

# Green Human Resource Management (GHRM) A Systematic Literature Review from 2011 to 2024

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## ABSTRACT

**Introduction:** The United Nation's report, 'Our Common Future' contributed to underline the crucial role of human resource management in strategically greening the organization and, in turn the economies and society at large. Green Human Resource Management (GHRM) was born out of this awareness. In the last ten years, the field of conceptual and empirical works on Green Human Resource Management (GHRM) has grown, both inside and outside the larger sustainable human resource management (HRM) topic. Therefore, now is a good time to give a summary of the research on green human resource management that has been conducted up until 2024 and to critically examine the direction that GHRM is taking.

**Objectives:** This paper's goal is to analyze the representation of the field in GHRM research, taking into account various factors such as year, national context, research methods, dimensions of triple bottom line covered and technology integration and consequently, determine the areas that still necessitate further research.

**Methods:** The review process adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Protocol 2020 in order to identify highly qualified and GHRM-focused articles that have been published in English from the Scopus and Web of Science Core Collection databases. The articles must have reached the final stage of publication by the end of May 2024.

**Results:** The results reveal the increasing interest, diversification and tendencies of GHRM research and highlight the disequilibrium of research in terms of the dimensions of sustainability studied. Based on the results, evidence-based recommendations were provided for both practitioners and researchers regarding the context and trend, as well as the methodology for GHRM development.

**Conclusions:** Research on Green Human Resource Management (GHRM) has shown an upward trend, peaking in 2020, with a concentration of studies based in emerging countries and a need for broader geographical representation, including underexplored continents like Oceania and Africa. Widely studied practices include green training, performance appraisal, and recruitment, while areas such as employee involvement, green innovation, and health and safety remain under-researched; Additionally, the dominance of quantitative methods presents opportunities for qualitative and mixed-method research. Technological integration in GHRM studies and the exploration of economic and social sustainability, beyond the heavily examined environmental aspect, remain significant gaps for future research.

**Keywords:** Green human resource management (GHRM); PRISMA 2020; systematic literature review; sustainability; future research agenda

## INTRODUCTION

Sustainability is becoming more and more important as organizations keep evolving and technology advances quickly. The growing awareness of environmental issues is what is causing this change (Rubel et al. 2021). When "sustainability" was first coined, it exclusively applied to the ecological pillar, and environmental issues dominated the conversations. To address the conflicts between environmental goals and development objectives, the World

Commission on Environment and Development (WCED) published "Our Common Future," also known as the Brundtland report, in 1987. The issue of sustainability became a mainstream topic soon after the report was published. In this report, the concept of sustainability was developed, which is 'a development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs' (World Commission on Environment and Development, 1987). The triple bottom line (TBL) concept was introduced later in 1994 by an American scholar named Elkington to describe the three main sustainability pillars, which is the social, environmental, and economic dimensions. The concept of sustainability is continuously gaining enormous traction in all countries, developed or developing, due to the detrimental effects of global issues like climate change, environmental degradation, discrimination, and inequality, as well as the need to implement the 2030 Agenda for Sustainable Development, which was endorsed by all United Nations member states in 2015. In the agenda, it is stated that organizations can effectively address the environmental, social, and economic challenges they face by incorporating sustainability into their regular work processes (Calabrese et al. 2019).

Numerous organizations have joined this crucial sustainability movement (Pucker, 2021), with over 69 percent of businesses globally aligning their activities with the Sustainable Development Goals (SDGs) set by the United Nations (KPMG, 2020). Thus, the increasing global demand to meet the sustainable development goals has led to the adoption of practices, the production of goods, and the provision of services that result in less waste, less energy consumption, resource conservation, and less harm to the environment and human lives (Ma et al. 2020; Agyabeng-Mensah and associates. 2020). Scholars have begun focusing on how human resource management (HRM) practices are important for supporting organizational sustainability because they can affect a company's relationship with its external environment in terms of its organization's effect on society and ecology (Guerici and Carollo, 2016; Roscoe, Subramanian, Jabbour, & Chong, 2019). Several parts of research have proposed strategies for organizations focused on sustainability, like green human resource management (GHRM) techniques (Pham et al. 2020; Chreif & associates. 2022).

GHRM procedures can redirect the HR department to focus on sustainability, where businesses view their workforce as a long-term investment and abandon shareholder supremacy and profit maximization (Jerónimo et al. 2020). Indeed, "GHRM encompasses all the procedures that contribute to the economic, environmental, and social (the latter pertaining to employee safety, health, fairness, and well-being) sustainability aspects of an organization from the perspective of its employees, in accordance with the corporate sustainability standards" (Benevene & Buonomo, 2020, p. 2). This prompts various research avenues to propose not only the GHRM practices but also additional organizational strategies that prioritize sustainability (Chreif et al., 2022; Pham and colleagues, 2020; Rubel & Associates, 2021). As a result, the number of research on Green HRM has increased drastically.

## **OBJECTIVES**

The literature analyzing the effects of GHRM practices on the performance of organizations and employees emphasizes the crucial role that environmentally-conscious human resource practices play in influencing individual and organizational outcomes (Faisal 2023). According to scholars like Ren et al. (2018), GHRM practices have a significant impact on employee attitudes and behaviors related to environmental sustainability, promoting a sense of ecological responsibility among the workforce (Ren et al. 2018). Moreover, studies conducted by Albloush et al. (2022) indicate a noteworthy link between GHRM, organizational performance, and human capital development, illustrating that the incorporation of sustainability into human resource strategies can improve an organization's environmental position (Albloush et al. 2022). These results are consistent with findings from other research, such as those by Baykal et al. (2023) and Shafaei et al. (2020), which underscore the positive influence of GHRM on employee job satisfaction and dedication to environmentally-friendly initiatives. Nevertheless, prior works have yet to pursue solutions to address tensions & paradoxes that are inevitably embedded in seeking simultaneous performances in economic, social & environmental domains (Ehnert, 2014; Poon & Law, 2020). Notably, from the economic, social and environmental stances, taking only one aspect is not considered as the real sustainability of an organization (Purvis et al., 2019). A comprehensive analysis of the GHRM implications for sustainability practices as a whole is lacking in the literature (Muhammad, 2019).

Moreover, although the concept of green human resource management is gaining traction, the green movement and green human resource management are still in their early stages of development (Ahmad, 2015; Alqudah et al., 2021;

Al Mamun, 2019; Bhalla & Mehta, 2016; Bhutto & Auranzeb, 2016; Deshwal, 2015; Kapil, 2015; Khan & Muktar, 2021; Shaaban, 2019). Green human resource management is still a ground-breaking and vaguely defined concept, and its practical applications face certain challenges (Shaaban, 2019). Previous research has established that there are still unresolved issues and significant progress to be made in the field of GHRM, despite some eye-opening advancements over the past few decades. It is evident that GHRM is still in its infancy and that it offers opportunities for further research and development (Yong et al., 2019). According to Alqudah et al. (2021), the main reason for the slow progress of green human resource management is the lack of documented evidence supporting its practices and functions. The field of GHRM currently lacks comprehensive literature reviews that thoroughly investigate and analyze the growing body of research in this area.

The focus areas for identifying the relationship between the disciplines vary greatly, despite the increased attention being paid to research on GHRM. Therefore, creating a comprehensive understanding of this structure and providing a summary of the body of current GHRM research is required. There are currently too few thorough literature reviews in the field that have looked into and evaluated the growing corpus of research in GHRM. Therefore, a thorough and expanded literature review on green human resource management must be created. As a result, this paper offers a thorough understanding of the analysis of GHRM toward organizational sustainability research that has been published in prestigious academic journals. This paper's goal is to analyze the representation of the field in GHRM research, taking into account various factors such as year, national context, research methods, dimensions of triple bottom line covered and technology integration and consequently, determine the areas that still necessitate further research. The study specifically responds to the following research questions:

RQ1: What is the volume and growth trajectory of the literature on GHRM?

RQ2: What is the highly analyzed dimension of sustainability in GHRM studies?

RQ3: Which methodological approach can be appropriate to advance the study of the relationship between GHRM and organizational sustainability?

RQ4: What is the volume and development of technology integration aligned with GHRM practices towards organizational sustainability?

## **METHODS**

To address the questions and achieve the objectives of this research, a methodological approach known as systematic review, as introduced by PRISMA 2020, is implemented in this study. The investigation of this systematic literature review is conducted and guided by the PRISMA 2020 checklist, along with the flow diagram (Page et al., 2021), encompassing three distinct stages: identification, screening, and inclusion. The eligibility criteria were established to encompass empirical studies that were published in peer-reviewed full-length articles from 2011 to 2024 (a span of fourteen years), specifically those written in the English language. The chosen time-frame for the publication selection was based on the recognition of an upward trajectory of interest in GHRM papers from 2011 to 2024. The period of literary research ended in May 2024.

### **A. PRISMA**

The review was guided by the PRISMA Statement (Preferred Reporting Items for Systematic reviews and Meta-Analyses). PRISMA is often utilized within the environmental management field. According to Sierra-Correa and Cantera Kintz (2015), it offers three unique advantages as follows:

- i. Defining clear research questions that permit systematic research,
- ii. It identifies inclusion and exclusion criteria and
- iii. It attempts to examine a large database of scientific literature in a defined time. The PRISMA Statement allows for a rigorous search of terms related to Green Human Resource Management (GHRM) in the chosen time.

### **B. Resources**

This research aims to find out the empirical studies that have been carried out with valid results in the GHRM research area. Thus, the review relied on two main journal databases, Scopus and Web of Science (WoS). WoS is a robust database consisting of >33,000 journals with a coverage of over 256 disciplines including subjects related to environmental studies, interdisciplinary social sciences, social issues and development and planning. It includes over 100 years of comprehensive back file and citation data, established by Clarivate Analytics and it ranks them by three separate measures: citations, papers, and citations per-paper. Scopus is the second database used in the review. It is one of the largest abstract and citation databases of peer-reviewed literature with >22,800 journals from 5000 publishers worldwide. Scopus consists of diverse subject areas such as environmental sciences, social science and agriculture and biological sciences.

### C. Systematic review process

#### IDENTIFICATION

Four stages were involved in the systematic review process. The first phase identified the keywords used for the search process. Relying on previous studies and the thesaurus, similar keywords and words related to Green Human Resource Management (Table 1) were highlighted. Duplicated articles were removed at this stage, after careful screening.

Table 1: Keywords and searching information strategy

Databases	Keywords used
Scopus	TITLE-ABS-KEY = ("green hr*" OR "green human resource*" OR "green attract*" OR "green recruit*" OR "green select*" OR "green train*" OR "green performance manag*" OR "green performance apprais*" OR "green pay*" OR "green compensat*" OR "green reward" OR "green employee*")
Web of Science	TS = ("green hr*" OR "green human resource*" OR "green attract*" OR "green recruit*" OR "green select*" OR "green train*" OR "green performance manag*" OR "green performance apprais*" OR "green pay*" OR "green compensat*" OR "green reward" OR "green employee*")

The detailed information of the articles extracted from the databases was exported to MS Excel for the initial round of selection. Then, articles that appeared in both databases were collected, and duplication was excluded, leaving 338 articles at this stage.

#### SCREENING

Several eligibility and exclusion criteria are determined. First of all, with regard to literature type, only article journals with empirical data are selected, which means review article, book series, book, chapter in book and conference proceeding are all excluded. Secondly, in order to avoid any confusion and difficulty in translating, the searching efforts excluded the non-English publication and focused only on articles published in English. Thirdly, with regard to timeline, a period of 14 years was selected (between 2011 and 2024), an adequate period of time to see the evolution of research and related publications. Fourth, to ensure the quality of the inclusion, articles published in journals that were not ranked Q1 or Q2 in both databases were excluded. Fifth, following the research questions, only the articles that have studied sustainability or other terms that symbolize sustainability as the dependent variable were selected.

Table 2: The inclusion and exclusion criteria

Criterion	Eligibility	Exclusion
Literature type	Journal (research articles)	Journals (systematic review), book series, book, chapter in book, conference proceeding
Language	English	Non-English
Time line	Between 2011-2024	<2011

Dependent Variable	Sustainability / Corporate sustainability / Sustainable performance / Organizational performance / triple bottom line of sustainability	Non-sustainability focused studies
Indexes	Social Science Citation Index, Emerging Sources Citation Index, Art and Humanities Index (Web of Science)	Science Citation Indexed Expanded

## INCLUDED

After applying the inclusive and exclusive criteria (Figure 1), 89 papers were determined as eligible and were included for review (see Table 1 for a description of study characteristics for GHRM research).

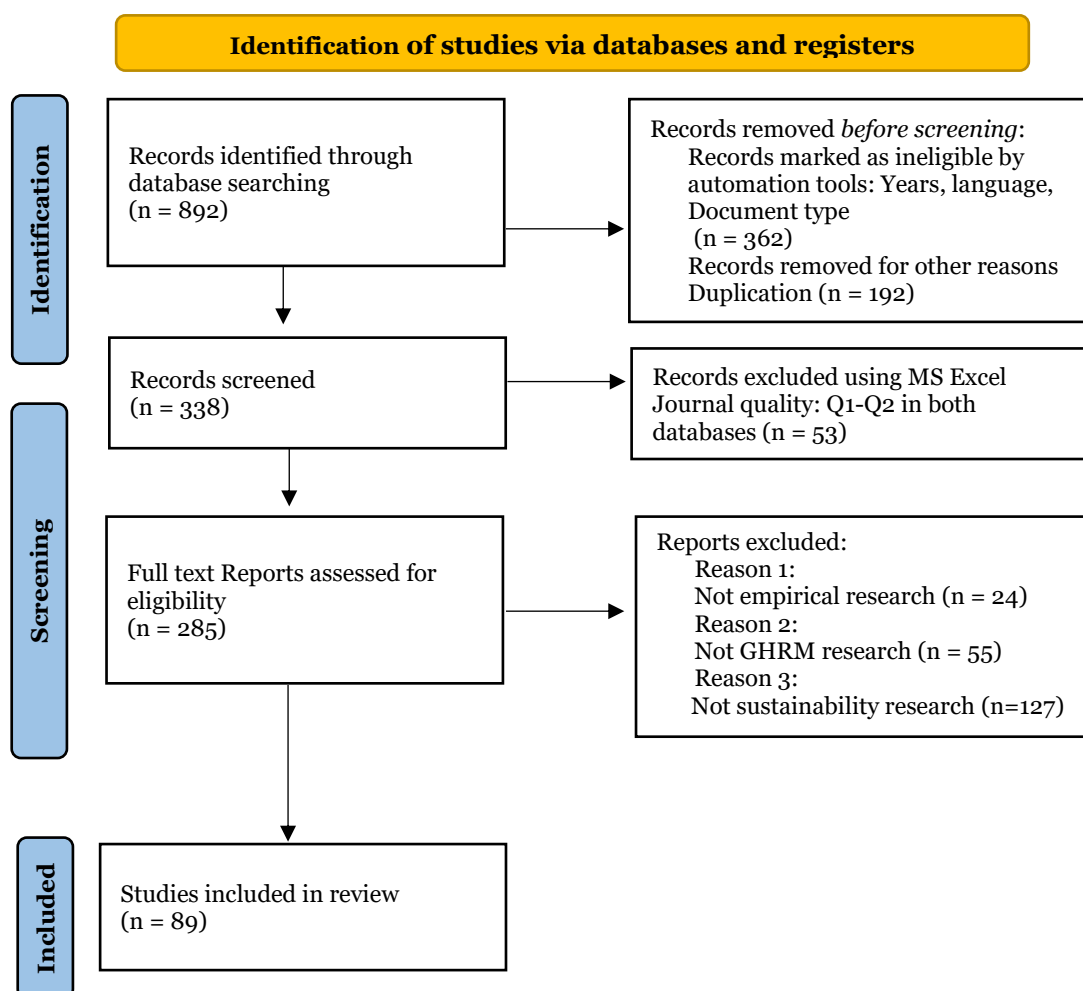


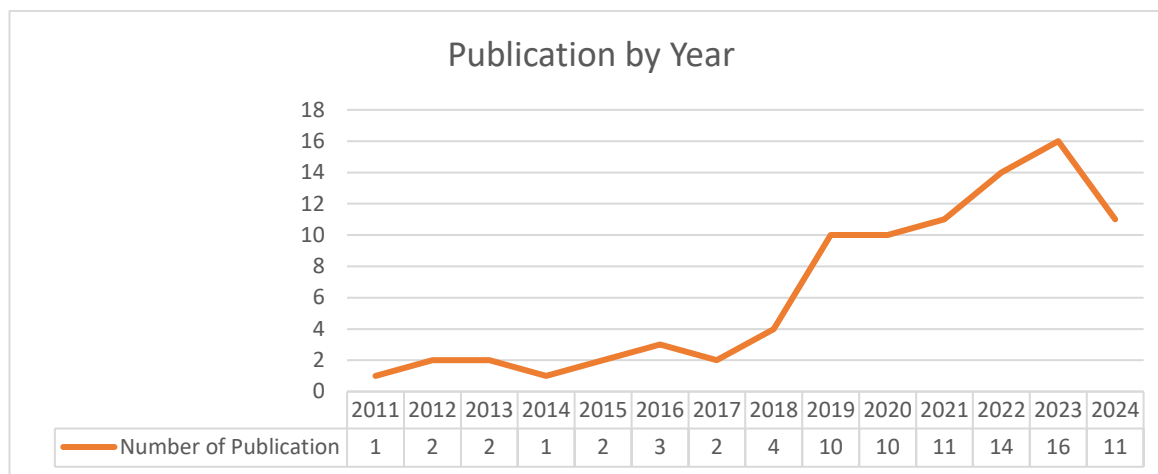
Figure 1. Study selection workflow

## RESULTS

Following the PRISMA protocol, the empirical GHRM research published with high quality was rearranged for further analysis.

### A. Years of publication

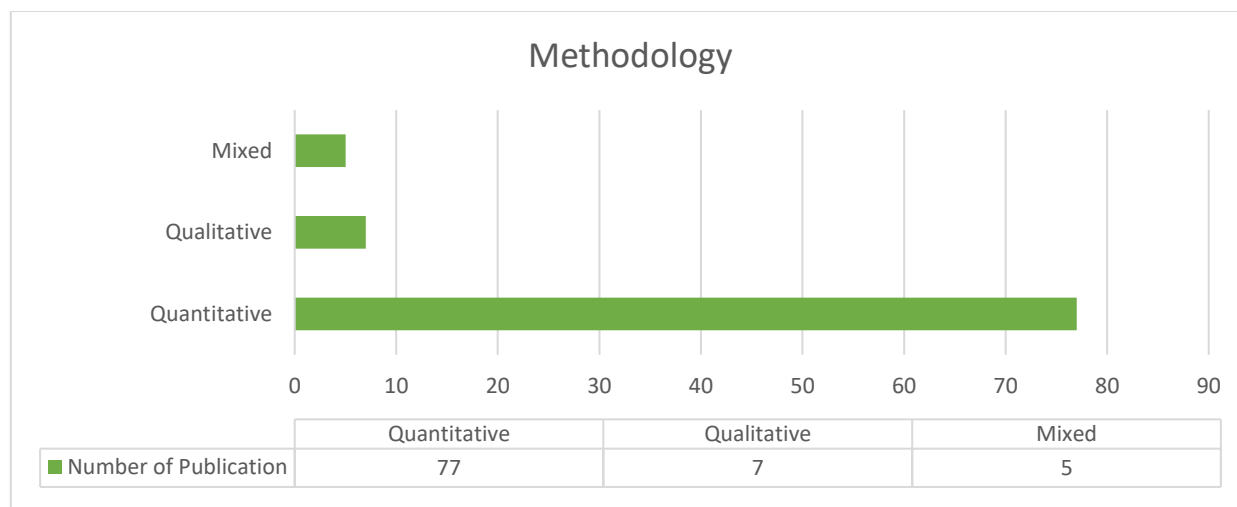
Figure 2 Number of empirical GHRM research publication



A review of 89 articles on GHRM for a period of 14 years (2011 to 2024), revealed a skyward trend citing the relevance of further research in this field as represented in Fig. 2. The required articles included empirical papers of worldwide research on “Green human resource management” and “sustainability”. The years from 2011 to 2017 do not show significant work on the studies of green human resource management (GHRM) and sustainability (13 papers or 15%). It could be because, the concept of Green HRM was new and the industry was more attracted toward electronic HRM and the infusion of technology in HRM. Nevertheless, somehow it still shows that there is an intention of the world population to pursue environmental protection and to raise concern for future generation requirements. Consequently, year 2018 onward depicts the development of GHRM as an inevitable field of research towards sustainability with (76 papers or 85%). Although the increasing rate seems slow in the year 2020 and 2021, which can be explained as COVID-19 delayed field research (Filho et al., 2021), the temporal evolution of GHRM research volume demonstrates its increasing importance. The first empirical study focusing on GHRM towards sustainability within the present screening results was published on 2011. A significant increase after the year (2017) is revealed, with (2023) ( $n = 16$ ) having the highest volume of publications in a publication year which has also been reported in recent review papers (Nguyen and Kanbach, 2023).

## B. Studies by methodologies

Figure 3 Distribution of research method by publication years.



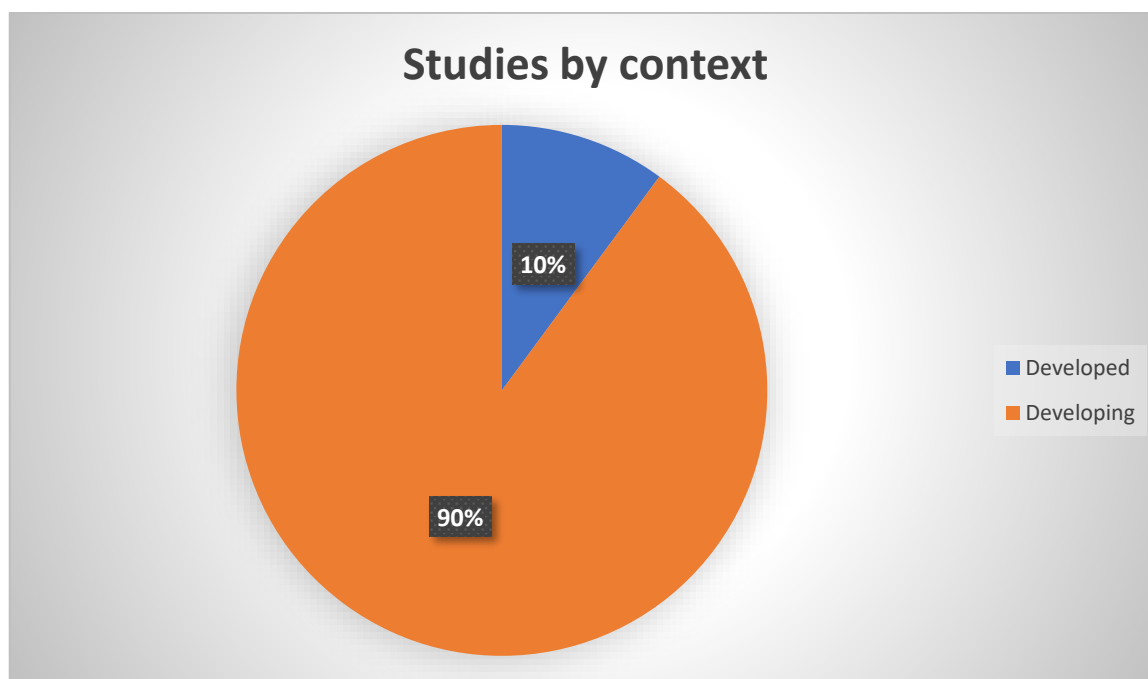


Regarding the methods adopted by GHRM research, articles are classified into three categories, namely the quantitative method, qualitative method and mixed-method. Based on the nature of the studies considered under this systematic review, as can be understood in Figure 3, a majority of the empirical studies, comprising more than half (87%), adopted a quantitative approach for their research with a total of 77 out of 89 studies and survey was the most popular quantitative method. In contrast, 8% of the studies employed the qualitative method, with 7 empirical studies and 6% of the studies utilizing the mixed approach with 5 studies. It is conclusive that there is a huge imbalance between the methodological approaches used to undertake the studies, other than the fact that the quantitative approach has become the preferred methodological approach for the researchers compared to other two methods. Almost all the researchers suggested that future researchers employ either the qualitative or mixed method approach for their studies.

### C. Studies by context

The present study categorized the reviewed literature into two national categories: “Developed Country” and “Developing Country”. The analysis showed that most articles were dedicated to the understanding of a specific national context, especially in developing countries with a total of 80 out of 89 articles or 90%. Surprisingly, only 9 studies were conducted in developed countries. This is against the findings of prior scholars (Singh et al., 2020; Yacob et al., 2019) who identified that extensive research that has been conducted on sustainability mainly focused on organizations in developed countries and there is limited research on sustainability in developing countries. As for the continental context of the reviewed empirical studies, 66 out of 89 studies were conducted in a single continent, which is Asia (74.0%). This is followed by Africa (9 studies), Europe (8 studies), South America (5 studies) and North America (1 study). In the Asian countries, Pakistan stands out as the most productive country by far, accounting for 20 articles.

Figure 4 Studies by context

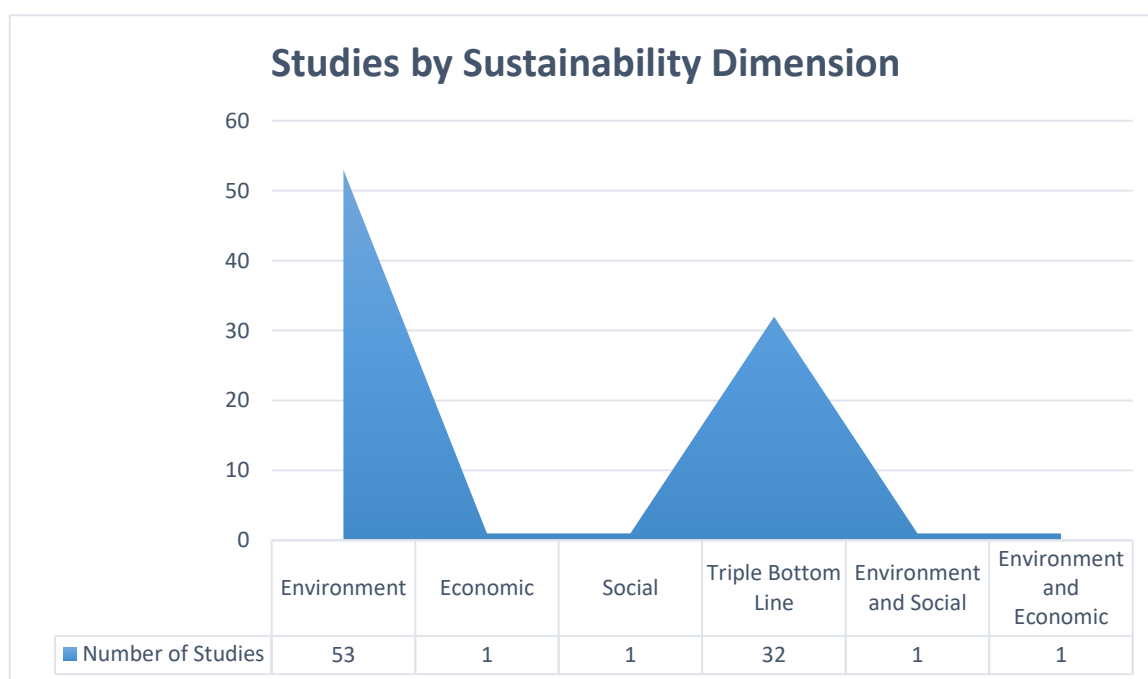


#### D. Studies by dimension of sustainability

The next section was categorised according to the studies by different dimensions of sustainability. Originally, the term "sustainability" only referred to the ecological pillar, and discussions were dominated by environmental concerns. Later, in 1994, an American scholar, Elkington proposed the triple bottom line (TBL) concept to characterize the three primary sustainability pillars known as the social, environmental, and economic dimensions. There is an argument stated by prior scholars such as Ehnert, 2014; Muhammad, 2019; Poon & Law, 2020 stating that prior works remain largely silent on finding the solutions to address tensions & paradoxes that are inevitably embedded in seeking for simultaneous performances in economic, social & environmental domains. This is due to the fact that the studies were focused on the environmental dimension and they had neglected the economic and social dimensions.

This section analyzes and categorizes the studies done by scholars to identify the relationship between green human resource management and three dimensions of sustainability. Out of 89 studies, major studies (53 studies) identified the relationship between green human resource management and environmental sustainability. Nevertheless, researchers also analyze the significance of green human resource management on the triple bottom line of sustainability as a whole. This can be proven by 32 studies conducted by prior scholars in the past 14 years. Unfortunately, studies on other dimensions remain very low, which are 1 study for economic sustainability, 1 study for social sustainability, 1 study for the combination of environmental and social dimension and 1 study for the combination of environmental and economic dimension.

Figure 5 Studies done according to sustainability dimension



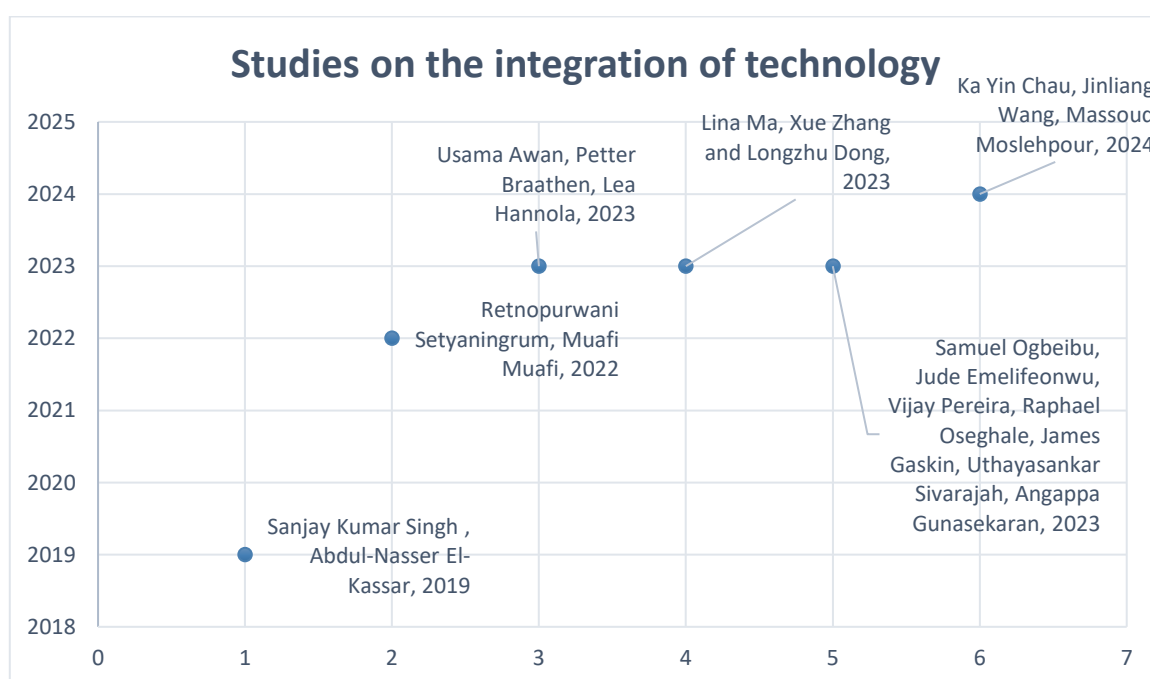
#### E. Studies on the integration of technology on GHRM

The integration of technology plays a crucial role in enhancing organizational sustainability by improving efficiency, reducing costs, and increasing competitiveness. Technology enables organizations to streamline processes, automate



tasks, and make data-driven decisions, leading to improved performance and long-term viability. The alignment of technological development with green human resource management is expected to retain organizational sustainability in the long run. The current study identified that out of 89 articles, only 6 studies or 7% along the years had integrated technological development in their research of exploring the relationship between green human resource management and sustainability. For example, a study done by (Singh and Nasser, 2019) on the role of big data analytics in developing sustainable capabilities found that the integration of big data technologies along with green HRM practices influences firms' economic and environmental performance. Other than that, (Ogbeibu et al., 2023) utilized smart technology, artificial intelligence, robotics and algorithms capability along with the green human resource management in ensuring environmental sustainability in manufacturing industries.

Figure 6 Studies on the integration of technology



## DISCUSSION

The purpose of this study is to address research gaps based on the existing literature in the GHRM field and to guide the future research agenda. A systematic literature review has been conducted to highlight the following research questions:

RQ1: What is the volume and growth trajectory of the literature on GHRM?

RQ2: What is the highly analyzed dimension of sustainability in GHRM studies?

RQ3: Which methodological approach can be appropriate to advance the study of the relationship between GHRM and organizational sustainability?

RQ4: What is the volume and development of technology integration aligned with GHRM practices toward organizational sustainability?

The analysis of the first category indicates that the research on GHRM has been gradually increasing from the year 2011 to 2024. This proves that scholars have directed their attention toward the examination of the importance of human resource management (HRM) practices in relation to the facilitation of organizational sustainability (Guerci

& Carollo, 2016; Roscoe, Subramanian, Jabbour, & Chong, 2019). The second analysis, on the research methodologies indicates that scholars have utilized various research methods and techniques in their studies. The analysis proves that; quantitative methods have been commonly selected by researchers in their studies. Nevertheless, there is a drastically lack of publications utilizing qualitative and mixed methods. In order to achieve a comprehensive understanding of GHRM applicability in organizations, further studies should focus more on qualitative and mixed methods. This has been agreed by previous scholars (Pham et al., 2019). The third analysis shows that the GHRM and sustainability explorations were largely conducted in developing countries, especially in Asian countries. This finding opposes the statement by a renowned scholar, Renwick et al., 2013, who stated that 'the Green HRM literature is largely a Western one'. This limitation provides enormous opportunities for future researchers to conduct GHRM practice investigations in a wider variety of geographic contexts. Scholars could also apply the same frameworks in unexplored contexts or conduct cross-nation studies. For instance, in the current study, there was no single study reviewed from Australia (Oceania) or Antarctica regarding the significance of GHRM on organizational sustainability.

The fourth analysis shows that the integration of technology in analysing the relationship between GHRM practices and organizational sustainability seems understudied in literature. Future studies should infuse technological advancements such as smart technology, artificial intelligence, robotics, algorithms capability, big data analytics aligned with GHRM practices in sustaining organizational sustainability. Lastly, the fifth analysis proves that the sustainability dimension that has been widely researched and tackled in literature is environmental sustainability. Other sustainability dimensions such as economic and social have been under-explored by scholars. This may be the push for future scholars to explore into these two dimensions and provide a clear understanding on GHRM effectiveness toward organizational sustainability.

### **CONCLUSION AND LIMITATION**

Organizational sustainability has been found to be significantly influenced by GHRM practices; nevertheless, a thorough and systematic review of the literature has not been conducted. To this end, a systematic literature review (SLR) analysis of articles from the Web of Science and Scopus databases was carried out in this study. In addition to offering new perspectives for understanding significant advancements in the field, the study offers guidance for future research endeavors. Summarizing the major findings of the study, this review concludes that;

- a. Research works on GHRM show a chronological trend with upward growth, with most papers published on 2020, and
- b. A geographical trend has been forming, with most papers published with data from emerging countries compared to developed countries. There are more prospects and opportunities for countries from other continents such as Oceania, South America, North America, Africa as well as Antarctica to delve into this evolving field of study.
- c. The GHRM practices that have been widely researched and tackled are, green training and development; green performance management and appraisal; green recruitment and selection. Other GHRM practices such as employee involvement and empowerment, green work engagement, green innovation as well as green health and safety have been less explored by scholars.
- d. Most studies utilized the quantitative approach, left far behind the qualitative as well as the mixed method. This allows future scholars to explore into these two methodological approaches and provide a clear understanding on GHRM effectiveness.
- e. The integration of technology in analysing the relationship between GHRM practices and organizational sustainability is less explored in literature. Future studies should infuse technological advancement in their frameworks.
- f. Environmental sustainability is the aspect of sustainability that has been extensively examined and given focus. Scholars have paid little attention to other dimensions of sustainability, such as economic and social sustainability. This gap presents an opportunity for future researchers to delve into these dimensions and offer a comprehensive insight into the effectiveness of Green Human Resource Management (GHRM) in promoting organizational sustainability.

At the same time, the present study does possess certain limitations. Initially, our criteria for eligibility did not encompass papers written in languages other than English. It is plausible that research works composed in diverse languages could have offered a significant contribution to this comprehensive analysis. Secondly, based on our current understanding, we have taken into account all the eligible papers according to our selection criteria, yet there remains the possibility for some papers to have been inadvertently overlooked.

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