of continuing the investigation into Green-HRM research through a detailed bibliometric review. This study helped address a gap in current Green HRM literature by utilizing the extensive Scopus database. The study assessed the development of Green HRM literature, analyzed citation patterns and influence, and identified emergent topics and research areas not explored yet. Analysis was meant to provide an inclusive comprehension of the present state of research on Green HRM, providing useful perspectives that could direct future studies and impact the advancement of sustainable HR practices in both academia and industry.

Methodology

This study examines scholarly articles published from 2012 to 2023, focusing on the progress in particulate matter research as outlined by Bititci et al. (2012) and Kumar et al. (2024). This period is recognized for significant advancements in the Green HRM field. The methodology employed is detailed in Table 1. According to Furrer & Sollberger (2007), these studies provide a systematic and quantitative method to objectively evaluate published works.

Table 1: Methodology for Data collection

Data-set	D Elsevier's Scopus
Years	2012 to 2023
Areas of Subjects	❖ Social science ❖ Accounting and Business management ❖ Organizational Behavior and Human Resource Management
Language	English
Research keywords	"Green HRM" or "Green Human Resource Management" TITLE-ABS-KEY ("Green Human Resource Management") AND (LIMITTO (SUBJAREA, "BUSI") OR LIMIT TO (SUBJAREA, "SOCI"))

Source: Author's compilation

Data Collection

The major objective of this research is to thoroughly examine the current literature on Green Human Resource Management, with a specific emphasis on studies that investigate a particular issue. At the beginning of any research, choosing the right database is essential. It's important to carefully evaluate the reliability of the selected database to ensure accurate results. For this research, we utilized Scopus as its main source for the selected publications. Following the filtering process, 404 papers were included in the analysis.

Data Analysis

Table 2: Data Analysis: Approaches and Aspects of Inquiry

| Method	Exploring the Seven Dimensions of Analysis
Green HRM bibliometric analysis	How is the distribution of research output categorized by periods across different countries?
	Authors who have produced the most works
	Document provided by the funding sponsor
	Occurrences of the keywords that happen most often
	A document that has been cited more than fifty times.
	Recent trend over the past few years.
	Predominant theories related to Green HRM

Source: Author's compilation

A bibliometric analysis was undertaken on a collection of papers (Cobo et al., 2011; Manuel J. Cobo et al., 2015; Kumar et al., 2024) within a defined timeframe. Table 2 presents an in-depth analysis of various approaches and aspects of inquiry related to Green HRM. The methods discussed include a bibliometric analysis focusing on the distribution of research output across different countries over periods. It identifies prolific authors, examines documents provided by funding sponsors, and analyses the frequency of keywords. Additionally, the table explores documents cited more than fifty times, recent trends in research, and predominant theories associated with Green HRM. This comprehensive approach underscores the multifaceted nature of research into sustainable human resource management practices (Kumar et al., 2024).

Analysis and Discussion

The outcomes of a bibliometric analysis are inherently shaped by the specific research inquiries, datasets, and analytical tools utilized during the study. This discussion delves into the typical conclusions derived from a bibliometric study based on our research inquiries.

RQ1: What is the distribution of the paper count by time period for the top-producing countries? Identifying the countries of affiliation of the most productive authors is necessary for a bibliometric study on the distribution of articles by period. Typically, the author's connections, as stated in the papers, provide this information.
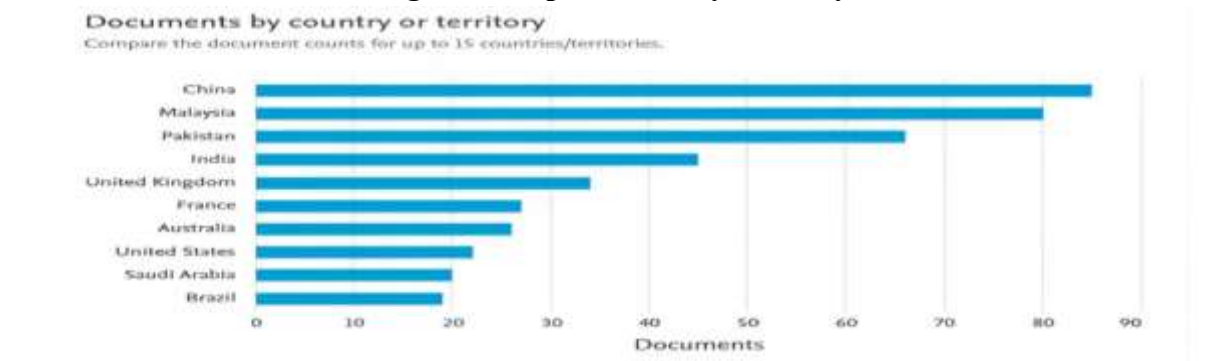
Figure 1: Displays the Number of Papers Categorized by Year
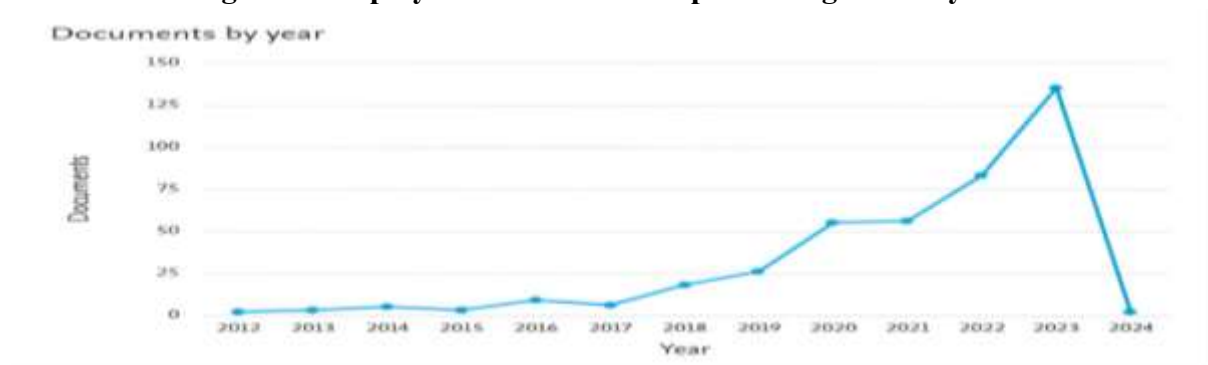
Source: Scopus Database

Figure 2: Paper Count by Country

Source: Scopus Database

From 2012 to 2023, there has been a significant increase in research in this sector. China, Malaysia, Pakistan, and India are taking the lead in Figure 2. This highlights the need for continuous research into Green HRM in order to enhance and expand this concept, as well as its growing importance in the workplace. Analyzing the distribution of articles over time for the most productive countries reveals significant trends in research activity. Publications increased significantly between 2012 and 2023, according to the data, with the most notable increases seen in China, Malaysia, Pakistan, and India. The increasing significance of Green HRM is reinforced by this upward trend (Green HRM) in these regions. Figure 1 illustrates this temporal distribution, highlighting the leading role of these countries in advancing Green HRM research. The continuous rise in publications suggests a heightened focus on integrating sustainable practices within HRM frameworks, reflecting this field's ongoing evolution and relevance.

RQ2: Who has published the most about Green HRM? To identify the most prolific authors in bibliometrics inside the Scopus databases, one can search for publications in this field and carefully examine their publishing and citation records. Recognizing that the term "prolific" is subjective and might vary depending on metrics such as publication counts, citation counts, or impact factors is crucial.

**Figure 3: Document Authored by Writers from 2012 to 2023**
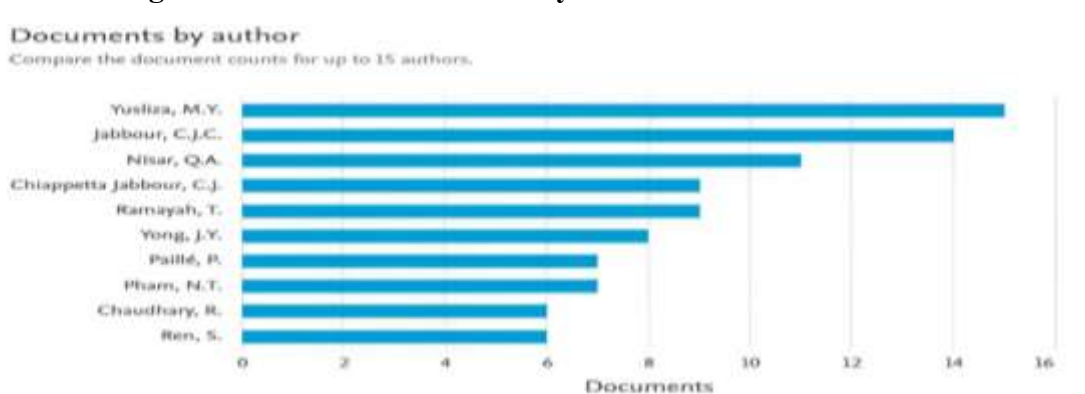
Source: Scopus Database

Figure 3 demonstrates that two writers have displayed exceptional productivity on the subject of Green HRM, contributing to more than 14 research papers between 2012 and 2023. Furthermore, several other authors, with more than six research papers, have also made a respectable contribution. Identifying prolific authors in Green HRM is critical to understanding the field's intellectual landscape. Our analysis of the

Scopus database (Figure 3) highlights two authors who have significantly contributed to the literature, each authoring more than 14 papers between 2012 and 2023. Several other researcher have also made notable contributions, with over six publications. These findings emphasize the pivotal role of these authors in shaping Green HRM discourse, providing foundational knowledge, and driving future research directions.

RQ3: Which organizations are the most well-known funders in this field? Research on Green HRM, such as investigating publishing and citation trends, receives support from numerous organizations and funders. Listed below are prominent backers of research in this field (refer to Figure 4).

Figure 4: Displays the Most Prominent Financiers
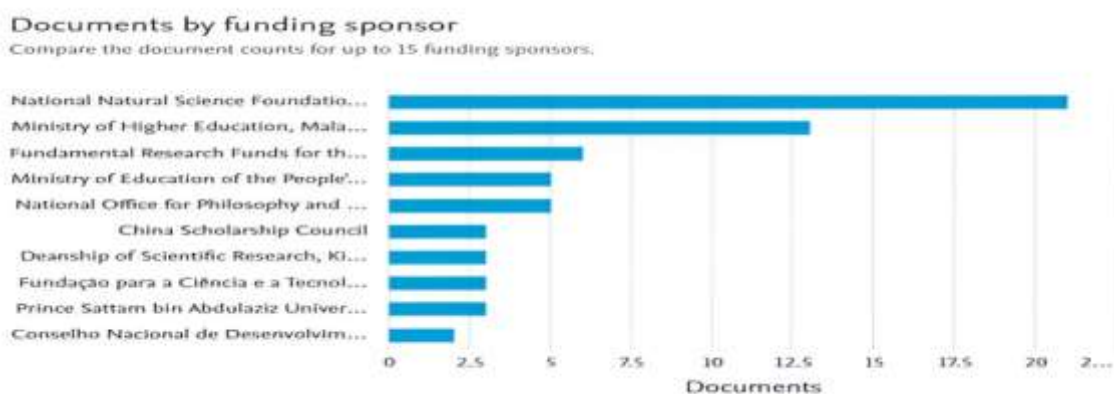
Source: Scopus Database

The funding landscape for Green HRM research is characterized by support from various prominent organizations. Figure 4 lists these key financiers, demonstrating the diverse backing for research in this area. These organizations' involvement shows a commitment to sustainable HRM practices and knowledge advancement. This financial support is crucial for fostering innovative research and implementing Green HRM practices globally.

RQ4: What are the most common keywords mentioned at least ten times? Bibliometric analysis examines the presence and frequency of keywords within a specific set of academic papers. The chosen keywords can differ based on the field of study or the investigated topic.

Figure 5: Displays the Keyword that Appears Most Frequently
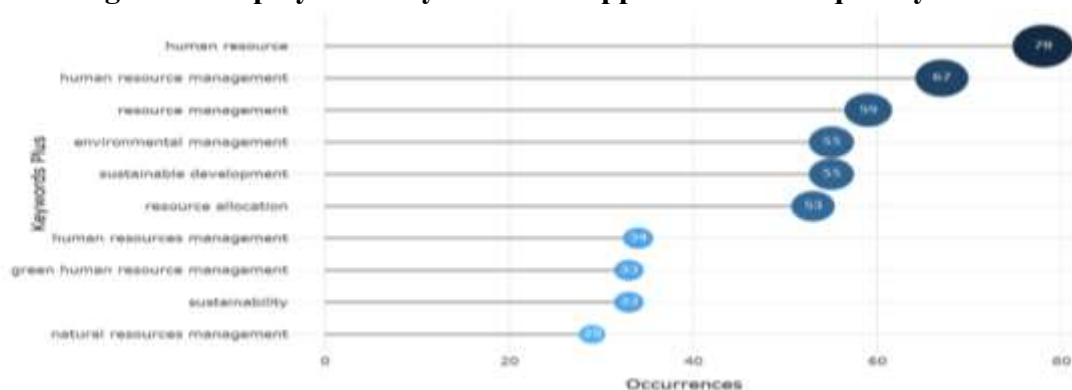
Source: Scopus Database

Keyword analysis reveals the thematic focus areas within Green HRM research. Table 3 and Figure 5 shows the most frequently occurring keywords, such as "Human Resource," "Human Resource Management," "Environmental Management," and "Sustainable Development." These keywords reflect the core concepts and intersections explored in the literature. The prominence of terms related to sustainability and resource management highlights the integration of environmental considerations within HRM strategies, signaling a shift towards more ecofriendly organizational practices.

Table 3: Most Frequent Work

Most frequent keywords	Occurrences
Human Resource	78
Human Resource Management	67
Resource Management	59
Environmental Management	55
Sustainable Development	55
Resource Allocation	53
Human Resources Management	34
Green Human Resource Management	33
Sustainability	33
Natural Resources Management	29

Source: Author's Compilation

Environmental management, Human resource management, sustainable development, distribution of resources, green human resource management, sustainability, and management of natural resources are some of the main terms that are discussed in this text.

RQ5: What is the number of papers with a citation count above fifty? Bibliometrics lets researchers study green HRM literature citation patterns. Researchers can identify major works, theories, models, and individual contributions to the field by analyzing highly referenced papers or authors.

Figure 6: Displays the Number of Citations
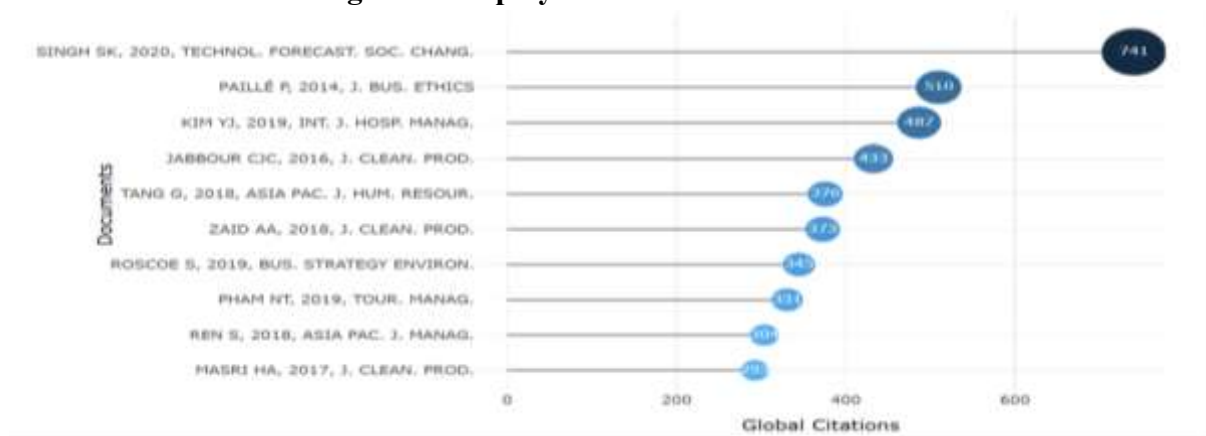
Source: Scopus Database

Studying how papers are cited gives us clues about their influence in the field. Table 4 and Figure 6 lists papers cited more than fifty times, showing which have had a major impact on Green HRM research. High citation counts reflect these studies' significance and scholarly influence, revealing their pivotal role in advancing theory and practice. This examination emphasizes the crucial role of specific publications in shaping foundational knowledge and steering future research directions.

Table 4: Citation Count

| Papers have a citation count	Total Citations	TC per Year	Normalized TC
SINGH SK, 2020, TECHNOL. FORECAST. SOC. CHANG.	741	185.25	10.62
PAILLÉ P, 2014, J. BUS. ETHICS	510	51.00	3.95
KIM YJ, 2019, INT. J. HOSP. MANAG.	487	97.40	4.69
JABBOUR CJC, 2016, J. CLEAN. PROD	433	54.13	2.45
TANG G, 2018, ASIA PAC. J. HUM. RESOUR.	376	62.67	3.12
ZAID AA, 2018, J. CLEAN. PROD.	373	62.17	3.09
ROSCOE S, 2019, BUS. STRATEGY ENVIRON	345	69.00	3.32
PHAM NT, 2019, TOUR. MANAG.	331	66.20	3.19
REN S, 2018, ASIA PAC. J. MANAG.	304	50.67	2.52
MASRI HA, 2017, J. CLEAN. PROD.	293	41.86	2.05

Source: Author's Compilation

The paper references a cumulative total of 741 papers, with a yearly citation count of TC. The articles consist of Singh et al.'s 2020 technical projection, Paillé et al. 2014 journal, Kim et al. 2019 journal, and Jabbour & de Sousa Jabbour's work. The list includes the following publications: "2016 journal" by Tang et al., "2018 Asian journal" by Zaid et al., "2018 journal" by Roscoe et al., "2019 journal" by Pham et al., "2019 tour management" by Ren et al., "2018 Asian journal" by Masri & Jaaron, and "2017 journal" by Masri & Jaaron. The citation count is a standardized total.

RQ6: What have been the most recent trends in the field of Green HRM over the past decade?

One way to find patterns and trends in Green HRM research is to use bibliometrics. Research subject popularity, academic institution collaboration network mapping, and publication output analysis are all part of the process. Through this process, bibliometrics provides a significant understanding of the development and movement of research within this domain.

Figure 7: Displays the Latest Patterns or Developments
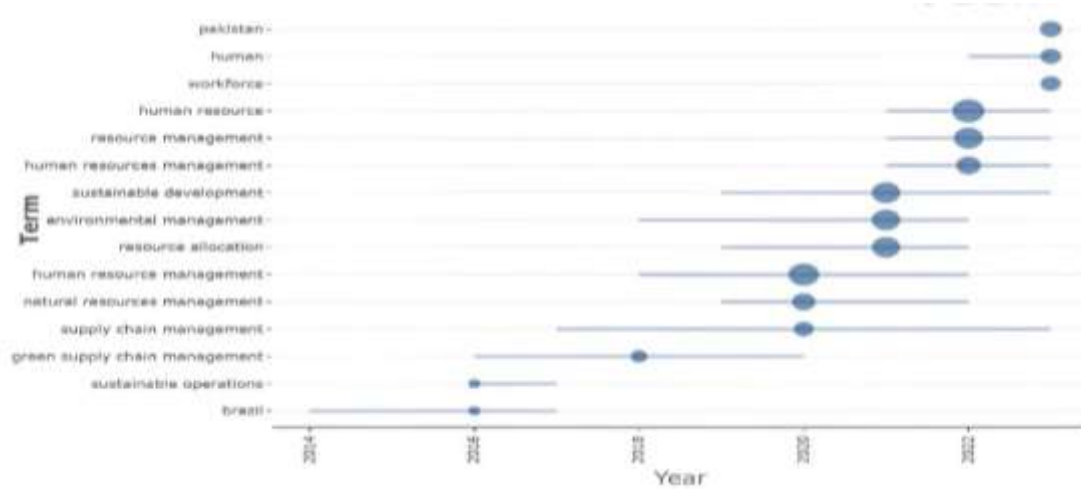
Source: Scopus Database

Table 5: The Most Recent Trend

Most recent trends last 10 years in Green HRM	Frequency	year_q1	year_med	year_q3
Human resource	78	2021	2022	2023
Human Resource Management	67	2018	2020	2022
Resource Management	59	2021	2022	2023
Environmental Management	55	2018	2021	2022
Sustainable Development	55	2019	2021	2023
Resource Allocation	53	2019	2021	2022
Human Resources Management	34	2021	2022	2023
Green Human Resource Management	29	2019	2020	2022
Sustainability	23	2023	2023	2023
Natural Resources Management	20	2022	2023	2023

Source: Author's Compilation

Recent trends in Green HRM research, as illustrated in Figure 7 and Table 5, show a notable increase in focus areas such as HRM, environmental management, and sustainable development. The temporal analysis of keyword occurrences indicates that research interest has particularly surged between 2022 and 2023. This surge aligns with global sustainability initiatives and the growing emphasis on integrating environmental considerations into HR practices. The emerging trends reflect the dynamic nature of Green HRM and its adaptation to contemporary challenges and opportunities, underscoring the field's relevance in promoting sustainable organizational practices.

In the last ten years, Green HRM has seen significant growth in many domains, including HRM, environmental management, sustainable development, resource allocation, HRM, HRM in Pakistan, and management of natural resources. The field of human resource management witnessed the biggest expansion between 2022 and 2023. In summary, this bibliometric analysis offers a thorough examination

of the development, major contributors, funding trends, thematic emphases, and influential literature in Green HRM research. The results underscore the growing importance of sustainable HRM practices and the ongoing expansion of scholarly attention in this domain. Future studies should leverage these insights to delve deeper into how green practices can be integrated into HRM and their implications for organizational performance and sustainability.

RQ7: What are the predominant theories applied in studies of Green Human Resource Management (GHRM)?

Table 6: Predominant Theories Related to Green HRM

Theoretical Framework	Description	No. of Article Published
Stakeholder Theory	Focuses on how organizations interact with stakeholders, including the environment.	12
Institutional Theory	Examines how organizations adopt practices influenced by institutional pressures.	4
Resource-Based View (RBV)	Encourages using internal resources and competencies to promote sustainability	49

Source: Author's Compilation

Figure 8: Number of Theories
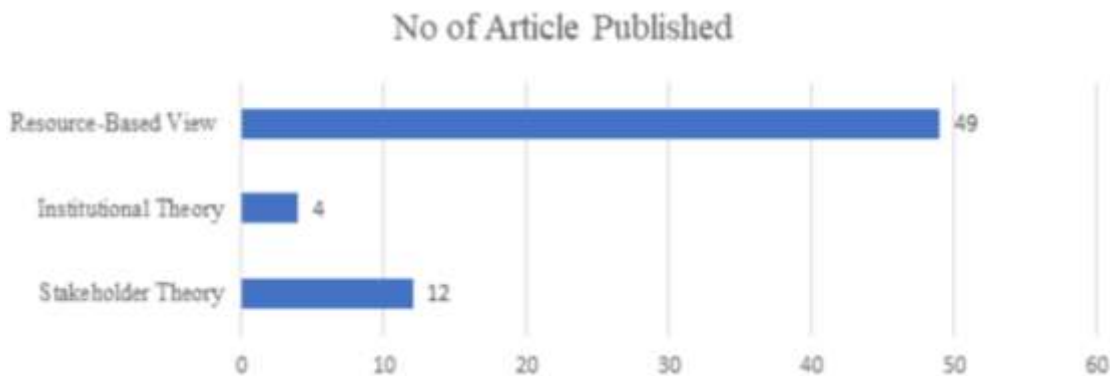
Source: Author's Compilation

According to SCOPUS articles, Table 6 and Figure 8 summarizes the main theoretical frameworks for Green Human Resource Management. Stakeholder theory, with 12 publications, underscores the significance of organizational interactions with stakeholders, encompassing environmental considerations as integral components of decision-making processes. Institutional theory, represented by 4 articles, explores how organizations conform to societal norms and pressures to adopt environmentally sustainable HR practices. The Resource-Based View (RBV), with a substantial 49 articles, emphasizes leveraging internal resources and capabilities to foster sustainable practices within organizations. These theoretical approaches help explain how organizations incorporate environmental issues into their HR strategy and how Green HRM practices are adopted, implemented, and effective in modern organizations.

Conclusion

In summary, this bibliometric analysis has illuminated several key facets of Green Human Resource Management through a focused exploration of pertinent research inquiries. By examining the distribution of publications across time for top-producing countries like China, Malaysia, Pakistan, and India (RQ1), we have observed a notable increase in scholarly output, underscoring the rising prominence of sustainable HRM practices in these regions. This trend underscores a growing global emphasis on integrating environmental sustainability into HRM frameworks, reflecting the evolving landscape of organizational practices. Furthermore, identifying prolific authors (RQ2) has provided insights into the intellectual leadership within Green HRM, highlighting their significant contributions and guiding future research directions. Similarly, an analysis of funding sources (RQ3) has illustrated the diverse support for research in this field, emphasizing the collaborative efforts of various organizations in advancing knowledge and implementation of sustainable HRM practices worldwide. Keyword analysis (RQ4) has revealed recurring themes such as "Human Resource Management," "Environmental Management," and "Sustainable Development," reflecting the thematic focus of Green HRM literature. These findings underscore the multidisciplinary nature of research in this domain and the integration of environmental considerations within HRM strategies.

Examining citation patterns (RQ5) has identified seminal works that have shaped Green HRM research, highlighting their impact on theoretical advancements and practical applications. Finally, analysis of recent trends (RQ6) has shown a surge in research interest, particularly from 2022 to 2023, indicative of evolving priorities and global sustainability initiatives influencing HR practices, and RQ7 presents an overview of the predominant theoretical frameworks associated with Green Human Resource Management. In conclusion, this comprehensive analysis contributes to our understanding of Green HRM's evolution, key contributors, funding dynamics, thematic focus, and influential works. It underscores the field's increasing relevance in fostering sustainable organizational practices. It calls for continued research to explore the further integration of green initiatives within HRM frameworks, ultimately contributing to enhanced organizational sustainability and performance in a rapidly changing global landscape.

Relevance of the study

The outcomes of conducting a bibliometric analysis on Green-HRM research using the Scopus database exhibit diverse effects in academic and management contexts. This study has the potential to be an essential reference for academics interested in studying how environmental sustainability and human resource management interact with one another. This research offers a comprehensive overview of significant subjects, trends, and key figures in the field of Green HRM through systematic analysis and assessment of existing literature. This process not only aids in identifying deficiencies and areas requiring additional examination but also contributes to developing a meticulously structured repository of knowledge that can direct theoretical foundations and upcoming studies in the field of Green-HRM.

The findings derived from this bibliometric research were immensely beneficial for corporate leaders and HR experts in terms of management. A thorough understanding of key issues and effective practices in Green HRM guided the creation and implementation of environmentally friendly HR policies in firms. The analysis concentrated on discerning efficacious techniques, forthcoming trends, and potential areas for improvement. The program provided pragmatic guidance on integrating eco-friendly strategies into personnel management, employee engagement, and company culture. In addition, managers utilized these

findings to assess their organization's eco-friendly HR initiatives in relation to industry trends and standards, thereby fostering a more sustainable and socially responsible work environment. Ultimately, this research connected academics and practical application, facilitating the integration of environmentally-focused human resources strategies based on evidence into organizational policies and decision making procedures.

Limitations

The limitations of bibliometric analysis, which involves quantitatively assessing publications and citations, are considerable. This approach focuses primarily on publications and citations, often neglecting other research activities published reports, and non-traditional productions like datasets. The use of certain databases introduces a sample bias, limiting the capacity to apply the analysis to a broader context, especially in interdisciplinary research or areas with inadequate database representation. The subjective nature of categorizing VOS viewer data by subject highlights the necessity for future academics to adopt innovative approaches and utilize several databases, such as Google, Web of Science, JSTOR, and others, to ensure validation.

Moreover, the review's findings align with those of academic publications, except for practitioner journals, which were excluded due to accessibility challenges. The analysis focuses mostly on the timeframe of the Green HRM Representative phase, which spans from 2012 to 2023. While the list of articles is broad, it could not encompass all relevant references. Exercising prudence is essential when evaluating bibliometric findings, considering their limitations and considering the context comprehensively.

Future scope for further research

Building upon the findings of this bibliometric analysis, future research should delve deeper into several key areas to advance the understanding and application of Green Human Resource Management (Green HRM). Firstly, expanding the temporal scope of analysis beyond 2023 could provide insights into emerging trends and longterm trajectories in Green HRM research. This extended timeframe would capture evolving patterns and shifts in research focus, especially in response to global environmental challenges and regulatory changes. Secondly, further investigation into the geographical distribution of Green HRM publications could explore emerging regions and their contributions to the field. While China, Malaysia, Pakistan, and India have demonstrated significant research output, examining other regions and their unique approaches to integrating sustainability into HRM practices could enrich comparative analyses and foster global perspectives. Thirdly, identifying and analyzing interdisciplinary collaborations within Green HRM research networks could illuminate cross-disciplinary insights and innovative methodologies. Collaboration between environmental sciences, management studies, and social sciences offers the potential for holistic approaches to addressing complex sustainability challenges within organizational contexts.

Moreover, future studies should deepen the analysis of influential authors and their research trajectories in Green HRM. Understanding the impact of individual researchers and their networks on shaping scholarly discourse and practice could inform mentorship programs and collaborative initiatives to nurture the next generation of sustainability-focused HRM scholars. Lastly, exploring the practical implications of Green HRM theories and frameworks within diverse organizational settings remains crucial. Investigating how organizations implement and adapt green practices, the barriers they encounter, and the outcomes they achieve can provide actionable insights for practitioners and policymakers striving to foster

sustainable workplace environments. By addressing these future research directions, scholars can contribute to advancing knowledge, informing policy, and enhancing practices that promote sustainable development through Green HRM initiatives. This ongoing exploration is vital in ensuring that HRM practices evolve to meet environmental sustainability challenges in a rapidly changing global landscape.

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