

Review

Green Human Resource Management: An Evidence-Based Systematic Literature Review

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Abstract: The United Nations’ report “Our Common Future” contributed to underline the crucial role of human resource management in strategically greening the organization and, in turn, economics and society at large. This awareness gave birth to green human resource management (GHRM). Despite the high number of papers addressing GHRM, this topic lacks a proper theoretical, methodological, and empirical systematization. A possible step towards a better understanding of GHRM is an evidence-based analysis of its practices’ outcomes. Developing these reflections and considerations, we conducted a systematic literature review on the evidence-based literature about the antecedents and outcomes of GHRM practices, following the PRISMA guidelines. We selected 48 papers. Most selected studies ($n = 25$) did not tackle single GHRM activities and processes. Studies considering specific GHRM areas tackled some dimensions more frequently (e.g., “training and development”, “performance management and appraisal”), while underrepresenting others (e.g., “Job analysis and description”). At the same time, selected studies focused on GHRM consequences for organizations, showing a high adherence to the ability, motivation, opportunity (AMO) theoretical framework. Suggestions for future research are provided.

Keywords: green human resource management (GHRM); organizational sustainability; AMO approach; green organizational behaviors

1. Introduction

The issue of sustainability became a mainstream topic soon after the publication of the United Nations’ Brundtland Report (also known as Our Common Future) in the late 1980s. The report addressed the issue of the need for sustainable development (p. 41), which is “a development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [1]. This definition has been the basis for the development of the concept of organizational sustainability. Organizational sustainability (otherwise known as corporate sustainability), since this issue has been mostly tackled among for-profit organizations, is a broad concept, addressing not only ecological concerns, but also social responsibility and the integration of economic activities with the concern about both the natural and the social environment [2].

‘Greening’ an organization has an impact on how it deals with its supply chain; the production process; the waste management and production; the organizational culture; and its values, strategies, choices, and employee behaviors, just to mention a few examples.

In the last two decades, the mainstream nature of sustainability and environmental awareness pushed both practitioners and academics to address the issue of human resource management as a strategic tool for greening an organization and, in turn, economics and society at large. In fact, as Wehrmeyer [3] (p. 56) observed: “if a company is to adopt an environmentally-aware approach to its activities, the employees are the key to its success or failure”.

This explains the rise of a new concept: the green human resource management (GHRM).

GHRM relies on a multidisciplinary approach that encompasses theories and methods from the fields of management, sociology, economics, and psychology, due to a wide array of correlated issues and questions [4].

In fact, under the wide umbrella of the studies on GHRM, there is everything that relates to awareness, adoption, and implementation of HR practices, which have an impact on sustainability. More precisely, GHRM covers all the practices that contribute to an organization's economic, environmental, and social (this last one being in terms of employee safety, health, equity, and wellness) sustainability dimensions from the perspective of employees, in the light of the corporate sustainability requirements [5–8].

There are a number of reasons for considering GHRM as a crucial challenge for the implementation of an effective sustainability approach of an organization.

Firstly, human resource management plays a pivotal role in greening organizational policies and practices at the very heart of an organization's sustainability through recruitment, selection, training, development, performance appraisal, rewards, compensation management, and exit policies, as well as in communicating values and corporate culture [5].

Secondly, the changes required by the organizational shift towards a sustainability approach call for the commitment by both management and all the employees, not just by those directly affected by new green and HRM practices, as these activities can promote and sustain green behaviors among all the members of an organization [9].

Besides, an effective organizational approach to sustainability requires not only compliance with formal rules but also employee acceptance of and engagement with voluntary green initiatives in the workplace, such as reducing electricity or paper consumption, and the use of stairs instead of elevators, just to mention a few [4].

A further factor of the relevance of GHRM lies in the fact that environmental issues impact employees' personal lives in different manners. This is not only because the quality of the environment has an obvious impact on the quality of the lives of individuals, but also because environmental questions are linked with employees' behaviors, values, and choices [10]. For instance, a number of studies showed that when looking for new employees, organizations face a growing number of potential candidates who would prefer to work with greener jobs or greener companies [11–13].

Recent literature on GHRM has mainly focused on theoretical and prescriptive papers, tackling theoretical frameworks or describing potential effects of implementing GHRM in organizations. Until now, little attention has been devoted to the actual results of the practices and actions used in developing a green organizational approach, through GHRM.

1.1. State of the Art on GHRM

GHRM was originally considered as the HRM facet of environmental management (EM) [14], and, for this reason, at the beginning of its development, it was observed merely in relation to the managerial strategic choices and the practices of the human resource departments.

Later, other authors developed a broader approach, underlining the relevance of the proactive role played by employees' behaviors, attitudes, and commitment to achieve EM [12,15], as shaped and promoted through GHRM. As a result, the exact definition of GHRM is still debated, though much more attention is devoted to the GHRM practices and their actual outcomes.

GHRM practices are mostly analyzed in the light of the AMO (ability, motivation, opportunity) theory [5] and the social identity theory [16–18]. According to the AMO theory, performance is a result of the interaction of employees' capacity to perform (ability), willingness to perform (motivation), and opportunity to perform through participation (opportunity) [19]. Therefore, applying the AMO theory to GHRM practices implies: identifying and developing employees' green competencies [20]; creating a system of green performance appraisal and green rewards that generate green motivation; offering employees ways to operate with flexibility at work, autonomy, and participation in decision making, aimed at increasing employee green behaviors in the workplace [21].

The social identity theory instead posits that subjects develop their sense of who they are on the basis of their belongingness to some specific groups, such as age group and gender organizational membership [18,22]. Thus, according to this theory, it is possible to assume that employees who develop a green identity at work (no matter whether they are directly involved or not in green practices) will endorse environmentally concerned behaviors which, in turn, will affect the environmental performance of their organizations in terms of sustainability [23].

Since the early 1990s, studies on GHRM covered a broad array of topics, and the last decade saw a tremendous growth of academic articles in this field [21]. The variety of approaches and factors explored by these studies led to an extensive literature review, aimed at describing the state-of-the-art of previous studies, as well as to identify areas still uncovered by the academic literature. From 2011 to 2020, eleven literature reviews were published in peer-review journals.

The earliest work by Jackson and colleagues [24] presented a critical analysis of the main functional HRM practices in the light of a sustainable vision, such as performance management; training, development, and learning; compensation and rewards; and organizational culture. Soon after, Cherian and Jacob [25] dealt with the actual implementation green HR practices in the organization, while the review of Renwick, Redman, and Maguire [5] represented the first attempt to a) observe how HRM and EM are integrated and b) outline future directions of study. A later review carried out by Opatha and Arulrajah [26] aimed at providing a fundamental and updated comprehension of GHRM, underlining the need for conceptualization and operationalization of the various constructs in the field of GHRM, as well as the need for developing valid and reliable instruments to assess the effectiveness of such practices. The work by Ahmad [27] elaborated various green practices that can be incorporated for building a green workplace, while the literature review carried out by Arulrajah, Opatha, and Nawaratne [28] further developed and updated the work by Cherian and Jacob [25], synthesizing the green HRM practices already endorsed by organizations.

Tariq, Jan, and Ahmad [29] moved from the issues raised by the review of Renwick, Redman, and Maguire [5], suggesting the need for addressing new other areas pertinent to GHRM practices, therefore adopting the point of view of “green employee empowerment” for their literature review. The assumption behind this term is that employees are to be empowered in pursuing green tasks of their organization and that green employee empowerment should be considered under the wider term of green HR.

The review developed by Renwick and colleagues [30] outlined a future research agenda for GHRM, exploring implications for practitioners. They underpinned how the existing GHRM literature may benefit from including national culture; deeper understanding of the green recruitment, as well as the competency and employee participation practices; and a greater focus on linking GHRM to financial and environmental performance outcomes.

Among the most recent literature review, the article of Ren, Tang, and Jackson [4], unlike the previous reviews provided by Renwick, Redman, and Maguire [31] and Tariq, Jan, and Ahmad [29], went beyond the function-based perspective, in order to better tackle the possible connections between specific HRM practices and EM. Ren and colleagues examined the conceptualization, measurement, and theoretical basis developed on GHRM, as well as the antecedents, contingencies, and outcomes of GHRM from the strategic HRM perspective. More in detail, Ren and colleagues showed that GHRM might have green-specific and more general desirable outcomes and potential benefits at organizational and employees' level, such as employees' well-being.

The review carried out by Shahriari, Hassanpoor, Navehebrahim, and Jafarinia [32] analyzed the period from 2009 to 2018 and focused on the definition of green human resource management, highlighting again that there is not yet a clear definition of this term. They also examined how often the GHRM functions are addressed in the literature. More specifically, they found that the functions that received the most attention were selection and recruitment and training and development of green human resources. Their findings also revealed a lack of comprehensive research in undeveloped countries and Asia, as well as the absence of a cross-cultural model.

The latest and most extensive review was carried out by Amrutha and Geetha [21]. They covered a wider range of years, from 1995 to 2019, confirming the lack of studies carried out in undeveloped countries, while finding that the majority of studies were carried out in Europe and Asia. Based on their findings, they developed a model aimed at explaining how GHRM practices have an impact on organizational sustainability (in its three facets: environmental sustainability, social sustainability, and economic sustainability) through the mediation of employees' green behaviors at work. Each of these three factors interacts with the corporate social responsibility as well as with contextual factors.

In spite of the relevant literature reviews and the ever-growing corpus of research devoted to GHRM, all the reviews share one point: that the theoretical, methodological, and empirical advancement of the field is still highly required. One of the following steps in further developing the knowledge about GHRM is an evidence-based analysis of its practices' outcomes. Already, previous literature reviews on GHRM [4,21,30] pointed out the need for further understanding the real outcomes of adopting GHRM practices in organizations.

1.2. Aims of This Systematic Review

Overall, much of the previous studies in this field dealt either with the awareness, adoption [33], and implementation of GHRM practices in organizations or with theoretical issues, such as the relationship between GHRM and EM and the theoretical foundations of GHRM [4,21]. In most cases, the aim was to identify a future direction for the development of studies on GHRM, adopting a reflective, descriptive, and prescriptive approach.

Building on these considerations, the evidence-based knowledge of the outcome of GHRM practices is important for a number of reasons.

Firstly, there is a strong need for capitalizing the findings on the effectiveness of the GHRM practices in order to understand how to best implement corporate sustainability in organizational actions [2]. GHRM reaches all the functions of HRM, and it is important also to understand which are really working and which are not, and what distinguishes effective GHRM practices from the ineffective ones.

There is a paucity of empirical data in this respect, especially in comparison with the prescriptive literature, describing how organizations should address EM through their GHRM practices and which activities are to be developed [5]. On the other hand, a more factual understanding of the actual effects of GHRM practices can play a role in further promoting the wider adoption of EM and GHRM practices in the organization. The dissemination of the positive results of practices already endorsed may lead managers to replicate these same practices in their organizations, therefore further developing their green approach.

As Ren and colleagues noted [4], "designing and implementing GHRM practices requires major investments in organizational resources, likely leading managers to question whether such investments are worthwhile" (p. 20). It is important to stress that the GHRM practices are implemented mainly as mandatory activities by the management. Therefore, the knowledge about the real efficacy of these practices by the managers can make the difference between going green or not [21].

Secondly, a review of empirical, evidence-based findings is necessary to understand other, more general, desirable outcomes beyond the ecological and environmental benefits. There is a need to advance scholarship and practice, and to comprehend how GHRM practices have an impact on the environmental attitudes and behaviors of the organization's staff [30].

For instance, there are assumptions about the consequences of adopting green initiatives on employees' well-being and organizational behaviors [34,35]. Similarly, it is often hypothesized that developing a green identity at work is positively associated with the endorsement of green attitudes and behaviors also outside the workplace [36], but these outcomes are yet to be verified and may constitute a further factor for assessing costs and benefits of introducing green initiatives in an organization.

Thirdly, the actual knowledge of the results achieved is necessary to contextualize the GHRM practices and to capture and explain their complexity, ambiguities, and uncertainties across different

contexts, as pointed out by Ren and colleagues [4]. In fact, contextual conditions and employee characteristics may intervene, shaping or moderating the effects of GHRM practices, both in the short and long-term.

Therefore, assuming as a starting point the conclusion reached by the previous literature, we developed a review of the empirical, evidence-based literature about the antecedents and outcomes of GHRM practices.

2. Methods

The paper selection process was conducted in accordance with the preferred reporting items for systematic reviews and meta-analyses (PRISMA) statement [37]. Eligibility criteria were fixed so that empirical studies published in peer-reviewed full-length articles from 2005 to 2020, written in English, were selected for this review. The chosen publishing time range was due to the acknowledgment that a skyward trend interested in GHRM papers from 2005 to 2020, probably due to the diffusion (firstly in Europe and Northern America, then in Asia and South America) of specific legislation [21]. The period of literary research lasted from April to May 2020.

2.1. Information Sources and Search Strategy

Databases and search engines employed for the search were: EBSCOhost, ProQuest, and Web of Science. Each database required a different detailed strategy. At the same time, the following generic combination of keywords covered the focus of our research:

- (green or environmental or sustainable) and (“human resources” or “human resource management” or HRM).

According to the needs, the keywords were searched in the publication title or abstract.

2.2. Data Collection Process

All references were gathered in a Mendeley database. Selected references were independently reviewed by two authors, who selected the final list of documents to be analyzed. As the chosen databases allowed to preselect full-text availability, year, and language of publication, this manual selection procedure mainly regarded paper content. Papers in which the content was not fully within the scope of this review (e.g., theoretical position paper, prescriptive approaches, best practices) and did not include empirical research were eliminated. Furthermore, the authors scrutinized the reference section of selected papers, looking for further works written in English that could fit the eligibility criteria and, eventually, read their abstracts to check whether they could be included in the review. Figure 1 shows the whole workflow that brought about the final paper selection.

2.3. Study Selection

After applying the inclusive and exclusive criteria (Figure 1), 48 papers were determined as eligible and were included for review (see Table 1 for a description of study characteristics, participant characteristics, and the description and role of GHRM).

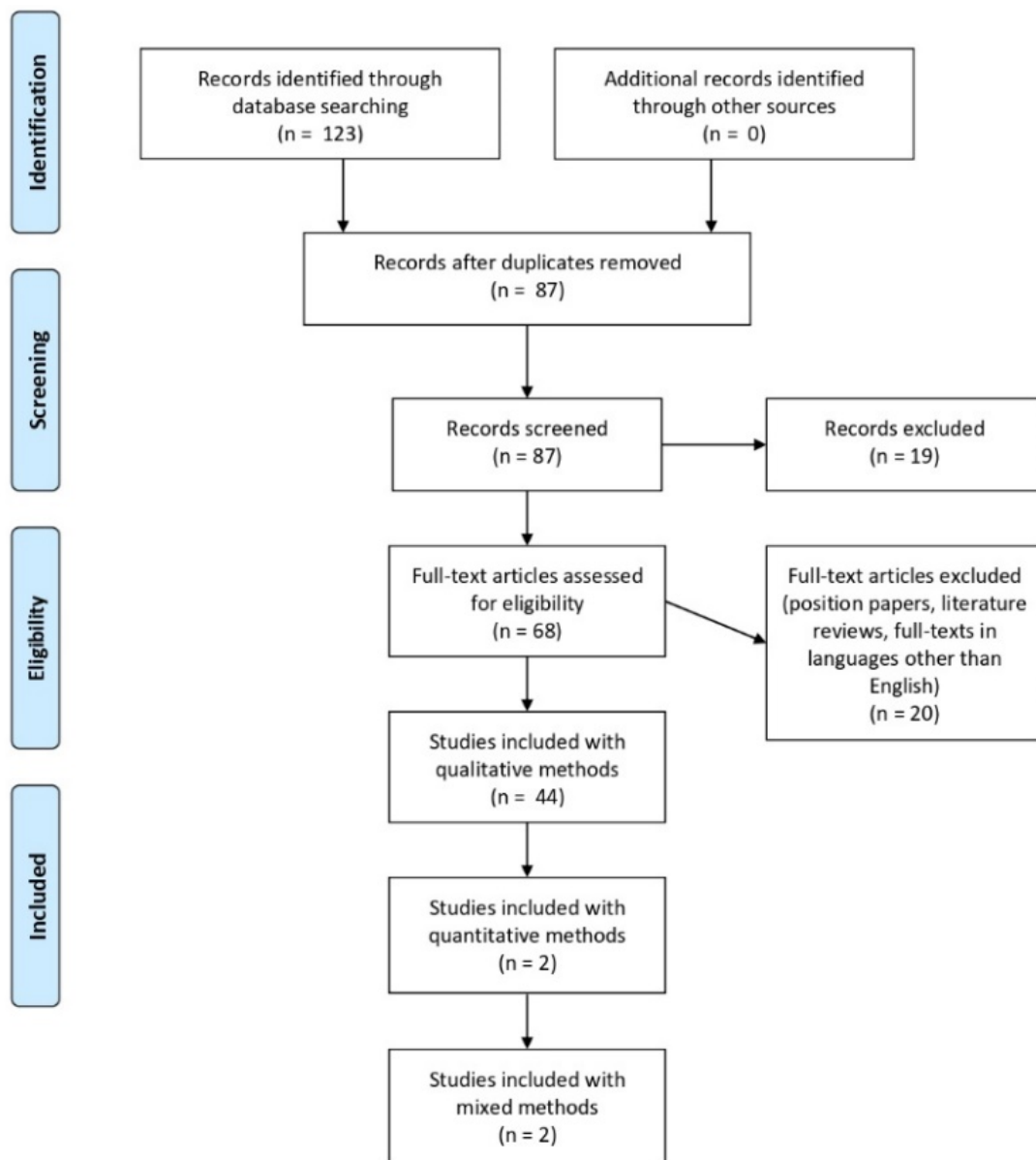


Figure 1. Study selection workflow.

Table 1. Descriptions of study characteristics, participant characteristics, and the description and role of green human resource management (GHRM).

Authors	Paper Characteristics		Study Characteristics	Participant Characteristics		GHRM Construct and Role	
	Year	Country	Study Methodology	Organization (Type)	Participants	GHRM Dimensions Included	GHRM as Mediator or Moderator
Carmona-Moreno	2012	Spain	Quantitative	Chemical firms	M	ns	Mediator
Jabbour	2012	Brazil	Quantitative	Automobile manufacturers	M	ns	
Vidal-Salazar et al.	2012	Spain	Quantitative	Hotels	M	Training	Mediator
Jabbour et al.	2013	Brazil	Quantitative	Automobile manufacturers	M	ns	
Paillet et al.	2014	China	Quantitative	Manufacturing firms	E + M	ns	
Pinzone et al.	2016	UK	Quantitative	Health services	E	Competence building, Performance management, Employee involvement.	
Guerci et al.	2016	Italy	Quantitative	Manufacturing and service firms	M	Hiring, Training and involvement, Performance management and compensation.	Mediator
O'Donohue et al.	2016	Australia	Quantitative	Machinery and equipment manufacturers	E	ns	Moderator
Haddock-Millar et al.	2016	UK, Germany, Sweden	Qualitative	Restaurant chain	E	ns	
Masri et al.	2017	Palestine	Quantitative	Manufacturing firms	E+M	Management of organizational culture, Performance management and appraisal, Recruitment and selection, Training and development, Employee empowerment and participation, Reward and compensation.	

Table 1. Cont.

Authors	Paper Characteristics		Study Characteristics	Participant Characteristics		GHRM Construct and Role	
	Year	Country	Study Methodology	Organization (Type)	Participants	GHRM Dimensions Included	GHRM as Mediator or Moderator
Cheema et al.	2017	Pakistan	Quantitative	Manufacturing firms	M	ns	
Dumont et al.	2017	China	Quantitative	Manufacturing firms	E	ns	
Nejati et al.	2017	Iran	Quantitative	Manufacturing firms	E	Recruitment and selection, Training and development, Employee empowerment, Pay and reward, Performance management and appraisal.	
Chamola et al.	2017	India	Quantitative	Energy provider firms	E	Training and development, Pay and reward *	
Zaid et al.	2018	Palestine	Quantitative	Manufacturing firms	E	Hiring, Training and involvement, Performance management and compensation	
Longoni et al.	2018	Italy	Quantitative	Manufacturing and service firms	E	Hiring, Training and involvement, Performance management and compensation *	
Shen et al.	2018	China	Quantitative	Manufacturing firms	E	ns	
Saeed et al.	2019	Pakistan	Quantitative	Manufacturing firms	E	Recruitment and selection, Training and development, Employee empowerment, Pay and reward, Performance management and appraisal.	

Table 1. Cont.

Authors	Paper Characteristics		Study Characteristics	Participant Characteristics		GHRM Construct and Role	
	Year	Country	Study Methodology	Organization (Type)	Participants	GHRM Dimensions Included	GHRM as Mediator or Moderator
Rawashdeh	2018	Jordania	Quantitative	Health services	M	Recruitment and selection, Training and development, Rewards.	
Yusliza et al.	2019	Malaysia	Quantitative	Manufacturing and service firms	M	Analysis and job description, Performance, Recruitment, Rewards, Selection, Training.	
Yong et al.	2019	Malaysia	Quantitative	Manufacturing firms	E	Analysis and job description, Performance, Recruitment, Rewards, Selection, Training.	
Roscoe et al.	2019	China	Quantitative	Manufacturing firms	E	Analysis and job description, Performance, Recruitment, Rewards, Selection, Training *	
Ahmad et al.	2019	Pakistan	Quantitative	Health services	E+M	Involvement, Pay and reward, Performance management, Training, Recruitment and selection *	Mediator
Moktadir et al.	2019	Bangladesh	Qualitative	Tannery industry	M	ns	
Yong et al.	2019	Malaysia	Quantitative	Manufacturing firms	E	ns	
Mtembu	2019	South Africa	Mixed methods	University Campus	acHR	ns	
Andjarwati et al.	2019	Indonesia	Quantitative	Mining sector	E	ns	
Kim et al.	2019	Thailand	Quantitative	Hotels	E	ns	
Agyabeng-mensah et al.	2019	China	Quantitative	Manufacturing firms	E	ns	
Davis et al.	2020	UK	Quantitative	Automobile manufacturers	E	ns	

Table 1. Cont.

Authors	Paper Characteristics		Study Characteristics	Participant Characteristics		GHRM Construct and Role	
	Year	Country	Study Methodology	Organization (Type)	Participants	GHRM Dimensions Included	GHRM as Mediator or Moderator
Pham et al. a	2019	Vietnam	Mixed methods	Hotels	E	ns	
Al Kerdawy	2019	Egypt	Quantitative	Manufacturing and service firms	M	Staffing, Training, Performance appraisal, Reward and recognition *	
Pham et al. b	2019	Vietnam	Quantitative	Hotels	E	Training, Performance management, Employee involvement.	
Singh et al.	2020	UAE	Quantitative	Manufacturing firms	E	Ability (Recruitment, Training), Motivation (Performance, Rewards), Opportunity (Employee Involvement).	Mediator
Malik et al.	2020	Pakistan	Quantitative	Manufacturing firms	E	Analysis and job description, Performance, Recruitment, Rewards, Selection, Training.	
Anwar et al.	2020	Malaysia	Quantitative	University Campus	E	Competence (Recruitment, Training), Motivation (Performance, Rewards), Employee involvement.	
Shafaei et al.	2020	Malaysia	Quantitative	Hotels	E	ns	
Iqbal	2020	Pakistan	Quantitative	Banking sector	E	ns	Mediator
Yu et al.	2020	China	Quantitative	Automobile manufacturers	E	ns	
Lee	2020	Kazakistan	Quantitative		E	ns	
Ren et al.	2020	China	Quantitative	Chemical firms	M	ns	
Song et al.	2020	China	Quantitative	Industries	E	ns	

Table 1. Cont.

Authors	Paper Characteristics		Study Characteristics	Participant Characteristics		GHRM Construct and Role	
	Year	Country	Study Methodology	Organization (Type)	Participants	GHRM Dimensions Included	GHRM as Mediator or Moderator
Fawehinmi et al.	2020	Malaysia	Quantitative	University Campus	E	ns	
Hameed et al.	2020	Pakistan	Quantitative		E+M	ns	
Zhao et al.	2020	China	Quantitative	Industries	E	Recruitment and selection, Training, Performance management, Compensation, Involvement *	Mediator
Islam et al.	2020	Malaysia	Quantitative	Hotels	E	Recruitment and selection, Training, Performance management, Pay and reward, Involvement.	
Chaudhary	2020	India	Quantitative	Automobile manufacturers	E	Recruitment and selection, Training, Performance management, Pay and reward, Involvement *	
Huo et al.	2020	China	Quantitative	Coal enterprises	E	Training, Recruitment, Staffing, Compensation, Performance management, Involvement *	Mediator

Unless otherwise specified, papers considering two or more GHRM dimensions showed significant effects for all the considered dimensions. * = Despite considering this distinction, analyses did not include distinct dimensions. ns = not specified. E = Employees, M=Managers.

3. Results

3.1. Study Characteristics

The first paper tackling green HRM in an empirical investigation was published in 2012 ($n = 3$), showing an increasing trend until 2020 ($n = 15$). Figure 2 shows this trend in detail.

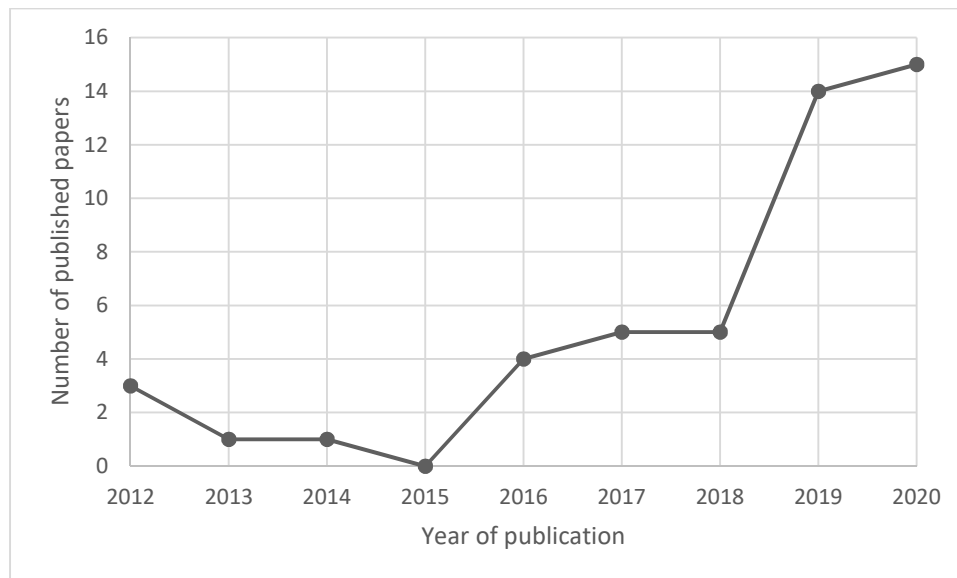


Figure 2. The chronological trend in the publication of GHRM evidence-based papers.

Regarding the countries involved, Asian countries were the most represented in the selected studies ($n = 37$). Consistently, most studies were conducted in China ($n = 10$), followed by Malaysia ($n = 7$) and Pakistan ($n = 6$) (see Table 1 for more details).

Regarding the type of organization involved, profit organizations were the most represented ($n = 42$). Consistently, the most involved organizations were manufacturing firms ($n = 32$), followed by hotels and restaurants ($n = 7$), health services ($n = 3$), university campuses ($n = 3$), and banks ($n = 1$). Two papers did not provide information about the type of organization involved.

Regarding participant characteristics, the majority of the selected papers ($n = 32$) gathered data from employees, followed by studies with managers ($n = 11$), studies with both ($n = 4$), and with HR academic experts (considered at the same time as experts and employees, $n = 1$).

Regarding the study methodology, 44 studies used quantitative methods, two used qualitative methods, and two used mixed methods.

3.2. Synthesis of Results

3.2.1. Conceptualizations of GHRM

A first consideration has to be made on the GHRM construct definition used in each paper. Among the selected papers, 25 out of 48 did not specify dimensions or areas to describe GHRM practices. The remaining 23 accounted for different GHRM dimensions. Among these, while several papers ($n = 16$) included measures accounting for all the GHRM dimensions [5,24,29], a few others ($n = 7$) focused on specific dimensions, or used a specific theoretical background to reorganize the construct dimensions [38]. Despite using slightly different lexical options (e.g., compensation vs. pay), the studies allowing for a more precise description of the GHRM effects agreed on a number of dimensions. In this regard, it is possible to enumerate some common GHRM practices implemented in the analyses: job analysis and description; selection, recruitment, and hiring; performance management and

appraisal; rewards, pay, and compensation; training and development; involvement and empowerment. Overall, the studies considering different GHRM dimensions, even when not directly addressing the AMO theory, can be reorganized in light of this theoretical framework, confirming previous considerations [5,21,30], as shown in Table 2.

Table 2. Descriptions of study characteristics, participant characteristics, and the description and role of GHRM.

AMO Approach Construct	Description	GHRM Dimensions	Number of Papers Mentioning the Dimension
Ability	Identifying and applying employee green competencies	Analysis and job description	4
		Selection, recruitment, and hiring	20
		Training and development	23
Motivation	Creating an appraisal and reward system that reinforces green behaviors	Performance management,	20
		Performance appraisal, Rewards, pay, and compensation	20
Opportunity	Offering the opportunity to be proactive in the crafting of activities aimed at increasing green behaviors	Involvement and empowerment	15

Each dimension was associated with several employee-related and organization-related antecedents and outcomes, as reported in Table 3.

With reference to the studies addressing specific GHRM dimensions, employee training and development and involvement and empowerment were frequently associated with significant outcomes. These dimensions include practices aimed at providing employees with the knowledge required to adhere to green organizational policies and practices (namely, training and development) [39], and at creating a context in which employees can effectively engage in green behaviors (namely, involvement and empowerment) [9]. In the selected papers, these practices were reported to have a significant effect on green organizational outcomes, such as sustainability [40], environmental commitment [41], environmental performance [42], and supply chain management activities [43]. Interestingly, the training and development dimension was mentioned even in papers addressing one to three GHRM dimensions [42,44]. Rewards, pay, and compensation is another dimension frequently linked to significant outcomes. It is defined as the set of financial and nonfinancial rewards aimed at stimulating green employee behaviors and reinforcing long-term organizational outcomes [45]. Consistently, the selected papers reported significant effects of this dimension on organizational sustainability [46], environmental performance [42,47], and green supply chain management [43]. At the same time, all these dimensions have been linked to employee-related outcomes, such as higher green commitment [35,41,48] and lower turnover intentions [49]. Finally, even the green selection and appraisal procedures were frequently linked to significant outcomes. Most specifically, studies showing a specific effect of the selection, recruitment and hiring" dimension were mostly related to organizational consequences, regarding organizational sustainability as perceived by managers and employees [40,46]. Studies reporting a significant effect specifically related to the performance management and appraisal dimension mainly regarded perceived environmental performance [42] and employee commitment towards green issues [50].

Overall, the selected papers show a high frequency of quantitative studies addressing the organizational consequences of implementing GHRM practices in different types of organizations. The prevalence of organization-focused and consequence-oriented papers was confirmed across geographical areas. Figure 3 shows a graphical synthesis of the main organization and employee-related antecedents and consequences, with main mediators and moderators.

Table 3. Employee- and organization-related antecedents and consequences in selected papers.

Authors	Year	Studies Addressing GHRM Antecedents		Studies Addressing GHRM Consequences			
		Employee-Related Antecedents	Organization-Related Antecedents	Employee-Related Consequences	Organization-Related Consequences	Mediators	Moderators
Carmona-Moreno	2012		Environmental management		Organizational sustainability		
Jabbour	2012				Green management practices		
VidalSalazar et al.	2012		Organizational innovativeness		Proactive green strategies		
Jabbour et al.	2013				Environmental performance	Green OCB	
Paillet et al.	2014			Green OCB (all GHRM dimensions)	Environmental commitment (Employee involvement)	Affective commitment	
Pinzone et al.	2016				Environmental performance (Training and involvement, Performance management and compensation)		
Guerci et al.	2016		Environmental pressure by clients and stakeholders		Environmental performance		
O'Donohue et al.	2016		Proactive environmental management		Environmental performance		
HaddockMillar et al.	2016		Organizational culture and implementation strategies				
Masri et al.	2017				Environmental performance	correlational analyses only	

Table 3. Cont.

Authors	Year	Studies Addressing GHRM Antecedents		Studies Addressing GHRM Consequences			
		Employee-Related Antecedents	Organization-Related Antecedents	Employee-Related Consequences	Organization-Related Consequences	Mediators	Moderators
Cheema et al.	2017				Corporate social responsibility	Sustainable environment	
Dumont et al.	2017			Green behavior		Green climate	
Nejati et al.	2017				Green supply chain management (Training and development, Employee empowerment, Pay and reward)		Resistance to change (negative)
Chamola et al.	2017				Environmental performance	Employee motivation to show green behaviors at work	
Zaid et al.	2018				Environmental performance	Green supply chain management	
Longoni et al.	2018				Environmental performance, Financial performance	Green supply chain management	
Shen et al.	2018			Performance, Turnover intentions, OCB			Perceived organizational support
Saeed et al.	2019			Green behavior (all GHRM dimensions)			Environmental knowledge
Rawashdeh	2018				Environmental performance	correlational analyses only	

Table 3. Cont.

Authors	Year	Studies Addressing GHRM Antecedents		Studies Addressing GHRM Consequences			
		Employee-Related Antecedents	Organization-Related Antecedents	Employee-Related Consequences	Organization-Related Consequences	Mediators	Moderators
Yusliza et al.	2019		Top management commitment (all GHRM dimensions) and green supply chain management (Analysis and job description)				
Yong et al.	2019				Organizational sustainability (Recruitment and Training)		
Roscoe et al.	2019				Environmental performance	Leadership emphasis, message credibility, peer involvement, and employee empowerment	
Ahmad et al.	2019		Ethical leadership	Job satisfaction			
Moktadir et al.	2019		Green selection and recruiting processes, Green organizational culture, Green purchasing, Top management commitment				
Yong et al.	2019	Green human capital	Green relational capital				
Mtembu	2019	Green academic knowledge	Green organizational policies				
Andjarwati et al.	2019			Green behavior	Environmental performance		Employee personal values

Table 3. Cont.

Authors	Year	Studies Addressing GHRM Antecedents		Studies Addressing GHRM Consequences			
		Employee-Related Antecedents	Organization-Related Antecedents	Employee-Related Consequences	Organization-Related Consequences	Mediators	Moderators
Kim et al.	2019			Organizational commitment, Green behavior	Environmental performance		
Agyabengmensah et al.	2019				Organizational performance		
Davis et al.	2020			Green behavior			Motivation
Pham et al. a	2019			Green behavior			Green performance management, Green employee involvement
Al Kerdawy	2019				Corporate social responsibility		Corporate support for employee volunteering
Pham et al. b	2019			Green commitment (Training and Performance management)		Green OCB	
Singh et al.	2020		Green transformational leadership		Green innovation (Ability, Motivation, and Opportunity)		
Malik et al.	2020				Organizational sustainability (Recruitment and selection, Rewards)		
Anwar et al.	2020				Environmental performance (Competence and Motivation)	Green OCB	

Table 3. Cont.

Authors	Year	Studies Addressing GHRM Antecedents		Studies Addressing GHRM Consequences			
		Employee-Related Antecedents	Organization-Related Antecedents	Employee-Related Consequences	Organization-Related Consequences	Mediators	Moderators
Shafaei et al.	2020		Organizational culture	Job satisfaction	Environmental performance		Employee meaning of work
Iqbal	2020	Employees' green behavior			Organizational sustainability		
Yu et al.	2020				Environmental cooperation with customers and suppliers		Green supply chain management
Lee	2020				Environmental performance, Energy efficiency		
Ren et al.	2020				Environmental performance	Top management team commitment	
Song et al.	2020				Green innovation	Green human capital	
Fawehinmi et al.	2020			Green behavior		Environmental knowledge	
Hameed et al.	2020			Green OCB		Green empowerment, Personal values	
Zhao et al.	2020		Environmental strategies, discretionary slack		Environmental reputation		
Islam et al.	2020			Turnover intentions (Involvement, Pay and reward)			
Chaudhary	2020			Green behavior		Organizational identification	
Huo et al.	2020		Organizational commitment towards HRM	Green-related creativity			

Unless otherwise specified, papers considering two or more GHRM dimensions showed significant effects for all the considered dimensions.

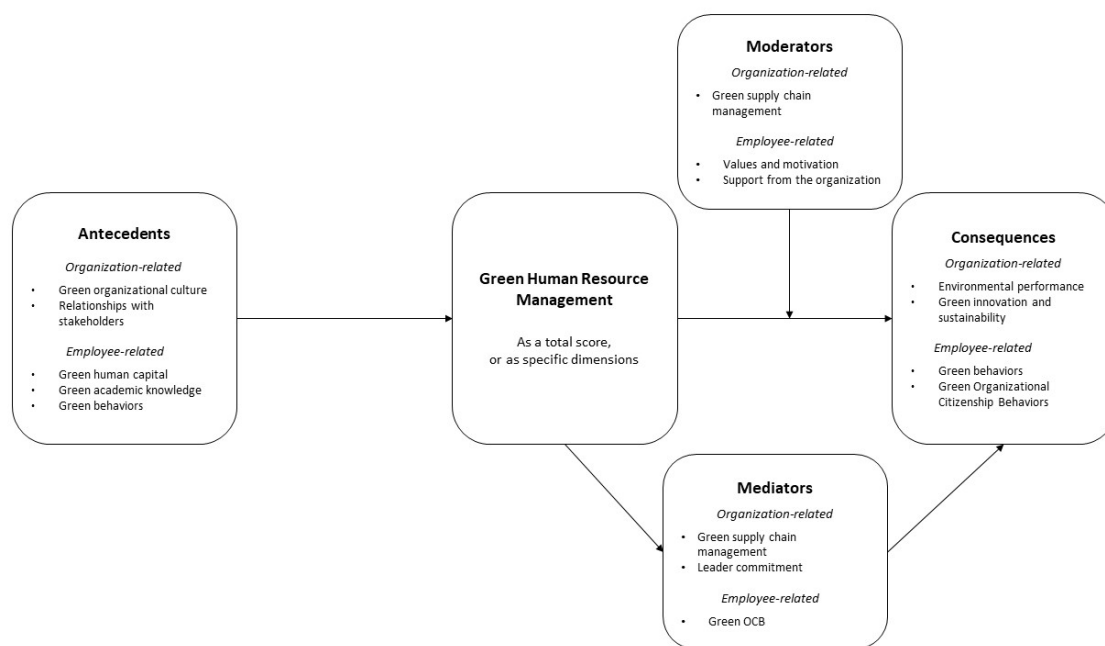


Figure 3. Synthesis of the main antecedents and consequences of GHRM, and its main mediators and moderators according to the selected papers.

3.2.2. Organizational and Employee-Related Antecedents of GHRM

In the remaining 15 studies, green HRM was studied as a consequence of organizational ($n = 11$) or employee-related ($n = 3$) dimensions. Among these, only two studies addressed both organization and employee-related antecedents at the same time. In one study, GHRM was described as not having significant effects on the studied dimensions. Common organizational dimensions reported as antecedents were related to green organizational culture [51,52] and strategies [15,53]. Evidence was given on the role of leadership styles [38,54] and relationships with external stakeholders [40,42]. The three papers addressing employee-related antecedents to GHRM showed the effect, respectively, of green human capital [40], green academic knowledge [55], and green behaviors [56].

3.2.3. GHRM Consequences on Organizations

Thirty-three studies considered green HRM consequences at organizational- ($n = 29$) or employee-level ($n = 17$). Among these, only four studies addressed the effect of green HRM on both organization- and employee-related dimensions at the same time [23,52,57,58]. Environmental performance was the most mentioned ($n = 15$) effect of GHRM on the organizational level, both in studies with employees [23,59,60] and managers [42,61]. In these studies, the effect of GHRM on environmental performance was frequently influenced by organizational practices and strategies, namely leader's emphasis and credibility in addressing green issues [62], top management commitment [61], and green supply chain management [59,60]. At the same time, the GHRM effect was reported as influenced by employee dimensions, such as personal values [57], personal motivation in pursuing green behaviors [63], and green organizational citizenship behaviors [47,64]. Finally, other studies reported a direct effect on GHRM practices on organizational environmental performance [52,65,66]. Another organizational effect reported in literature regarded green innovation and sustainability ($n = 7$). In this case, the effect was either direct [40,43] or influenced by management environmental concerns and green human capital [58].

3.2.4. GHRM Consequences on Employees

Regarding employee-related outcomes, green behaviors and green organizational citizenship behaviors (OCB) at work were the most mentioned consequences ($n = 8$). In this case, GHRM effect was always influenced by other dimensions, including those related to organizational practices, namely green climate [67], green feedback and goal setting [68], and green performance management [35]; and to employee-related aspects, namely organizational identification [69], affective commitment [41], environmental knowledge [70], green psychological capital [48], and personal values [57].

4. Discussion

This systematic review revealed a heterogeneous research approach to the study of GHRM practices within organizations. Selected studies showed different choices in terms of GHRM conceptualizations and dimensions selected for the analyses, focus on antecedents vs. consequences of GHRM practices, and focus on organizational vs. employee-related effects. Despite these differences, it is possible to enucleate some trends.

4.1. Chronological and Geographical Trends

Firstly, a chronological trend emerged, with most studies published from 2018 onwards. The chronological distribution of selected papers doubles the trend of theoretical and prescriptive papers on these topics, showing a constantly increasing tendency to tackle GHRM from an empirical perspective [21]. Secondly, a geographical trend arose, too, with an increasing number of studies published in emerging countries over time (over 90% of the papers selected for this review). Both trends could be explained in light of the increasing awareness from international institutions and policy-makers towards green management. As underlined by Amrutha and Geetha, indeed, the number of papers tackling GHRM over time, as well as their geographical distribution, were strongly influenced by regulations on sustainability and ecological standards across organizations [21]. As Asian and South American countries tackled these topics more recently, the overall number of papers, as well as the higher involvement of organizations working in those areas, resulted in an increased spreading of evidence-based papers.

4.2. Dimensions of the GHRM Construct

A third consideration regards the GHRM construct. From the selected papers, current research on GHRM emerges as not providing evidence for all the dimensions usually ascribed to the GHRM construct. As shown in Table 2, training and development is tackled most frequently, followed by performance management and appraisal; reward, pay, and compensation; and selection, recruitment, and hiring. Job analysis and description, instead, is almost neglected, with four mentions out of 48 papers [46,53,62,71]. This point calls for two considerations. Firstly, more studies tackling all the GHRM dimensions are needed to provide effective and useful indications to organizations when addressing the development of human resources at any stage of their work within the organization. By considering and evaluating a broader range of GHRM activities, researchers and managers would have a higher awareness of which activities are more effective in general, as well as in specific cultural and organizational contexts (e.g., manufacturing firms vs. nonprofit organizations). Secondly, it is interesting to notice that, among studies including all the GHRM dimensions in their analyses, papers reorganizing the GHRM construct arise. This is the case for Anwar and colleagues [47], Pinzone and colleagues [41], and Singh and colleagues [38]. Despite using different methods, all the papers converged towards a similar classification. Anwar and colleagues differentiated a competence dimension (recruitment and training), a motivation dimension (performance and rewards), and an employee involvement dimension. Similarly, Pinzone and colleagues distinguished competence building, performance management, and employee involvement in GHRM practices [41]. Despite producing a classification similar to Anwar (et al.), the authors did not use the original GHRM construct to

reach their final scales. Finally, Singh and colleagues used the AMO framework to reorganize the construct, so that the ability dimension included recruitment and training procedures, the motivation dimension included performance appraisal and rewards, and the opportunity dimension included employee involvement practices [38]. It is apparent that the GHRM dimensions included, as well as the distinctions and rearrangements, are substantially identical to one another. Overall, such classifications confirm the saliency of certain dimensions, as well as the centrality of the AMO framework in describing them. At the same time, it remains unclear whether other dimensions of GHRM are neglected because they do not fall easily within the mentioned frameworks or because of other reasons.

4.3. GHRM Organizational Outcomes

Overall, studies addressing organizational outcomes of GHRM practices, whether in terms of a general score or considering specific dimensions, better fit in the AMO framework. According to AMO, indeed, when organizations provide an employee with new abilities, higher motivations, and higher opportunities to implement green behaviors and commit to environmental sustainability, then they increase their chances to reach a better green organizational performance [38,47]. According to Purcell and colleagues, employee commitment and discretionary behaviors are crucial to constructing the link between HRM practices and organizational performance [72]. The authors, indeed, state that the higher the employees are motivated and committed towards certain behaviors, the higher the spread of practices linked to those behaviors in the organization. Selected papers showed similar effects with employee green behaviors and green organizational performance, above all when considering GHRM as a mediator between the two [56]. Even studies addressing GHRM effects on both employee and organization-related outcomes are strongly connected to this framework, for example, when considering in the same model the GHRM influence on both green employee behaviors and organizational performance [23,57].

5. Main Conclusions, Limitations, and Future Directions

Overall, this literature review contributes to shed new light on how GHRM could be implemented, which organizational and employee-related dimensions influence its implementation, and which organizational and employee-related outcomes arise from it by systematizing current knowledge on these topics. Considering the high number of theoretical and prescriptive papers on GHRM [5], as well as the financial and nonfinancial resources required to implement it [4], indeed, both researchers and practitioners may benefit from a synthesis of current research results, in order to verify the actual effects of GHRM practices and spread their adoption. Furthermore, this review contributes to individuate employee-related antecedents and consequences of GHRM practices, thus providing more information on how employees could be involved in green activities and how they could impact the green performance of the organization. Summing up, this review informs that: (1) Research works on GHRM show a chronological trend, with most papers published from 2018, and a geographical trend, with most papers published with data from emerging countries. (2) There is still a high heterogeneity on GHRM conceptualization, with half studies addressing GHRM a single construct, and half considering more dimensions. (3) Among studies considering more dimensions, training and development; performance management and appraisal; reward, pay, and compensation; and selection, recruitment, and hiring are the most tackled. (4) Most studies tackle organizational outcomes, failing to address individual, employee-related GHRM effects; studies tackling organizational outcomes of GHRM fit in the AMO framework.

At the same time, this work is not without limitations. First, our eligibility criteria excluded non-English papers—it is plausible that research works written in different languages would have given a salient contribution to this review. Secondly, we excluded conference proceedings, thus potentially losing important information about ongoing studies and interventions on GHRM. Finally, to the best of our knowledge, we considered all the eligible papers given our selection criteria, but it is possible that some papers were missed.

With reference to further studies and applications, although helpful, available evidence-based literature on GHRM could be extended by acknowledging and tackling some uncovered issues, in order to avoid the “organization as a black box” effect, described by Howard-Grenville [73], namely the lack of understanding of the contexts and culture that guide the organization. Firstly, researchers and policy-makers would benefit from the use of data aimed at contextualizing GHRM practices and their antecedents and consequences on organizations and employees. For example, it would be helpful to gather data on the dimensions and the culture of the organizations in which GHRM is implemented to individuate specific GHRM actions that would better fit specific contexts. Secondly, most of the papers included in this review (except the ones in the banking and educational sectors) gathered data from profit organizations, thus indicating an underrepresentation of GHRM practices in nonprofit and public contexts. It would be interesting to tackle these organizations, to verify whether the current lack of evidence-based information is due to a low commitment to the green issues, or to low interest from researchers. Thirdly, information about the macrofinancial, social, and cultural context in which the organizations operate would help better situate the organizational efforts towards a greener performance. In other words, future research could focus on the organizational aspects that, despite not being causally related to GHRM, influence its implementation and outcomes. Finally, despite the high number of prescriptive and descriptive papers regarding GHRM, current evidence-based studies on GHRM antecedents and consequences for employees and organizations show a focus on specific GHRM dimensions, in specific countries and types of organization. Such peculiarities call for a better understanding of what GHRM implies for managers and employees; what kind of requirements poses to the organization, as well as to the daily employee behaviors; and how it tackles organizational and individual needs and motivations. Furthermore, such considerations could regard governmental and nonprofit organizations, as well as profit organizations based in Europe or the USA. It seems plausible that stronger use of qualitative methods would help researchers and practitioners answering these questions and, if needed, help in revising the GHRM concept and how it is applied in research and intervention.

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