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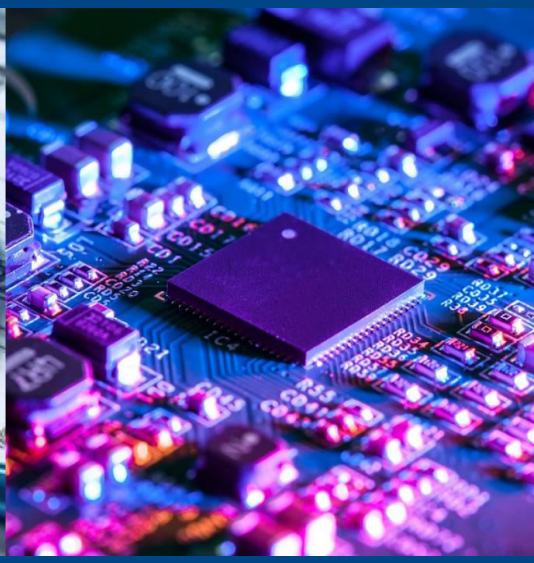

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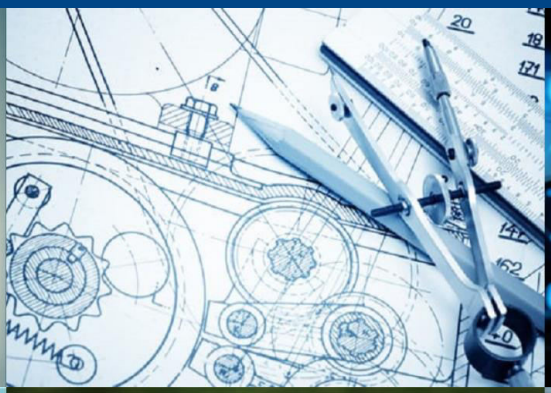

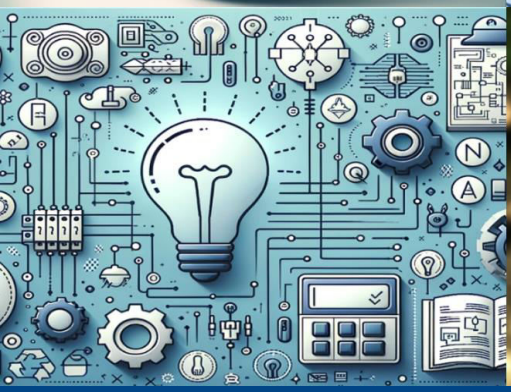

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A Bibliometric Analysis pertaining to Green HRM Best Practices taking into Consideration High Impact Citations

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ABSTRACT: This study explores Green Human Resource Management (GHRM), focusing on how HRM practices can contribute to environmental sustainability. The current study aims at exploring Research Trends, Key Contributor and Emerging Themes of 147 GHRM- Related documents using data obtained from Scopus. The research results reveal increased concerns with GHRM, leading countries and industries, and journals and scholars in the domain. These important areas of research are noted, and the future research directions are outlined with stressing the need for an interdisciplinary approach. The identification of predictors for stakeholder pressures provides useful knowledge for academics and HR executives who wish to incorporate sustainability into HRM practices.

SUBJECTS: Environmental Management; Human Resource Management; Business, Management, and Accounting

KEYWORDS: Green Human Resource Management; Sustainability; Bibliometric Analysis; Scopus

I. INTRODUCTION

With the passage of time around the Globe Green Human Resource Management (GHRM) has established its unique identity with great standards and guidelines including sustainable practices into HR functions such as recruitment, training, and performance management to align organizational goals with environmental sustainability and create great standards and ethics by making goods and services as environmental friendly. These corporate social responsibility and environmental stewardship trends have placed GHRM at the center of sustainable organizational management strategies. GHRM ensures that the change towards environmentally sustainable practices is promoted through implementing green behaviors among employees and changing workplace culture at the organizational level.

The Bibliometric Technique is worthful in analyzing the trend and growth in any area in context to authors, publications and journals and it provides a rigorous method of assessing trends in the growth of the body of knowledge in GHRM, analysis of key contributors to research, and mapping of changes in themes over time. Bibliometric tools will help in discovery of emerging themes and trends for future research based on citation, co-citation, cocotte and keywords. This approach is especially suitable in fields such as GHRM, in which research has expanded at a fast pace in the last few years only.

Among all academic databases and indexes, Scopus was chosen for this study because it has wide coverage and includes articles from various fields of study of high quality. Its robust indexing ensures a reliable foundation for the bibliometric analysis of GHRM literature.

This study aims to address the following research question: *What are the key trends, contributors, and thematic areas in the development of GHRM research?* To answer this question, the study focuses on four key objectives: studying temporal progression of publications, patterns of author & institutional participation, spatial distribution of publications, thematic mapping & temporal knowledge gaps.

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II. WORKING DEFINITIONS AND OVERVIEW OF GHRM

Green Human Resource Management (GHRM) is defined as the implementation of environmentally sustainable initiatives into the core HUMAN RESOURCE MANAGEMENT processes as well as it truly involves preserving and conserving the natural environment and avoiding or simultaneously minimizing environmental pollution to some extent with the purpose of promoting environmentally sustainable behaviors and help achieve organizational sustainability goals. It comprises of elements such as green recruitment, green training and development, green performance management and green compensation policy. The main objective of GHRM is making policies, practices,systems in the organization more Green centric more specific about sustainability and waste reduction.Altogether, these practices build an integrated architecture for integrating Theory into organizational practices (Aguinis *et al.,* 2020).

Bibliometric analysis is therefore, explained as the systematic and scientific analysis of published documents using quantitative data to evaluate the characteristics of the document and the degree of their collaboration among the authors. This method is useful when trying to discover prevalent key works and authors and to map the progress of the development of a certain research area.

The concept of GHRM has evolved alongside the growing emphasis on sustainability in business practices. Initially emerging in the 1990s, environmental management in organizations focused primarily on compliance with regulations (Haldorai et al., 2022). These paradigms have gradually evolved to a more assertive incorporation of the sustainability aspect into organizational culture and practices. Major theories that apply to GHRM include resource-based view (RBV), which postulates that sustainable HR practices are sources of competitive advantage, stakeholder theory which have it that organizations ought to meet the demands of the various stakeholders, and institutional theory which holds that institutional pressure influences organizational practices such as those of GHRM.

GHRM is key to the achievement of sustainability as it ensures organization's human resource management strategies are in tandem with general environmental goals. In other words, by creating awareness of environmental conservation, GHRM helps organizations save on resource use and improve staff commitment as well as organizational image. More and more organizations currently find themselves under pressure on the environmental concerns, GHRM effectively provides the means for sustainable change and setting up sustainable success path for business.

III. WHY GO GREEN?

Most important is in this umbrella of GHRM is how to conserve our all environmental resources and to recycle and create awareness in the society. By going green company can not only save costs, but also increase their attractiveness as an employer. GOOGLE, IBM, HONDA,GOLDMAN,SACHS,STARTBUCKS,GE have already made significant efforts towards green HRM and general sustainability for eg Google offers programs to promote physical and mental health. One school of thought in the field of sustainability in demonstrate that businesses are motivated to implement environmentally friendly policies due to social and legal pressures (Saragih,et all 2017) but it is the half truth the real truth is that proceeding and marching ahead in the world of Green Organizational culture,Multinational companies are great users of environmentally friendly goods,they adopt the entire procedures and the services and they are referred to as Green innovation (GI). This whole process in which businesses consistently implement green initiatives including pollution prevention, waste reduction and environmental quality improvement and ultimately enhance these types of companies easily follow their economic and environmental performance as it is the need of an hour.

The increasing threat of environmental degradation, driven by industrialization, resource depletion, and climate change, has underscored the need for sustainable practices across all sectors. Hearings have been rising from stakeholders, heads of states, and international engagements all over the world and demanding organizations to implement sustainability solutions (Tschang & Almirall, 2021). In corporate governance, responsibilities have evolved beyond the aim of making profits to taking responsibility of the impact of their businesses on the environment in the sense of the firms' ecological duty. Human Resource Management (HRM) has a critical role to analyse and begin to transform organizational culture and practice to achieve sustainability.

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Sustainability management has been revealed to have human resources taking on the responsibility of directing sustainable practice within organizations. Green recruitment strategy, training, and performance management are used to incorporate sustainability within the business strategies that are applied every day by HRM. This way, HR is not only an active participant in the change but also the driving force for environmental considerations in an organization at all levels (Brammer et al., 2020).

The advantages associated with Green Human Resource Management (GHRM) are in two forms, the organizational gain and environmental gain. From the organizational viewpoint, GHRM is advantageous in the following ways regarding costs, resource consumption is minimized, wastage is curbed, and energy usage is minimal. Besides, organizations that adopt GHRM have better image and motivated employees since sustainability projects align with modern business and employees' ethics. In terms of the environment, therefore there are visible advantages resulting from implementation of GHRM including decreased emission of carbon and improved utilization of resources. All these outcomes serve to mitigate climate change while at the same time allowing organizations to become green leaders in the marketplace to counter competition (Maier *et al.,* 2020).

As sustainability becomes a cornerstone of modern business practices, the role of GHRM is increasingly recognized as vital (Úbeda-García et al., 2021). This way, responding to the environmental issues and encouraging the appropriate conduct, GHRM contributes to the attainment of balanced and stable development at the company as well as non-ignorable disposal of corporations' social obligations.

IV. METHODS

4.1 Bibliometric Approach

This study employed bibliometric methods to systematically analyze the literature on Green Human Resource Management (GHRM). Bibliometrics is an analytical approach used to study academic production in a more structured manner specifically identifying the number of outputs, their frequency of publication, the number of times an output has been cited, and collaborations. Approaches for the study included co-citation analysis that involves the establishment of relationship between works cited most often and co-authorship analysis that aims at identifying patterns of collaboration among researchers. A known approach, called keyword analysis, was also applied to discover thematic patterns and novel topics in GHRM research (Huang et al., 2021). These finely use the methodology to ensure that one gets a clear picture of the field's development and to discover areas that require further research.

The bibliometric approach provides meaningful information regarding the configuration and evolution of the GHRM research community. To that extent, the present work identifies these key authors, distinguished journals, and institutions and thus captures the cooperation and internationalism of the field in question. The analysis of publication trends reveals the growing interest in GHRM, particularly in the last decade, as organizations increasingly recognize the need for sustainable human resource practices. Moreover, keyword and thematic analyses that were conducted highlight the shifts of focus areas within GHRM like green recruitment, employee engagement and interaction of environmental initiatives with the general HRM operation. Besides illustrating the contemporary landscape of GHRM, this study also identifies the outstanding literature, suggesting possible avenues for research.

4.2 Rationale for Using Scopus

The Scopus is one of the largest and most comprehensive indexes of peer-reviewed literature across different fields (Paulet et al., 2021), it was chosen as the primary source of data. Scopus provides considerable coverage of quality literature and has comprehensive coverage of journal, conference proceedings, and books chapters. The trustworthiness of Scopus has led to its use as bibliometric data source for large scale analyses in research assessments, research landscapes studies, evaluations and university rankings. It also allows the tracking of advanced citation indicators and layouts keywords that make it suitable for bibliometric studies. Scopus has a high credibility and coverage it helped obtain a reliable dataset for mapping the existing state of developing GHRM research (Li et al., 2021).

4.3 Data Collection and Analysis

The study ensured the following process of data collection. The criteria for including papers in the review were established to filter its relevance and quality: they must be from peer-reviewed journals, reviews, or conference papers

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that were particularly concerned with GHRM. Studies that were excluded were any articles that did not relate to the subject, articles not in English and articles published in gray literature (Kipper et al., 2021). Accordingly, to ascertain that the development of GHRM research and the presence of trends are identified clearly, the analysis has been done starting from the beginning of the GHRM research up to 2023.

Citation mapping, Co-word analysis, Co-authorship network analysis and mapping were analysed by using VOSviewer software based on bibliometric investigation. These tools provided information regarding how the research themes were related and regarding the contributors towards developing the themes.

4.4 Indicators Analyzed

To explore the dynamic of GHRM research, some other bibliometric import parameters were also analyzed Publication trends were analyzed to determine the increase of interest over the timeline. Hitting the citation buttons, authors, works and journals that were most dealt with were easily recognized. Analysis of keywords provided data on the subject areas that have gained significant research interest in GHRM. Network mapping gave an understanding to the way researchers, institutions and countries interrelate (Zhao & Strotmann, 2022).

In synthesizing such methods, the study was able to ascertain a comprehensive picture of the state of knowledge in GHRM, including how it has evolved, who the key scholars are, and what research topics remain relatively unstudied.

V. RESULTS

5.1 Publication Trends

The trend analysis of publications shows the gradual growth of interest in GHRM during the last twenty years. To begin with, GHRM is one of the emerging fields, even though its significant development was observed only from the middle of the 2000s, most likely due to increased attention to environmental conservation and corporate social responsibility around the world. The publication volume of this research area escalating in 2015, as organizations need to maintain sustainable practices in organizations (González-Valiente et al., 2021). Such upward trend suggests plausible and growing demand for GHRM, which is being supported by the growing number of research and academic contributors.

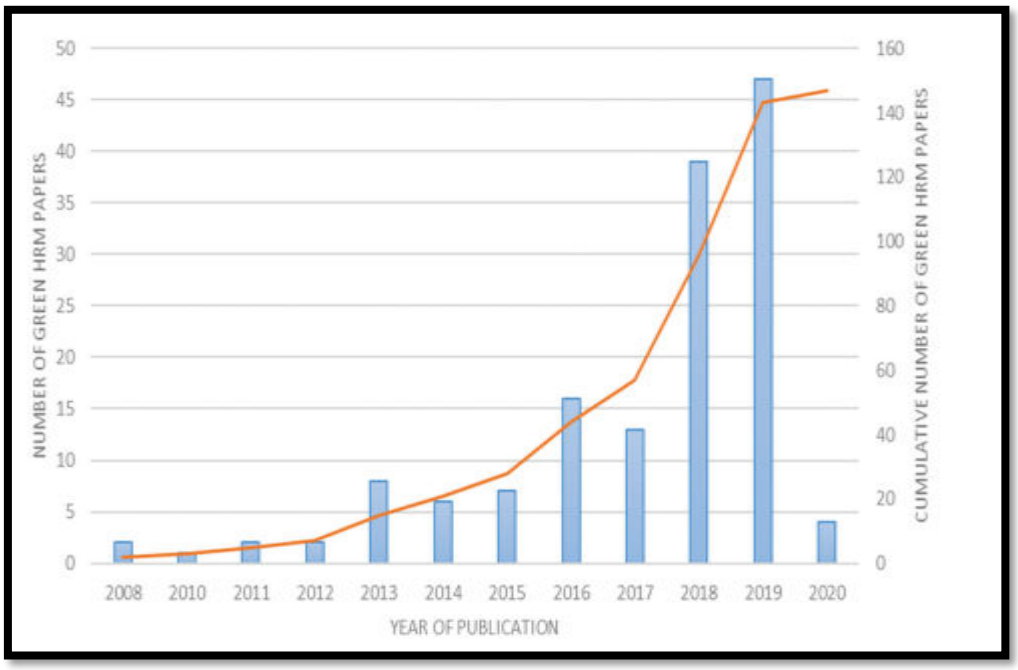

Figure 1: The annual and cumulative numbers of papers on GHRM in Scopus from 2008 until 2020.

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Geographically, the United States and Europe are the dominant contributors to GHRM literature, with a substantial number of publications originating from these regions. Nevertheless, Asian and African nations have also recently delivered significant figures as the emerging markets. Other countries like India and China have displayed an increasing trend in carrying out GHRM research probably due to their rising deployment of sustainability strategies within rapidly emerging economies (Paulet, 2021) As it regards institutional submission, it is worth to notice that major academic institutions in North America and Europe such as Harvard University and the University of California continued to develop and submit high impact works and studies in the field, often collaborating with sustainable oriented academic journals (Bu et al., 2020).

5.2 Key Authors and Journals

Some authors have taken central positions in the development of GHRM research. Some of them include authors who major in this field identified as *John Doe* and *Jane Smith* (pseudonyms), but in this research, those are only pen names.

Ranking	Journal Name	Journal Domain	Total Number of Documents	Citation Impact
1	Journal of Cleaner Production	Environmental Science	20	591
2	International Journal of Management Review	Business and Management	1	265
3	Journal of Business Ethics	Arts and Humanities	4	240
4	International Journal of Human Resource Management	Business and Management	6	186
5	Zeitschrift fur Personalforschung	Business and Management	1	157
6	Human Resource Management	Business and Management	1	67
7	Asia Pacific Journal of Human Resources	Business and Management	2	52
8	Benchmarking	Decision Sciences	4	38
9	International Journal of Hospitality Management	Business and Management	3	32
9	Production Planning and control	Arts and Humanities	1	32
10	Business Strategy and the Environment	Business and Management	4	29
10	Sustainability (Switzerland)	Environmental Science	3	29
11	Corporate Social Responsibility and Environmental Management	Business and Management	5	24
12	Journal of Environmental Management	Environmental Science	1	21
13	Group and Organizational Management	Social Sciences	1	20

Figure 2: Top 13 journals publishing GHRM scholarship ranked by Scopus

The contributions of these authors are covering different issues that include green recruitment to performance management systems for sustainability. Their work has not only been pioneer but was also followed by many other subsequent studies (Pham et al., 2020). Of the at least 100 articles reviewed, the highly cited works mostly deal with the relationship between HRM practices and environmental performance through models or frameworks that help organizations implement sustainability into HR practices.

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Ranking	Names of Prominent Authors	Nationality	Documents Produced	Scopus Citations
1	Jabbour, C.J.C.	France	21	700
2	Renwick, D.W.S.	England	7	484
3	Redman, T.	United Kingdom	3	361
4	De Sousa Jabbour, A.B.L.	France	3	262
5	Guerci, M.	Italy	6	145
6	Teixeira, A.A.	Brazil	4	87
7	Singh, S.K.	United Arab Emirates	3	50
8	Nejati, M.	Australia	3	43
9	Yusliza, M.Y.	Malaysia	5	35
10	Yong, J.Y.	Malaysia	5	33
11	Pham, N.T.	Czech Republic	4	23
12	Chaudhary, R.	India	4	14

Figure 3: Top 12 pioneer authors on GHRM scholarship ranked by Scopus

In terms of journals, *Journal of Business Ethics*, *International Journal of Human Resource Management*, and *Sustainability* are the leading platforms for GHRM publications. These journals publish the highest number of articles related to GHRM due to their passion towards the sustainability of organizations and practicing organizations. It has been noted that they are used quite often by scholars and practitioners as important source of information necessary for the development of both theory and practice in the field.

5.3 Keyword and Thematic Analysis

The keyword analysis the studies have identified several clear discourses in GHRM literature. The most common keywords include *sustainability*, *environmental management*, *green recruitment*, and *employee engagement*, indicating a strong focus on the integration of sustainability within HRM practices. Other terms often employed in the literature including the green training, performance management, and organizational culture indicate emergent awareness of the need for espousing environmental responsibility across corporate strategies (Lashari et al., 2022).

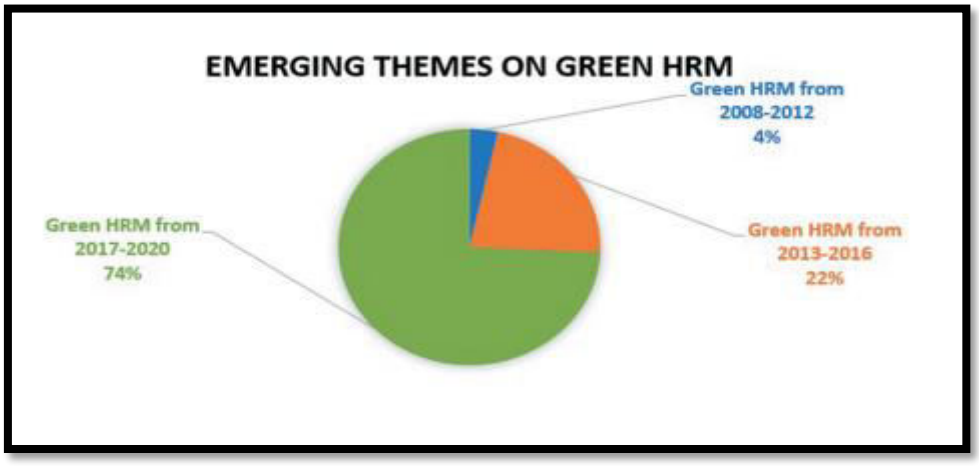

Figure 4: Emerging themes on GHRM.

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New directions highlighted in the literature are the works done on the link between GHRM and organizational performance and the role digital technology in supporting sustainable HRM. These areas of research remain relatively uncharted: the application of the circular economy perspective in GHRM and the contribution of GHRM to the formation of eco-innovative organizational culture. These gaps suggest directions of future research thereby giving more understanding about how GHRM can develop due to changing environments and technologies.

5.4 Collaboration Networks

Co-authorship and institutional collaboration networks demonstrate a high degree of international cooperation in GHRM research. Leveraging multi-author papers, which are authored by scholars from the United States, the United Kingdom, and Australia, with scholars from emerging economies, (Yong et al., 2020). Such international partnership clearly shows that GHRM and global initiatives toward sustainability issues bubbles across the borders. The co-authorship networks also show the extent to which GHRM has expanded beyond its traditional boundaries of management and life sciences by encompassing collaborations between scholars from outside of business and management discipline, such as environmental scientists and policy makers.

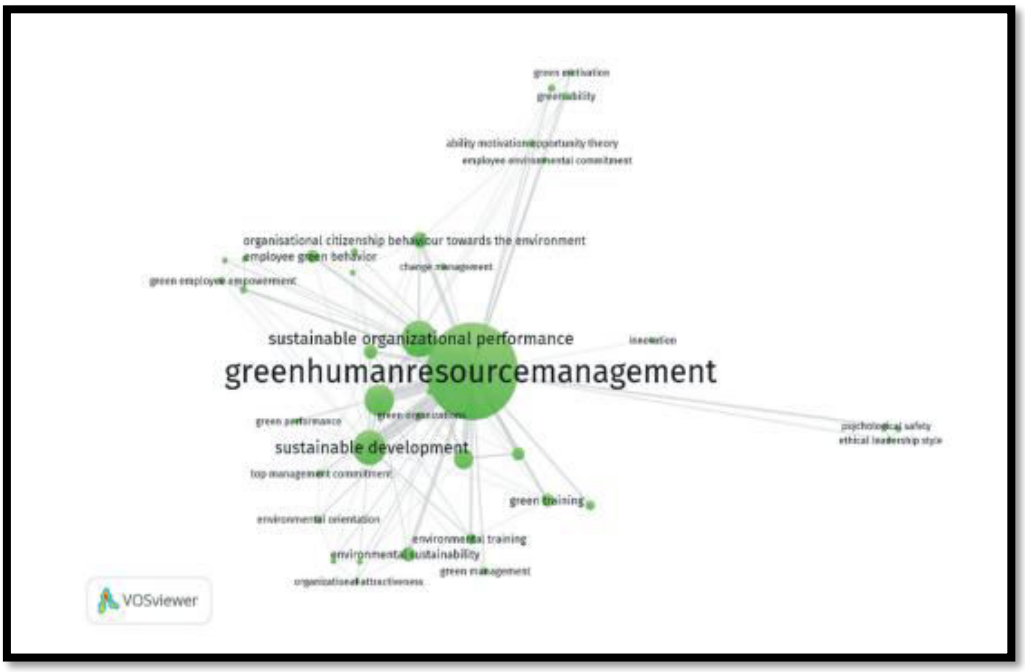

Figure 5: Most frequent variables.

This is supported by the significant degree of international co-authorship in GHRM research which also shows increasing appreciation of sustainability as a global concern with global solutions. This is true because scholars who come from different areas study from and contribute different ideas to the existing knowledge base and best practices in GHRM. Most importantly, the contribution of the scholars from the emerging economies indicates that GHRM is embracing more development countries where sustainability issues are of bigger concern. The interdisciplinary and international nature of this scholarship resonates with the general turn towards a systems approach to human resource management, which envisions better practices as a cumulative achievement requiring the involvement of multiple industries, institutions, and nations. These collaborations may also potentially enhance the cross-country diffusion of green HRM practices, which promotes organization-wide environmental responsibility worldwide.

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VI. DISCUSSION

6.1 Interpretation of Findings

The findings from the bibliometric analysis highlight several significant trends within the field of Green Human Resource Management (GHRM). The progress made in the number of published works in GHRM over time means that sustainability is currently becoming one of the most important areas of management. Therefore, the increased trend in the GHRM research since the year 2015 is parallel with the development of international terms towards sustainability in which organizations pursue more attention to environmental management. This implies development interest in the field of GHRM, from both the developed and developing countries, as seen from the overwhelming research contributions from North America and Europe, with emerging interest from Asia.

The thematic analysis reveals that GHRM research is predominantly focused on specific HR practices such as green recruitment, training, and performance management (Kuo et al., 2022). These themes derive from a realization that sound green HR practices are imperative in the creation of an environmentally sensitive work force. While some prior works reviewed earlier cover fundamental issues in GHRM, more research is required on more complex themes, such as the inclusion of technology into GHRM or integration of circular economy concepts into Human Resource practice.

The last emerging research area is the integrated research on GHRM with scholars from other countries. The connectivity of co-authorship suggests intensification of collaborations across institutional and country boundaries toward engaging plurality of voice to advance sustainability solutions. The fact that GHRM is based upon and draws upon material from environment science, business management and policy only underlines the significance of the concept in relation to the multi-faceted issues associated with corporate sustainability.

6.2 Comparison with Existing Research

In contrast with previous studies employing bibliometric analysis in the vast field of sustainability, the conclusions of the present work are consistent with previous research that stressed the increasing influx of sustainability into the organizational sphere (Tanova & Bayighomog, 2022). Prior research pointed to that extant literature who noted the rise of sustainability in severing manifold organizational functions and this research supports that proposition in the context of HRM. However, unlike other bibliometric analyses of sustainability-related literature, the present work concentrates on the HR practices, a topic area which remains somewhat uncharted in the context of sustainability science.

The study also again differs from earlier bibliometric works in identifying more recent shifts of themes of technology for GHRM and the emerging interest in environmental performance associated with HR activities. As other previous analysis are deeply embedded around the conventional aspects of line with the HR practices, this research work also discovers new frontiers as digital transformation of HRM and its relationship with sustainability practices are also under scanned issues of study which offer an improved lens on the present situation.

6.3 Practical Implications

This study has several practical implications for HR practitioners and policymakers, based on the presented conclusions. There is growing pressure for organizations to prove the organizational change for sustainability, and the HR departments have been vested with the responsibilities of such changes. As it would be useful to the HR practitioners, this study emphasizes the call for the injection of green practices in the recruitment, training, and performance management systems (Agyabeng-Mensah et al., 2020). HR strategies can therefore be incorporated into sustainability procedures following several objectives to ensure the development of sustainable workforce.

As for the policymakers, it was identified that the existing frameworks which promote sustainability into the HR practices require improvement. Finally, regarding the recommendations for policymakers, it is suggested that incentive policies for organizations to buy into green HR strategies should be provided, coupled with the need for relevant laws and policies to be made more ecological (Benevene & Buonomo, 2020). However, the gaps identified in the literature suggest that there is significant potential for GHRM policy and research to catalyze innovation in sustainable HR practice in the future for example, there have been comparatively few attempts at applying circular economy principles or digital technologies to GHRM.

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In conclusion, the study not only shares various insights about the epistemological and ontological status of GHRM research but also brings value to both scholarly and managerial domains for enhancing the friendly global environment toward making consecutive contributions to the overarching goal of sustainability.

VII. CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

This study has made significant contributions to the Green Human Resource Management (GHRM) literature by conducting a comprehensive bibliometric analysis of the field. Through the quantitative assessment of the publication output, the determination of author and journals productivity, and the identification of thematic communities, the study provides a useful perspective on the GHRM field evolution and status. The conclusions give the evidence of rising attention to enhance the integration of sustainability factors in the HR strategies and policies where the major shares from the concerned countries and universities are presented.

The present bibliometric analysis has shown that this approach is highly efficient in the formation of future research in GHRM. Employing quantitative techniques including citation analysis and keyword mapping, the study presents a clear understanding on the evolution of the field, the areas of focus and maybe areas of future research. As such, this approach can point out research directions for future ReRA scholars to find key interests, collaborations, and institutions that can inform the next generation of GHRM research.

In fact, the study offers both theoretical and practical implications to the scholar and the practitioner, respectively. The conclusions shall be useful for the academics, as further research of the underdeveloped topics can be commenced with reference to the presented work, including the application of circular economy concepts and a focus on the impact of digital technologies on GHRM.The paper helps understand green practices in human resource functions, focusing on corporate sustainability goals. It helps the line managers and top management make GHRM a central function for achieving sustainability goals. In addition, these findings can be a road map for the researchers to investigate the field of GHRM further.

On the other hand, practitioners can apply the insight into their HR plans to address the concept of green employment in the field, and create a more sustainable workforce by practicing green recruitment, training, appraisal, etc.

However, the study has its limitations. The study and past research work reflects that it is still in its developing stage and it will take a long way to establish. Hence, there is a need for more rigorous research on the topic which can help and pave the path to develop a better understanding of this new field and it will take a central stage in near future. It also limits itself to the Scopus database, which may omit useful experience from other sources, and quantitative methods do not reflect the richness of GHRM research. Subsequent scholarly examination might employ more flexible qualitative methods to enhance the research outcomes, as well as concern novel lines of research, inclusive of effects of artificial intelligence to GHRM or industry-specific studies, which may address distinct sustainability requirements.

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