

Systematic mapping of green human resource management: Bibliometric analysis

 Alex Sandria Jaya Wardhana ^(a)  Muafi ^{(b)*}



^(a) Magister of Management, Business and Economics Faculty, Universitas Islam Indonesia, Indonesia

^(b) Department of Management, Business and Economics Faculty, Universitas Islam Indonesia, Indonesia

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ABSTRACT

This study discusses the trend about green human resource management (GHRM) conducted by researchers in international scope. This study aims to understand: (a) the distribution and research links about GHRM in the last 5 years; (b) the level of productivity of GHRM researchers; and (c) the distribution map and international publication of GHRM research according to the keywords. The data collection is done by conducting a data search through Scopus using the keywords of 'strategic human resource management with the category, article title, abstracts, and keywords during the last five years (2016-2021). The data choice is only based on the articles that have been published and focused on the field of business, management, and accounting. The data is then exported into CSV (comma-separated values) format. The trend of the development of international publications in the GHRM field is analyzed using VosViewer software. The research results show that the development of the instrumentation field in 2016-2021 indexed by Scopus has the highest occurrence in 2020, which reached 78 publications (29.66%). The international publication of the GHRM field is mostly published by the Journal of Cleaner Production, while the most productive author in GHRM is Charbel Jose, Chiapetta Jabbour.

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Introduction

The human element is one of the most important pillars in a healthy organization. Organizations faced a number of challenges that force them to improve their practice in managing human resources. These challenges include the need to respond and adapt to changes in both internal and external work environment. HR department can influence employee individual performance, attitude, improvement, and the ability of the whole organization to achieve the desired level of quality and excellence. Therefore, developing HRM practice to overcome these challenges is an important step which should be done by considering strategic dimensions that influence work environment in the external and internal level (Asfahani, 2021). A study conducted by Hamilton & Sodeman (2019; Das & Singh, 2016; Yadiati, et al., 2019; Wagner, 2013) highlighted the role of HRD, especially in facing competition in the external environment by designing the appropriate policies, as well as their important role in achieving coherence in the organizational strategy related to Green HRM (GHRM).

Although the implementation of GHRM still becomes a debate among practitioners since companies are faced with various obstacles (Muafi & Uyun, 2021a; 2021b; Hacıoglu & Aksoy, 2021). It is realized because some companies are still faced with ambiguity

* Corresponding author. ORCID ID: 0000-0002-5078-4670

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between having to pursue profits on the one hand, but on the other hand, they are also faced with the demands and concerns of stakeholders related to the environment and social issue. Arqawi et al., 2019; Mehta & Chugan, 2015) recommended that in order for companies to successfully implement greening behavior, companies need to integrate GHRM practices into HR strategies so that later they are expected to improve business sustainability (Muafi & Uyun, 2021a; 2021b; Arqawi, et al., 2019; Yong et al., 2019). GHRM is an HR practice that includes recruitment and selection, employee orientation, training and development, staffing, performance appraisal, compensation rewards, and other HR practices that are oriented towards green environment-friendly (Arqawi et al., 2019; Mehta & Chugan, 2015; Renwick et al., 2013; Yong et al., 2019; Mandip, 2012; Arulrajah, et al., 2015). GHRM has a positive significant impact on business sustainability (Muafi & Uyun, 2021a;2021b; Alt & Spitzbeck, 2016) and employee green behavior (Fawehinmi et al., 2020; Aboramadan et al., 2020; Unsworth, 2020; Pinzone et al., 2019).

This study aims to understand: (a) the distribution and research links on GHRM during the last 10 years; (b) the level of productivity of GHRM researchers; and (c) the distribution map and international publication of GHRM research according to the keywords. This study is expected to be useful for understanding global research trends in GHRM by looking for opportunities and potentials based on bibliometric analysis.

Literature Review

Bibliometrics

Bibliometrics is a quantitative analysis in a publication that aims to ascertain a certain type of phenomenon (Van Eck and Waltman, 2018; Yulianingsih et al., 2020; Haryani et al., 2020; Rohanda & Winoto, 2019). Bibliometric analysis techniques are realized in two categories: performance analysis and science mapping (Donthu *et al.*, 2021). In essence, performance analysis contributes to the contributions of research constituencies, while science mapping focuses on the relationship between research constituencies.

Bibliometrics is effective for providing datasets that can be used by policy makers, researchers, and other stakeholders to improve the quality of research (Bayu *et al.*, 2020). The bibliometric method provides many advantages, one of which is objectivity and quantity, and helps to avoid subjective bias (Muritala, Sánchez-Rebull and Hernández-Lara, 2020). Bibliometric analysis is a study of bibliographic analysis of scientific activities, which is based on the assumption that a researcher carries out his research and must communicate the results to his colleagues. This will provide progress and development of knowledge if researchers carry out joint activities to examine specific research topics.

Bibliometrics with VOSViewer

VOSViewer software is used for the analysis because it can analyze the relationship between the most cited authors, collaboration between different authors, coordination between countries, keywords, and knowledge related to the topic (Helena, Hoppen and Filippo, 2016). VOSviewer is a software tool for creating maps based on network data as well as for visualizing and exploring these maps (Van Eck and Waltman, 2018). VOS in VOSViewer stands for Visualization of Similarities. VOSViewer software can also be used to perform data mining, mapping, and classifying articles taken from database sources (Xie *et al.*, 2020).

VOSViewer can create publication maps, country maps, or map journals based on networks (co-citation), or build keyword maps based on shared networks (Hudha *et al.*, 2020). Clusters generated by VOSViewer are automatically displayed in color on the map (Van Eck and Waltman, 2018).

Research Method

This study uses a data of international publication in the field of human resource management that is sourced from Scopus database (www.scopus.com). There are two stages in this study, namely the process of data collection and bibliometric analysis. The data collection is carried out by searching publications on Scopus using the keyword of green human resource management with the categories of article title, abstract, and keywords during the period of 2016-2021. From this search, 2,267 documents were obtained, as presented in Figure 1.

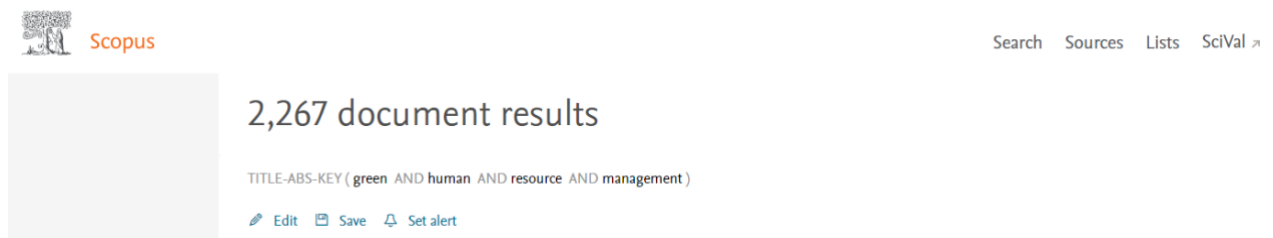


Figure 1: Process of Document Search using the Keyword GHRM'

This result is then filtered using several settings which include the selected document are only published articles, the field area is only selected for business, management, and accounting, and the time range is from 2016-2021. The final document obtained that will be used as the basis for the data analysis is presented in Figure 5.

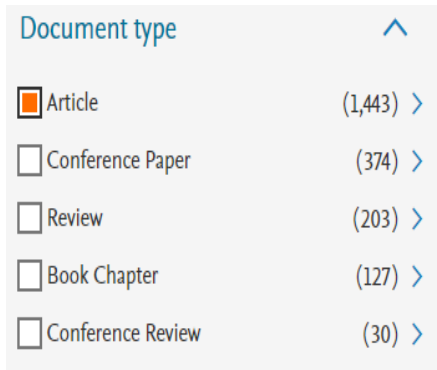


Figure 2: Document Type Filtering

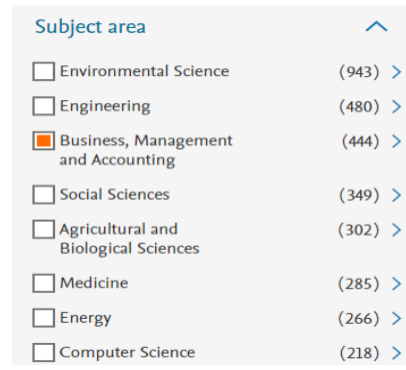


Figure 3: Subject Area Filtering

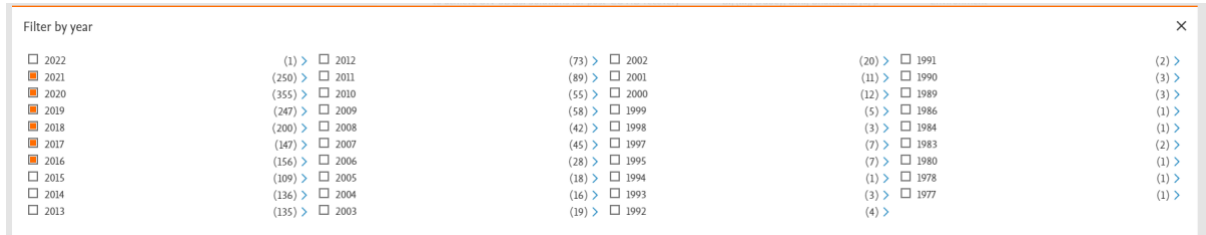


Figure 4: Publication Time Range Filtering



Figure 5: Final Results of Document Search

The data are in the form of number of publications per year, journals containing articles in the field of GHRM, authors, origin of authors, and subjects downloaded from Scopus in CSV format. The bibliometric analysis is carried out using VOSViewer software. The metadata is taken from Scopus, which has been obtained previously (exported in CSV format), and then processed using VOSViewer software. In VOSViewer, create map is done by choosing based on “bibliographic data” with the type of analysis of “co-occurrent”, and unit of analysis based on the keywords using full counting in the counting method.

Results

Analysis of Publication about Green HRM

The development of the growth of GHRM research field in 2016-2021 has experienced a significant increase. The highest growth rate of publications in the field of Green HRM indexed by Scopus occurred in 2020, reaching 78 publications (29,66%). The detailed number of international publications in GHRM field from year to year is presented in Figure 6.

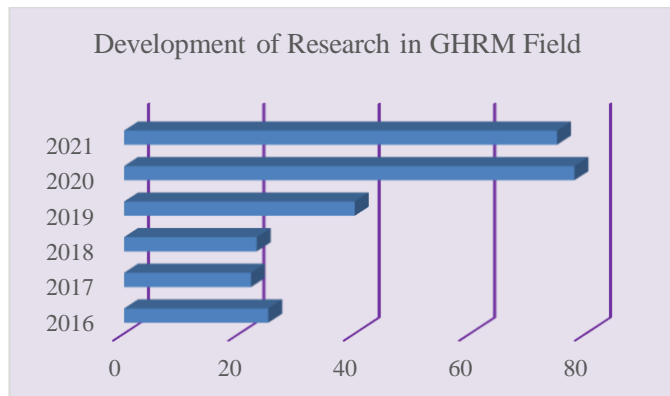


Figure 6: Number of Article Publication on GHRM in 2016-2021

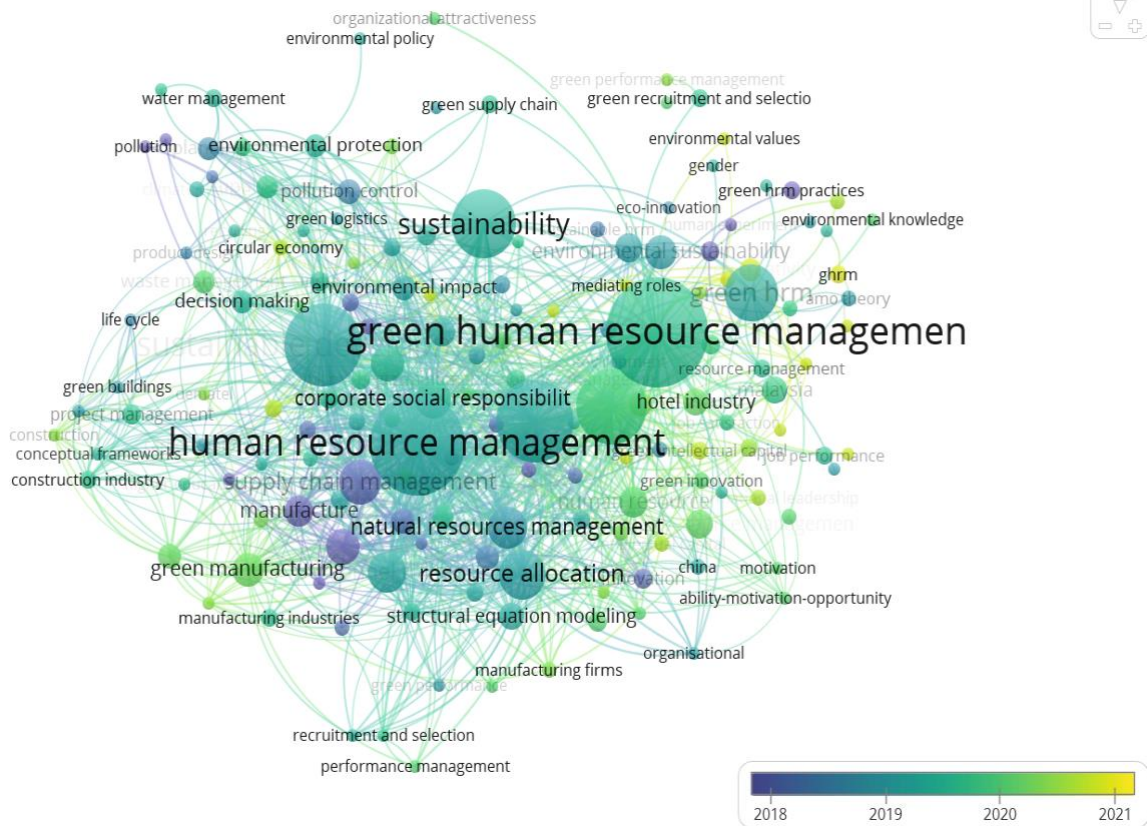


Figure 8: Overlay Visualization

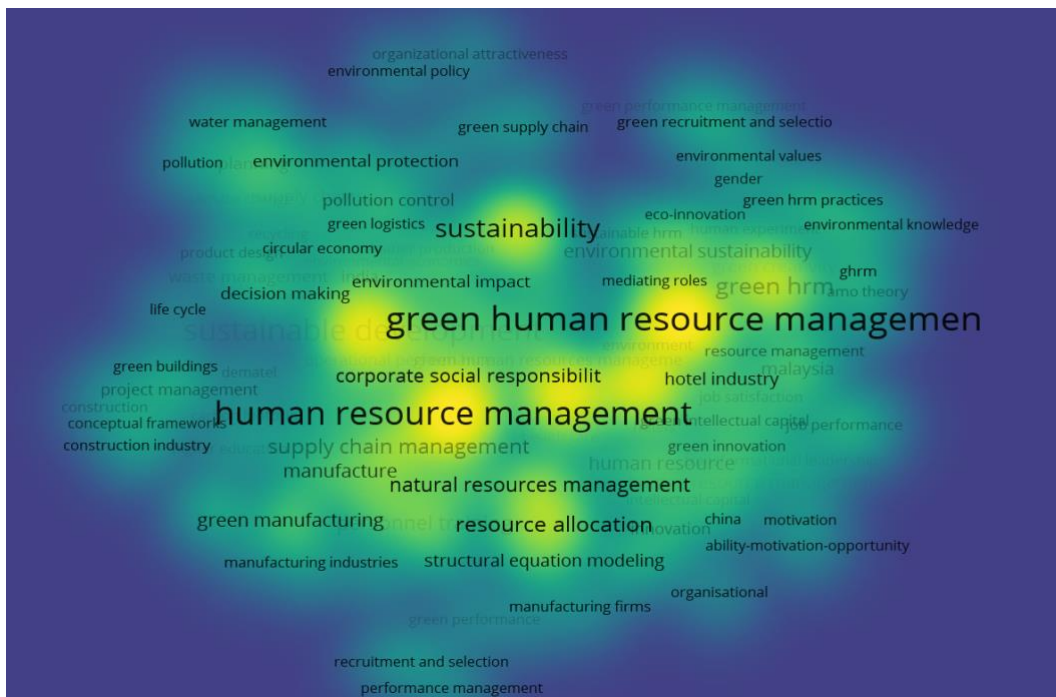


Figure 9: Density Visualization

Based on the Scopus data visualized through bibliometric analysis in Figure 7, it can be seen that there are many variables that are close to GHRM and have a fairly large circle symbol. This indicates that there are many studies that discuss the influence or relationship of these variables with GHRM. Based on the results of bibliometric analysis, there are five major topics that are close to GHRM, namely human resource management, environmental management, sustainable development, environmental performance, and sustainability.

Figure 8 shows the relationship between GHRM with the variables or words that are mostly used by researchers when creating research related to GHRM. In contrast to Figure 7, this data is based on the year of the study, in which the light colour (yellow) represents the younger year, while the darker colour (green) represents the older year. It can be seen from the picture that the most discussed words or variables in relation to GHRM include green intellectual capital, circular economy, mediating roles, green creativity, and pro-environmental behavior.

Regarding the density analysis, in cluster density visualization, the color of a point in the visualization is obtained by mixing colors from different clusters (Van Eck & Waltman, 2018). Figure 9 explains the most frequently used words in research on GHRM, which is shown in yellow color. From this picture, it can be known that several variables that are often discussed in research on GHRM are sustainable development, environmental management, resource allocation, sustainability, green creativity, and et cetera.

Trend Terms Analysis of Author and Keywords

The search results identified that there are 153 keywords from authors with two events. Terms regarding GHRM, environmental performance, and sustainability are the three words that is most often used by the authors. The trend of these keywords can be seen in Figure 10.

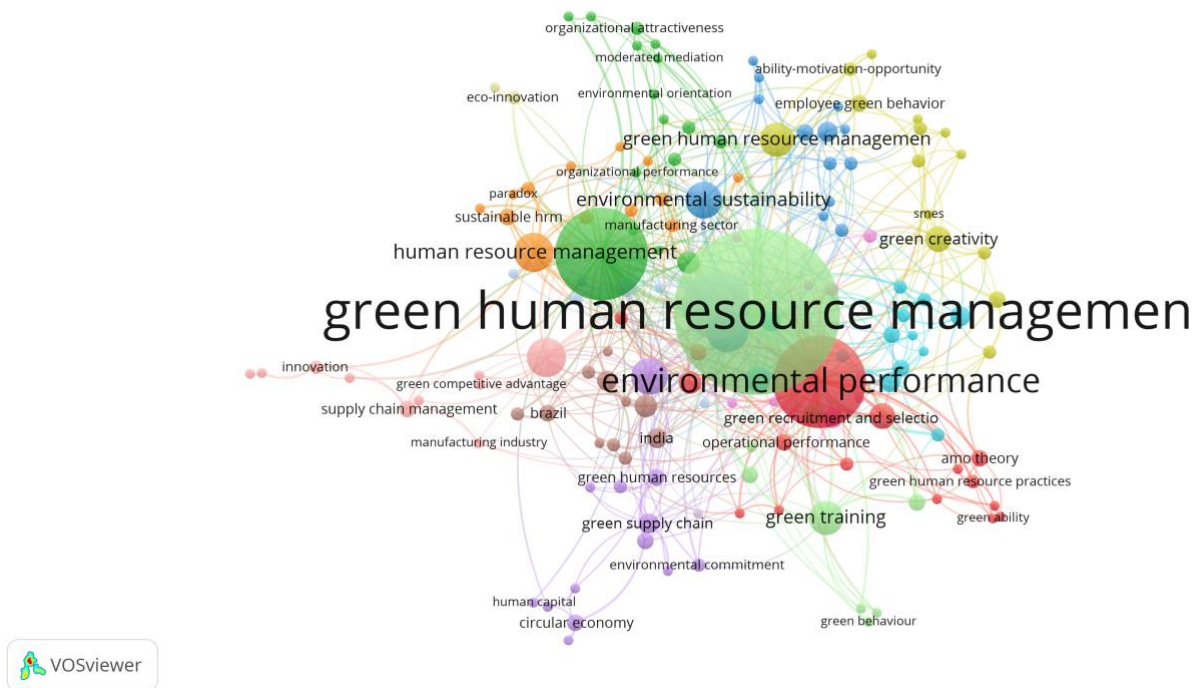


Figure 10: Visualization of Keywords Distribution of GHRM

Analysis of Author and Number of Research

This study also discusses about the development of publication which are the result of the collaboration of the authors. For this research, the data filter is limited into two, or in other words, the authors who will appear in this analysis are only authors who collaborate with each other with at least two documents.

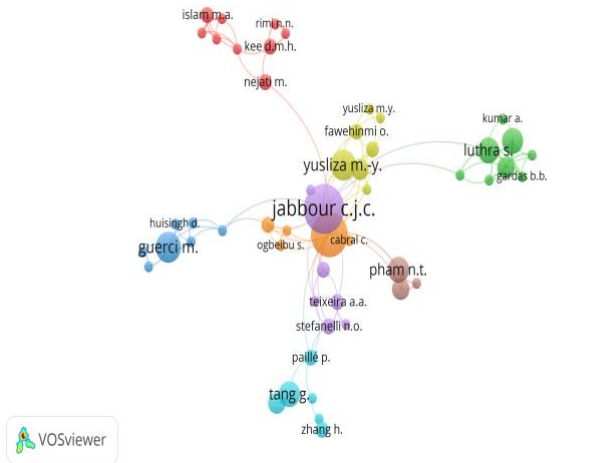


Figure 11: Co-Authorship Map of Publication of GHRM Field

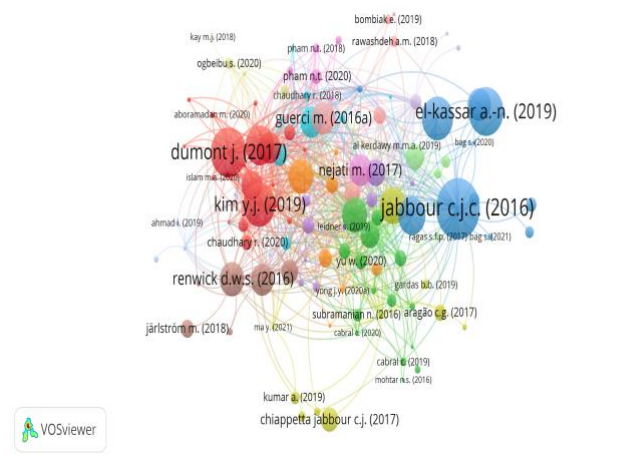


Figure 12: Publication (1 paper) by Author that are mostly cited

Figure 11 indicates that based on co-authorship, research on GHRM is divided into 14 clusters. The most collaboration is in cluster 1 (red color) and cluster 2 (green color). Based on this analysis, it can be known that the authors who produced the most works are Jabbour, C.J.C. with 19 papers, Yusliza, M.Y. with 6 articles, and Guerci, M. with 6 papers. In addition, this study also analyzes the number of citations from all papers related to GHRM. It can be seen that the paper from Jabbour get the highest total citations with 1,125 citations. Furthermore, in Figure 12, it can be seen that the title of the most cited paper related to GHRM.

The most cited paper by other researchers on GHRM is the work from Jabbour and Jabbour (2016) entitled ‘Green Human Resource Management and Green Supply Chain Management: Linking Two Emerging Agendas’ with 241 citations. Broadly speaking, this study aims to propose a synergistic and integrative framework for the relationship between GHRM and Green Supply Chain Management (GSCM), so as to help improve the company’s sustainable performance.

The second paper is about the effect of GHRM practices on employee green behavior in the workplace, which is written by Dumont, Shen & Deng (2017) with 187 citations. This study empirically examines green HRM that has been conceptualized to influence employees’ green workplace behavior. This study begins by developing measures for green HRM, and then draws on the behavioral HRM and psychological climate literature along with supplies-values fit theory. It aims to examine a conceptual model that integrates the effect of psychological green climate and individual green values.

The third most cited paper is the paper written by El-Kassar & Singh (2019) with 180 citations. This study is motivated by the importance of companies to identify practices that can improve their competitive advantage as well as their economic and environmental performance. In this study, the author develops and test a holistic model that describes and examines the relationship between green innovations, their drivers, and the factors that help overcome technological challenges and influence firms’ performance and competitive advantage.

Analysis of Country Statistics with GHRM Publications

The largest number of contributors in the study on GHRM that are indexed by Scopus are Malaysia, followed by China, United Kingdom, India, and France. the results of the analysis is presented in Table 2 and Figure 13.

Table 2: Country that Produced Publication in GHRM Field (2016-2021)

Country	Number of Paper on GHRM
Malaysia	43
China	41
United Kingdom	38
India	35
France	30

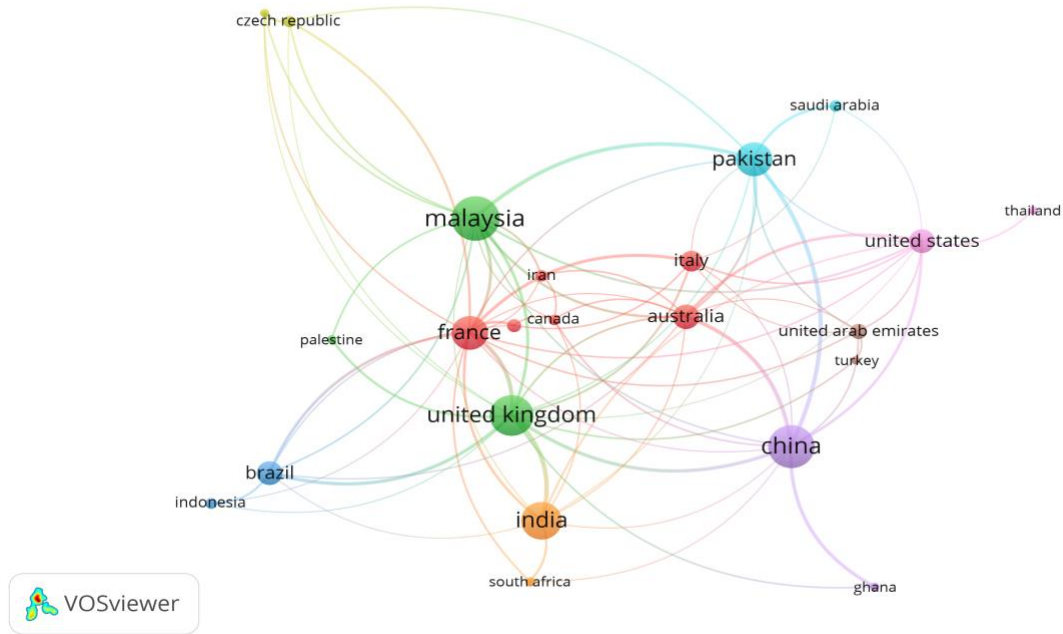


Figure 13: Distribution of Countries that Publish Research on GHRM

Conclusion

Based on the analysis and results, it can be concluded that the highest growth development of the GHRM sector during the last 10 years (2016-2021) that is indexed by Scopus occurred in 2019, which reached 78 publications (29.66%). The most international publications in the GHRM field are published by the *Journal of Cleaner Production* with 58 papers.

In the context/theme of GHRM, Malaysia is the country with the most contributors. The most prolific writers in the field of GHRM are Jabbour, C.J.C., Yusliza, M.Y., and Guerci, M. The development of the GHRM field based on keywords is grouped into 7 clusters, and the co-authors are grouped into 6 clusters. Based on the bibliometric analysis that has been carried out, there are several suggestions from the authors regarding them that are rarely written about GHRM, including GHRM with green creativity, GHRM with information management, GHRM with retention, GHRM with innovation, and GHRM with green supply chain management. Some of these keywords/variables are still rarely studied, and in the analysis, it is marked by a small circle symbol with far distance to GHRM. According to the latest trend, there are several things that can be considered about GHRM, namely competition, green creativity, green intellectual capital, waste management, and environmental performance.

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Institutional Review Board Statement: Ethical review and approval were waived for this study, due to that the research does not deal with vulnerable groups or sensitive issues.

Data Availability Statement: The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy.

Conflicts of Interest: The author declares no conflict of interest.

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