

A Bibliometric Analysis Green Human Resource Management In Realing Sustainable Development Goals

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ABSTRACT

Green human resource management to strengthen environmentally friendly and sustainable practices, increase employee commitment to environmental sustainability issues, and apply green human resource management as a business integration. This article explores green human resource management in realizing sustainable development through bibliometric analysis in 2015 - 2024. This research method is processed using VOSviewer, and data collection is done using Harzing's Publish or Perish, based on the Scopus and Google Scholar databases of 400 documents. The results show that the Overlay Visualization of green human resource management was conducted in 2018. They show several vital relationships between green human resource management and sustainable development that can provide support for developing a solid conceptual foundation. This study shows that combining green human resource management research with sustainable development goals can be developed into new research. The results of the density visualization analysis show that the topic of green human resource management is very often carried out because the colour tends to be brighter (yellow). These findings provide an understanding of green human resource management research and can provide insights for academics, practitioners, and researchers in the future.

INTRODUCTION

Countries around the world, both developing and developed, are now paying attention to the environment. This is due to heavy industrial activities that have negatively impacted the environment (Akhtar et al., 2023). One approach that has evolved within organizational contexts to achieve sustainability and address environmental challenges is environmentally friendly human resource management. Organizations implementing sustainable initiatives affect the entire process, including production and operations, supply chains, financial decisions, and waste management. Organizations that focus on a sustainable work environment, which is an essential instrument for achieving competitive advantage (Miah et al., 2024). The organization's commitment to the environment and society is reflected in its willingness to implement sustainable human resource management practices, which are the principles of human resource management in sustainable human resource management that are intended to facilitate employee pro-environmental behavior in the workplace (Nson, 2024). GHRM is the principle of aligning business operations with environmental values. This approach is very much in line with today's employees, who are increasingly seeking purpose and meaning in their work because by incorporating environmentally friendly practices into their daily routines, from recycling policies to energy efficiency initiatives, organizations not only demonstrate their commitment to sustainability but also enable employees to feel part of a more significant and more meaningful enterprise (Falcó et al., 2024). GHRM is responsible

for the critical role in achieving environmental objectives and provides the organization with environmentally conscious, committed, and competent employees who can assist in reducing their carbon footprint through the efficient and effective use of available resources. GHRM is a human resource management (HRM) practice to enhance the commitment of employees to environmental issues and to carry out environmental management practices that are environmentally friendly (Uslu et al., 2023). Recruitment, selection, training, evaluation, guidance, and business development facilitate the implementation of GHRM as an integral business, human resource, and environment (Esthi & Setiawan, 2023).

Economic metrics do not solely determine the success of an organization; it is also necessary to consider environmental and social factors. Implementing various techniques, such as job selection, recruitment, training, system design, and construction, to enhance the quality of the environment and the integration of management and technology is crucial in achieving environmental sustainability (Jehan et al., 2020). A company may experience growth due to implementing green human resource management for its key personnel, which ensures that the organization can effectively and ethically utilize its resources. In other words, organizations are expected to protect the environment and minimize waste, or even more specifically, the pollution of water, water, energy, minerals, and other resources in the production of the goods that we consume (Jamal et al., 2021).

This study aims to explore green human resource management in realizing sustainable development through the lens of bibliometric analysis. The results will contribute to the existing literature. This study can identify relevant and most cited literature, find the most popular authors, and document citations using the Scopus and Google Scholar databases for the last ten years.

LITERATURE REVIEW

Green Human Resource Management

Green human resource management uses employee touchpoints or interfaces to advocate for sustainable practices and increase employee awareness and commitment to sustainability issues. It requires an environmentally friendly HR approach that results in reduced costs, improved employee retention and performance, and greater efficiency while also helping organizations reduce their employees' carbon footprint through electronic filing, car sharing, job sharing, teleconferencing, virtual interviewing, recycling, telecommuting, online training, and energy-efficient office space (Nson, 2024). Green human resource management (GHRM) is concerned with the practical application of HRM, which is focused on the environment and the environmental impact of the company, as well as the company's environmental strategy and employee engagement. GHRM is a comprehensive component of the interdisciplinary HRM literature that focuses on the practical management of the organizational environment, where human resource management is regarded as a platform for connecting human resource management practice with organizational management activity (Singh et al., 2020). The function and practice of Human Resource Management (HRM) can facilitate the development of strategic environmental initiatives to enhance environmental performance and mitigate organizational ecological impacts. However, the academy still needs to determine the specific function and practice of GHRM to improve environmental performance. GHRM practices include green recruitment, selection, training, and development, compensation and rewards, performance evaluation, employee relations

and negotiation, and complaint handling. GHRM utilizes HRM policies, activities, procedures, and ideologies to sustainably improve business efficiency and resources. GHRM must conduct global research to understand how different management systems affect trust and job satisfaction in the environment. Each organization's success and growth are contingent upon its human resources' efficiency and sustainability (Malik et al., 2021). The main objective of green human resource management is to make employees aware of the complexities of environmental management, including the activities required, their capabilities, and the contributions they can make to the environment. This activity substantially promotes workers' work and highlights their progress towards sustainable programs (Ali et al., 2020).

Sustainable Development Goals

The primary challenge in this competitive environment is developing, training, and training highly skilled and competent labor, which each organization strives to achieve to generate competitive advantages. Numerous organizations worldwide are implementing GHRM practices as a form of employer branding, as it is also considered the primary factor in gaining a competitive advantage by providing employees with information about the environment and the environmental practices within the organization (Jehan et al., 2020). Sustainability describes the current dynamic state of exerting lasting value for its stakeholders and shareholders. The capacity of an organization to provide a perspective on value to its shareholders and consumers by providing services to the community and environment in a comprehensive manner is the aspect that encourages the development of value. The future is a set of activities that assist in the enhancement of human well-being, the protection of life, the expansion of sustainable organizational structures, the preservation of the biosphere, and the enhancement of the capacity of the community to confront and resolve issues related to the environment, participation in society, and personal development in the present and future. As a result, continuing education is a new and significant business method that has led to positive and creative changes in the business world (Khan & Faisal, 2023).

Green human resource management is a component of a broader corporate social responsibility framework. It signifies the implementation of human resource policies to promote sustainable resource utilization and support ecological initiatives. The goal is to develop ecological sensitivity in employees and make them aware of how their own behavior can affect the environment (Bombiak & Kluska, 2018). In Green HRM, companies integrate environmental protection concepts and strategies into the recruitment process and insert sustainable development content into training activities. This increases employees' appreciation of and affection for the company's sustainable development strategy (Al-Ghazali & Afsar, 2020).

METHODS

This study identifies green human resource management as a way to realize welfare goals. It applies a bibliometric analysis approach for the last ten years, 2015 - 2024, by collecting data through the Scopus database and various Microsoft Excel software, Harzing's Publish or Perish, and VOSviewer. VOSviewer is a commonly used bibliometric analysis tool for visualizing bibliographic data. It is beneficial for building and visualizing collaborative networks of authors, identifying keyword clusters, and analyzing citation patterns. Through VOSviewer, a temporal analysis is conducted to identify trends in green human resource

management research over time (Darman et al., 2023). Bibliometric studies analyze bibliographic materials quantitatively through verifiable values and indicators of scientific production. These studies are recognized as crucial because they allow the organization of existing knowledge and the evaluation of the current status in a particular field of research. Bibliometrics are relevant to establish the foundations that allow progress and consolidation in a discipline. In addition, they can offer innovation to researchers (Rejas et al., 2022).

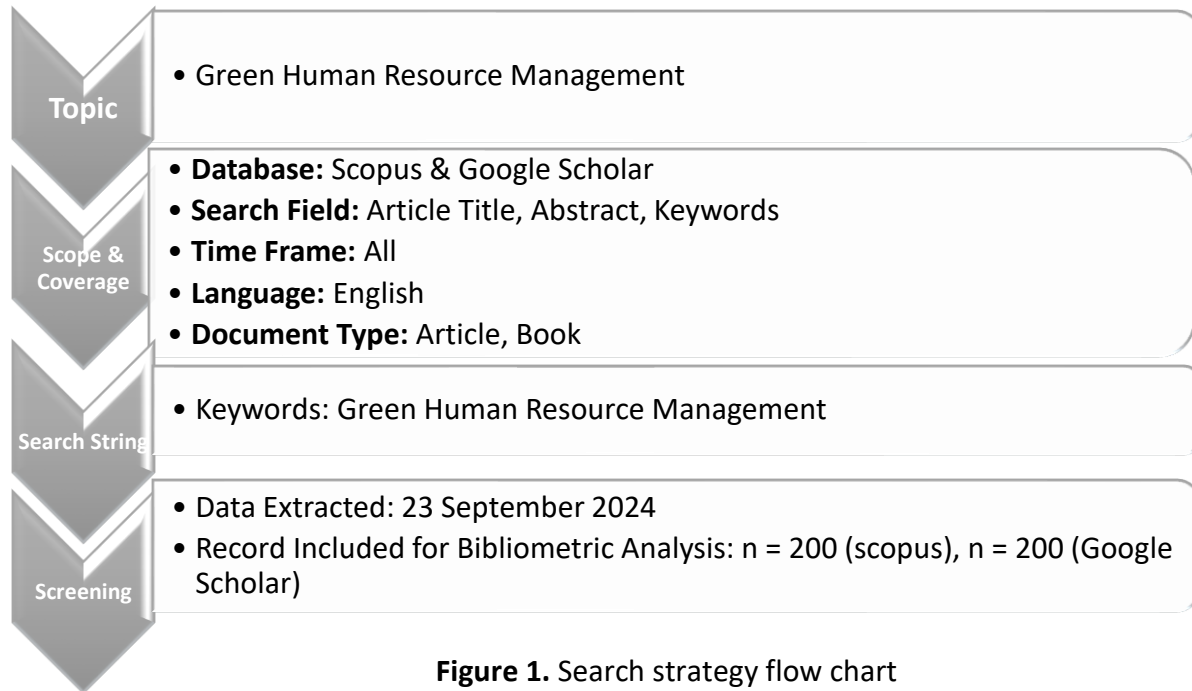


Figure 1. Search strategy flow chart

RESULTS

The total number of documents in the Scopus and Google Scholar databases related to green human resource management is 400. The documents consist of 200 from the Scopus database and 200 from the Google Scholar database. Article searches were conducted over the past ten years, namely in 2015 - 2024. The following are citation metrics data on the Scopus and Google Scholar databases:

Table 1. Citation Metrics Scopus

Publication Years	2015 - 2023
Citation Years	9 (2015 – 2024)
Papers	200
Citations	43565
Cites/Year	4840.56
Cites/Paper	217.83
Authors/Paper	1.00
h-index	134
g-index	200
hI, norm	134
hI, annual	14.89

hA-index	56
Papers with ACC > = 1,2,5,10,20: 200,200,200,200,170	

Source: Harzing's Publish or Perish database Scopus 2015 – 2024

Table 2. Citation Metrics Google Scholar

Publication Years	2015 - 2024
Citation Years	9 (2015 – 2024)
Papers	200
Citations	138709
Cites/Year	15412.11
Cites/Paper	693.55
Authors/Paper	3.01
h-index	186
g-index	200
hl, norm	135
hl, annual	15.00
hA-index	98
Papers with ACC > = 1,2,5,10,20: 200,200,200,200,197	

Source: Harzing's Publish or Perish database Google Scholar 2015 – 2024

1. Published Documents on Green Human Resource Management

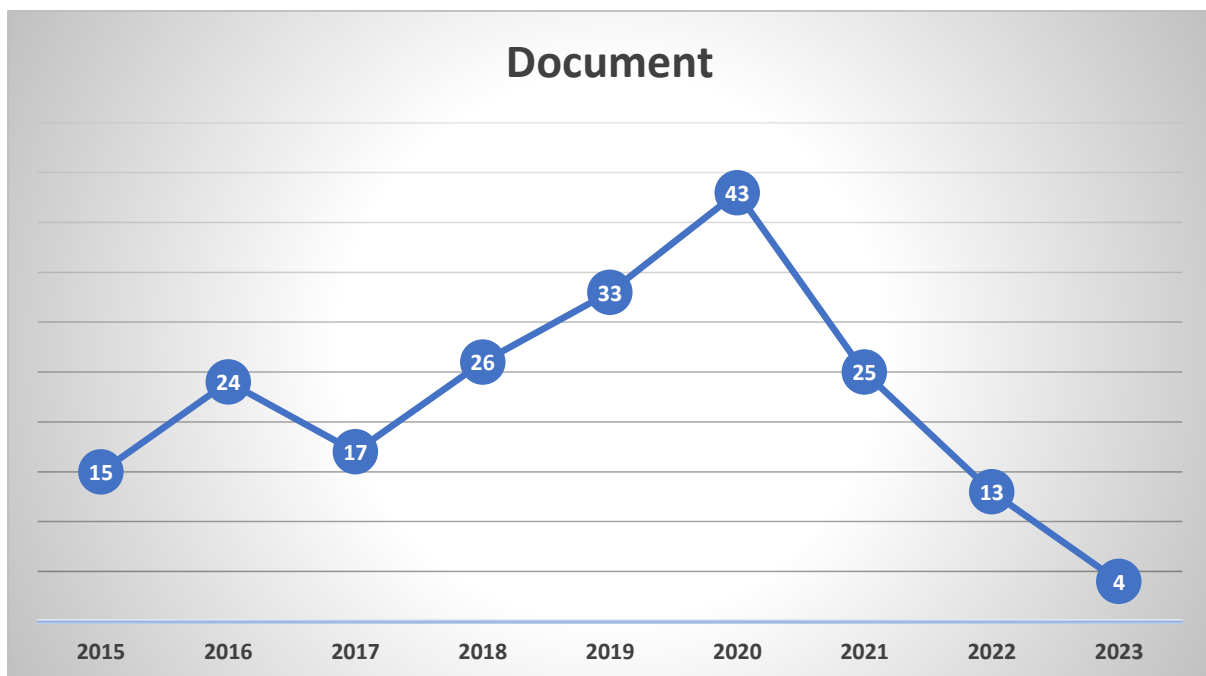


Figure 2. Analysis of 200 Scopus database articles from 2015 to 2023

Based on the analysis results of Figure 2 above, there are 200 scientific articles from 2015 - 2023. Article search using Publish and Perish (POP) software. The results show that

over the past nine years the publication of articles on green human resource management has fluctuated. From 2017 to 2020, the number of green human resource management publications increased consecutively, and in 2020, it was at the highest position with 43 publications. The decline in publications on ghrm occurred from 2021 to 2023.

2. Bibliometric Data Mapping

Vosviewer is software used to build and visualize data from Scopus and Google Scholar databases into a bibliometric network, which maps keywords in each document. Each color indicates a cluster. The analysis of the most frequently occurring keywords is presented in Figure 3.

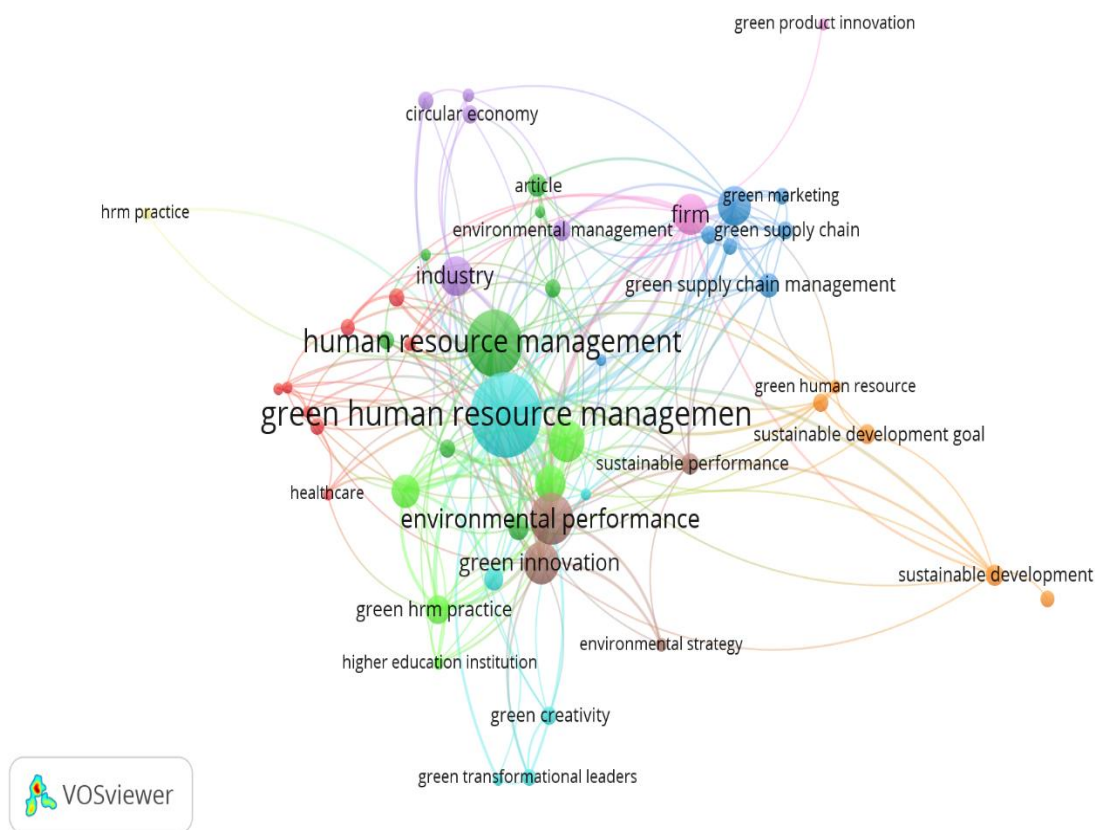


Figure 3. Network Visualization

This study uses network analysis, where research studies connect words to green human resource management. This analysis is very useful to help researchers show developments in the field of research. Keywords are generated from title and abstract searches. The author chose this study, which is connected to the dimensions of green human resource management. Some keywords that appear are sustainable development goals, environmental management, and green training. In Figure 3, Each color indicates a cluster; this visualization map has ten groupings. The first cluster (red) has eight items that have been grouped as environmental sustainability, the second cluster (dark green) has eight items that have been grouped as human resource management, the third cluster (navy) has seven items that have been grouped as green training, cluster 4 (blue) has six items that have been

grouped as green human resource management, cluster 5 (purple) has five items that have been grouped as environmental management, cluster 6 (green) has five items that have been grouped as sustainability, cluster 7 (orange) has five items that have been grouped as sustainable development goals, cluster 8 (brown) has four items that have been grouped as environmental strategy, cluster 9 (pink) has two items that have been grouped as green product innovation, cluster 10 (yellow) has 1 item that has been grouped as human resource management practice.

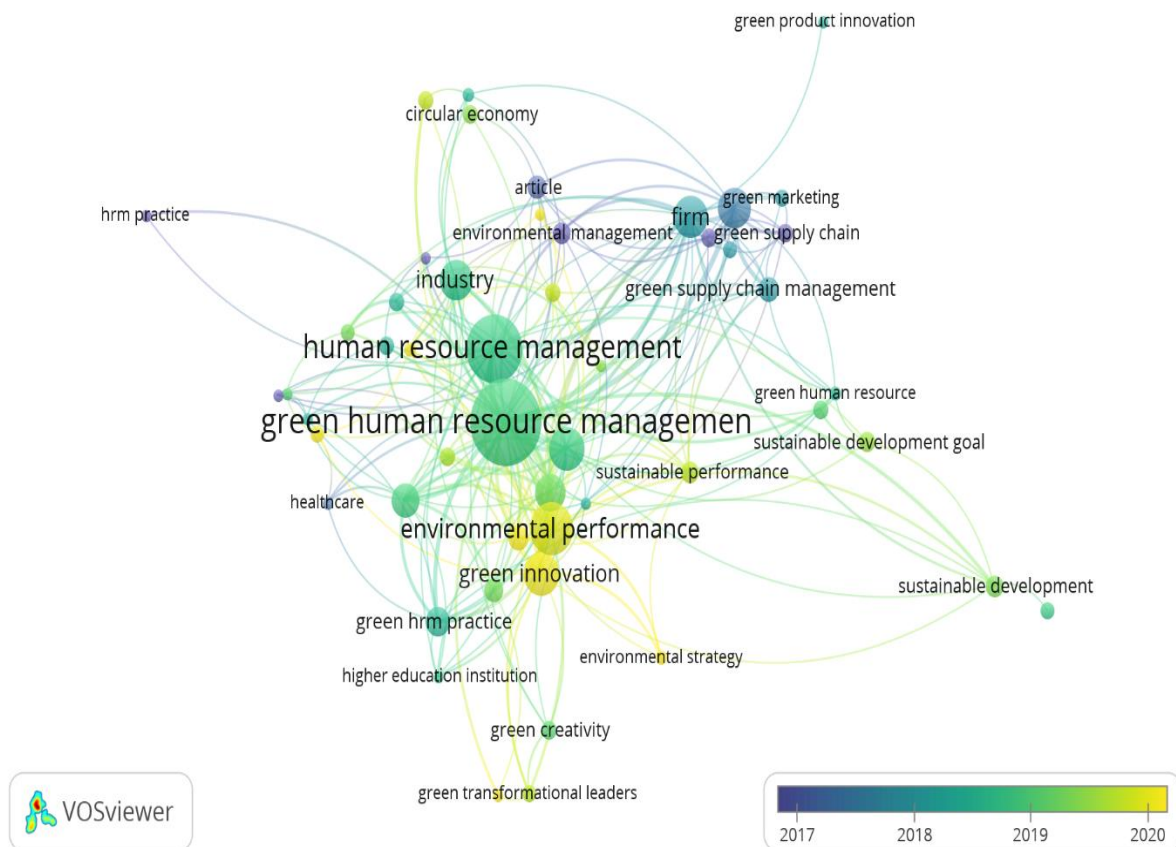


Figure 4. Overlay Visualization

Bibliometric analysis on overlay visualization of each keyword represents a color that reflects the average year of its emergence; older keywords tend to appear earlier and will be shown with a darker or darker color, while newly popular keywords will be shown with a lighter color. Figure 4 shows that in research with the keyword green, human resource management often appeared earlier in 2018, as shown in green. Research with sustainable development goals only appeared in 2019 by showing a light color, which is still new. The results of overlay visualization with the topic ghrm can be combined with the topic of sustainable development goals because it shows a lighter color, which means that new research has been done so that it can be developed for new research.

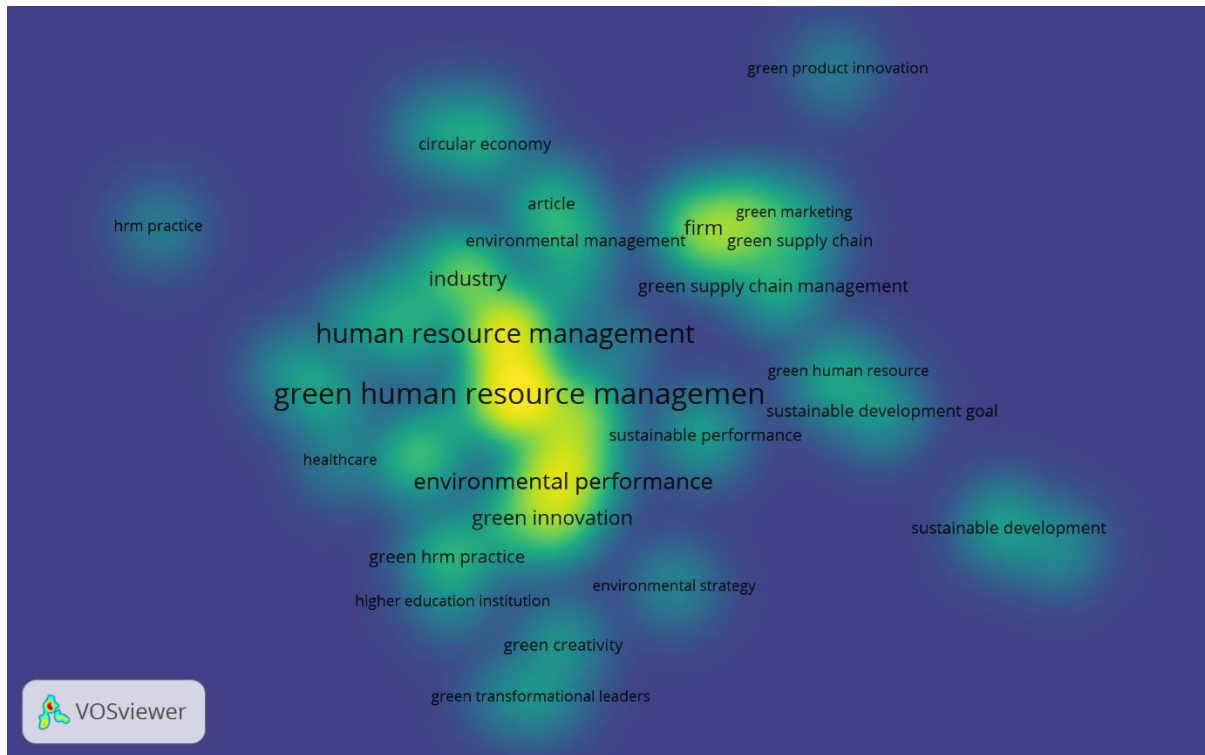


Figure 5. Density Visualization

Density visualization analysis is used to show publications in bibliometric data. This map can be colored according to its density. Bright colors (yellow) mean that the keyword has a high density or often appears together. Green indicates medium density and dark colors (blue) indicate low-density areas where the keyword rarely appears. Figure 5 produces a density visualization analysis with the keyword green human resource management showing bright color results (yellow), meaning that the keyword ghrm has a high density or the topic is often discussed.

Table 3. Top 10 Citations Total

Authors	Title	Journal	Cites	Year
Singh et al	Green innovation and environmental performance: The role of green transformational leadership and green human resource management	Technological Forecasting and Social Change	1035	2020
Prasad et al	Nanotechnology in sustainable agriculture: Recent developments, challenges, and perspectives	Frontiers in Microbiology	980	2017
Kalmykova et al	Circular economy - From review of theories and practices to development of implementation tools	Resources, Conservation and Recycling	872	2018
Dumont et al	Effects of Green HRM Practices on Employee Workplace Green Behavior: The Role of Psychological Green Climate and Employee Green Values	Human Resource Management	743	2017

Nesshöver et al	The science, policy and practice of nature-based solutions: An interdisciplinary perspective	Science of the Total Environment	729	2017
El-Kassar & Singh	Green innovation and organizational performance: The influence of big data and the moderating role of management commitment and HR practices	Technological Forecasting and Social Change	725	2019
Kim et al	The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance	International Journal of Hospitality Management	634	2019
Shih et al	Powering the Future with Liquid Sunshine	Joule	597	2018
Kumar et al	Aflatoxins: A global concern for food safety, human health and their management	Frontiers in Microbiology	594	2017
Saeed et al	Promoting employee's proenvironmental behavior through green human resource management practices	Corporate Social Responsibility and Environmental Management	512	2019

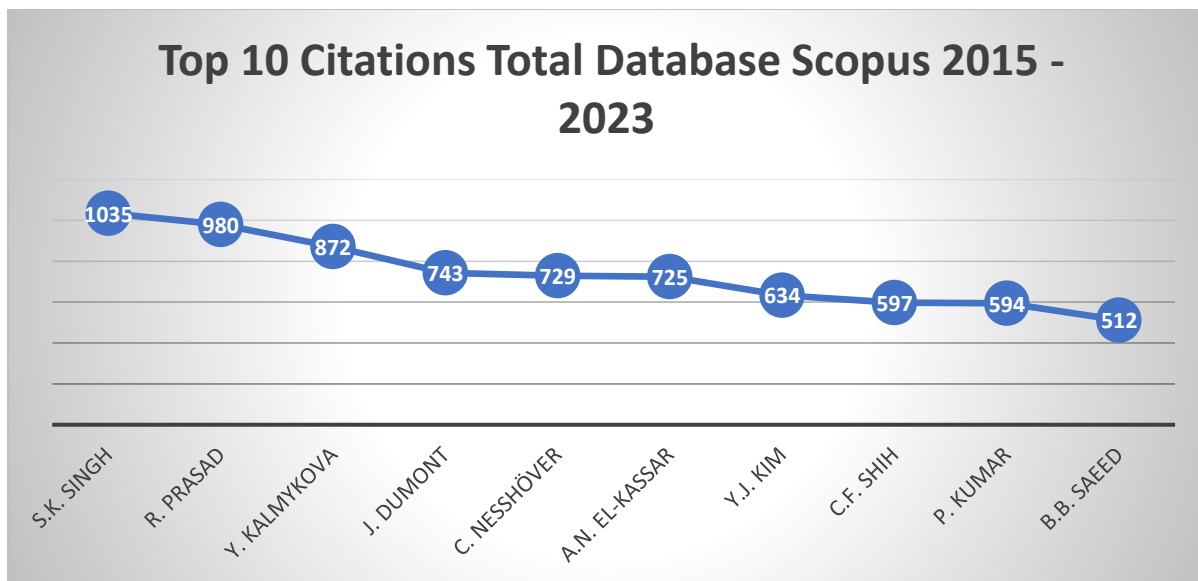


Figure 6. Top 10 Citations Total

Table 3 and Figure 6 display the authors and journals with the most citations from the Scopus database from 2015 - 2024. The data is processed using the criteria of the top 10 citations from 200 documents. The data processing results show that the author S.K. Singh, with the journal Technological Forecasting and Social Change published in 2020, obtained the highest number of citations 1035. The second is followed by the author R. Prasad, who was published in the Frontiers in Microbiology journal in 2017 and got 980 citations. In the third order by the author, Y. Kalmykova, with the journal Resources, Conservation, and Recycling in 2018, the citation results amounted to 872.

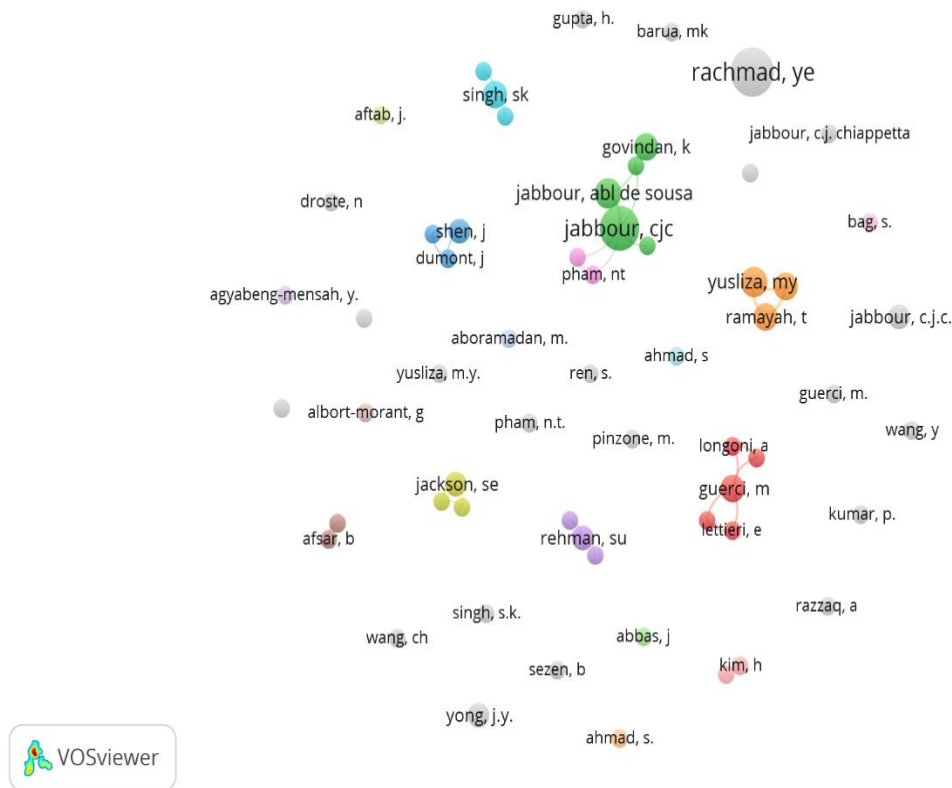


Figure 7. VOSviewer Co-Authorship visualization relationship map

Figure 7 shows the results of the Co-Authors analysis on the topic of green human resource management based on the Google Scholar and Scopus databases for the period 2015 - 2024. This analysis is based on influential authors who have more than two documents. The results showing the color, circle size, font size, and thickness of the connecting line indicate the strength of the relationship between the authors. Linked authors are usually grouped together as indicated by the same color. In Figure 7, authors Jabbour cjc, Jabbour abl de Sousa, Sarkis j, Govindan K, Tuckova Z, and Pham nt collaborate closely and usually conduct joint research. Jabbour, cjc is the most active author, as seen from the size of his circle, because it is the largest among the other authors. VOSviewer Co-Authors Results Obtained 60 items, 39 clusters, 29 links, and 57 total link strengths.

CONCLUSION

GHRM is an essential element in sustainable HRM literature, focusing on corporate environmental management practices, where green human resource management serves as a bridge between human resource management practices and corporate environmental management activities—cultivating ecological sensitivity among employees and increasing their awareness of the impact of personal behavior on the environment. This relates to motivation and fostering a sense of pride in participating in environmental initiatives. This study emphasizes a bibliometric analysis of green human resource management from 2015 to 2024, based on 200 documents from the Scopus database and 200 documents from Google

Scholar. The green human resource management domain experienced growth from 2018 to 2020, significantly impacting the literature; nevertheless, it saw a decline from 2021 to 2023. Research on green human resource management by author Jabbour, CJC, was most active between 2015 and 2024. Author S.K. Singh recorded the highest number of citations in 2020, which was 1035, based on the Scopus database published by Technological Forecasting and Social Change.

SUGGESTIONS

This study's limitation is that it only takes articles based on the Scopus database of 200 documents and Google Scholar's 200 documents. This limitation can be overcome because the Scopus and Google Scholar databases have a broader scope of published articles than WoS. The analysis in this study only takes a little from conference proceedings and books. Recommendations for future research can increase article data collection based on WoS and the number of documents. The subsequent analysis can look at other perspectives, such as green training or green workplace culture.

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