

Conceptualizing and theorizing green human resource management: a narrative review

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862

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Abstract

Purpose – The study reviews the recent conceptualizations and theorizing of green human resource management (GHRM) and explores GHRM's interconnections with the sustainability literature. The research findings have implications affecting GHRM measurement and design of future studies in the sparsely investigated human resource management (HRM)-environment-sustainability-responsibility spectrum.

Design/methodology/approach – The study uses a narrative style based on a review of quantitative field evidence from 38 recent empirical papers to provide an analytical framework on how the GHRM research agenda has broadened to include aspects of corporate sustainability (CS) and corporate social responsibility (CSR).

Findings – The study finds support from the literature on the impact of environment-related HR initiatives on building long-term capabilities and enhancing firm-specific social outcomes. Further, the study finds that different perspectives used in the conceptualization of GHRM reveal GHRM's differential impact on organization and environmental sustainability underlying GHRM's growing recognition as an important tool for organizations to demonstrate their commitment to being a responsible stakeholder of the socio-economic system.

Originality/value – GHRM scholars would find the review useful as the review provides a detailed explanation of how GHRM problems are defined and measured. The understanding of the process of conceptualization has been identified as a research gap in previous reviews; thus, one of the aims of this paper is to aid further knowledge development by understanding how research has progressed previously. The other benefit of the review is that management practitioners would find the insights useful to align HRM initiatives with organization CS/CSR objectives.

Keywords Environment impact and organizational performance, Green HRM, Environment and human resources, Sustainable human resource management, Corporate social responsibility, HRM

Paper type Research paper

1. Introduction- role of environment in shaping organization discourse

Environmental responsibility has gained significant attention over the past few decades in response to the increase in incidents of environmental harm caused by adverse organizational actions (Paulet *et al.*, 2021). There is growing pressure on businesses to demonstrate transparency on their impact on the environment prompting many to adopt sophisticated environmental management systems (Jabbour and Santos, 2008) or pursue other green strategies to minimize any environmental risks that may arise from their operations. However, there is still a lack of consensus on environmental performance being considered a legitimate indicator of organizational performance (Jackson *et al.*, 2011). Despite concerns, larger companies around the world feel the need to share strong signals about their commitment to act socially responsible on account of rising regulatory and legal requirements, shareholder and customer pressures, UN initiatives, etc. requiring greater disclosures on their governance and decision making (Paulet *et al.*, 2021, p. 161; Ehnert *et al.*, 2016). Organizations are making gradual progress with the emergence of clean technologies; however, the “soft and human” side of organizations remains the main challenge while implementing environment-sustainability initiatives (Jabbour and Renwick, 2018, p. 623).

Human resource management (HRM) can influence a company's relationship with its external environment in terms of firm's effect on society and ecology (Saifulina *et al.*, 2020).



Addressing environmental challenges will require a reevaluation of a firm's measures for its organizational effectiveness, and therefore, there is a need for HRM scholars to build an understanding of the alternative strategic paths that environmentally sustainable businesses can pursue (Jackson and Seo, 2010). The relationship between environment and human outcomes with organizational sustainability and performance (Kramar, 2014, p. 1,079) is a knowledge gap that this paper attempts to address by evaluating recent published empirical papers on HRM and environment sustainability.

2. Emergence of sustainability as the new operating paradigm

Sustainability has been identified as a critical factor for organizational success (Dubois and Dubois, 2012). The shift to sustainability is due to the need to adopt a long-term orientation toward organizational success and growth as companies constitute 60% of the global economy (Stahl *et al.*, 2020, p. 2), making them key actors in the prevailing socio-economic systems.

Traditionally, organizations have demonstrated their commitment to societal progress through their corporate sustainability (CS)/corporate social responsibility (CSR) initiatives (Stahl *et al.*, 2020). CS and CSR, terms are interchangeably used by researchers and refer to "*company activities that are voluntary in nature demonstrating the inclusion of social and environmental concerns in business operations and interaction with stakeholders*" (van Marrewijk, 2003, p. 8). However, CS/CSR initiatives have sometimes been criticized in the literature as being used by businesses for symbolic value and lacking substantive effect (Wright and Nyberg, 2017).

Scholarly efforts have been made to investigate how incorporating a human resource focus can support the organization CS/CSR mandate (Boudreau and Ramstad, 2005; Dubois and Dubois, 2012; Jackson and Seo, 2010; Lopez-Cabrales and Valle-Cabrera, 2020). The human resource management (HRM) role toward CS and CSR goals can be fulfilled by either fostering commitment and engagement or embedding existing CS/CSR principles in prevalent HRM processes and creating stakeholder alignment. However, scholars working on the integration between CS/CSR and HRM have rarely explained their understanding of the connection between these concepts or their assumptions when exploring this relation. Therefore, research efforts are needed to understand the mutually complex interdependencies and the interactive nature involved between CS/CSR objectives and HRM actions required to attain them.

Sustainable HRM provides organizations with a lens to explain the positive change potential of purpose-driven HRM policies and practices on firms' responsibilities and their effect on a broad set of stakeholders, including society and the community (Stahl *et al.*, 2020, p. 2). Sustainable HRM offers an alternative approach to the traditional way of viewing how HRM divisions have historically functioned (Ehnert, 2009). The rapidly changing social, economic, and ecological landscapes have forced organizations to review the role of HRM on how it can make a meaningful contribution to firms' sustainability goals (O'Donohue and Torugsa, 2016). Therefore, it needs to consider alternative approaches beyond traditional service delivery models to truly make an impact (Boudreau and Ramstad, 2005).

Sustainability has been conceptualized as a form of institutional change that requires new behaviors, values, norms, and routines to alter daily employee behavior in and around organizations. HRM is, therefore, tasked to create a balanced approach to managing social, environmental, and economic performance (Ren and Jackson, 2019).

Green human resource management (GHRM), often related to sustainability in HRM discourse (Jarlstorm *et al.*, 2016, p. 704), is viewed as a management subfield that is concerned with the alignment of the organization's employees and its environment management objectives (Jabbour and Renwick, 2018). While sustainable HRM aims to fulfill broader

organizational goals, GHRM research has so far focused on understanding how to support environmental management or build organizational culture towards environment management targets by implementing a range of environmentally responsible practices (Jarlstorm *et al.*, 2016, p. 705).

Diverse interpretations consider GHRM part of sustainable HRM literature due to its focus on environmental sustainability (Hughes and Semeijn, 2017). In his article on sustainable HRM, Kramar (2014) finds that the topic has not yet been developed as a coherent body of literature and indicates GHRM literature as a separate knowledge domain but with interconnections with sustainable HRM objectives concerning environmental and human outcomes that affect organizational sustainability and performance. The following Table 1 further clarifies the differences between sustainability, CSR (CSR/CS), and sustainable/green HRM and how they impact organization actions as reported in the literature.

The interconnections between GHRM and sustainable HRM need further explanations through empirical investigations. GHRM literature reviews covering the period 2007–2019 (Amrutha and Geetha, 2019; Ren *et al.*, 2018; Yong *et al.*, 2019) have explained the field's development by listing the various types of antecedents, determinants, and outcomes that constitute the theoretical frameworks. However, the manner in which these variables affect the HRM, environment sustainability, and organization performance has not been examined in-depth.

Therefore, this paper proposes the following research questions (RQs) identified as knowledge gaps not addressed by past literature reviews.

- RQ1.* In what ways has GHRM as a construct been operationalized in empirical literature in the period 2015–2020?
- RQ2.* What mediator–moderator–antecedent–outcome relationships have been analyzed in different GHRM studies?
- RQ3.* What does the empirical evidence suggest about the progress of GHRM research?

To address the above questions, the study divides the findings into three sections each addressing one of the research questions posed above. Section 4 which is subdivided into two parts presents the results from the analysis. Section 4a maps how extant theorizing and conceptualization have taken place which answers RQ1. Section 4b explains how different GHRM relationships and outcomes have been investigated which address RQ2. RQ3 is answered in Section 5 and Section 6 which discusses in detail the different areas of organization performance impacted by use of diverse conceptualizations as identified from the results of the review and scope for future contributions. Overall insights from the analysis

Sustainability	CSR/CS	Sustainable/Green HRM
“Sustainability attempts to drive a business model that seeks to fulfill ecological, financial, and social goals while simultaneously delivering on shareholder value. It requires identification of strategies and practices that address issues deeply embedded in business operations and are integral to how the business functions” (Cohen <i>et al.</i> , 2012, p. 3)	“The sum of voluntary actions taken by a company to address the economic, social, and environmental impacts of its business operations and the concerns of its principal stakeholders” (Jones-Christensen <i>et al.</i> , 2007). This approach does not require any changes to how businesses operate	“Set of HR tools to help embed sustainability strategy in the organization and the creation of an HR system that contributes to the sustainable performance of the firm” (Cohen <i>et al.</i> , 2012, p. 3)

Table 1.
Differences between sustainability, CSR/CS, and sustainable/green HRM

are expected to help understand how GHRM literature has progressed in recent times and specifically about examining linkages with sustainable outcomes.

The inquiry approach adopted is unique and provides original contributions that would allow further expansion of the knowledge of this domain using empirical evidence in the following manner.

- (1) Address the importance of environment goal achievement to organizational strategy
- (2) Highlight the wide-ranging implications of following an environment led Corporate Social Responsibility strategy approach

Finally, based on the review, the paper provides insights on the role of theoretical frameworks; the identification process for antecedent, moderator, mediator, and outcome variables; and recent developments in the GHRM systems/strategic GHRM/green behavior knowledge domain. These are highlighted as research gaps, where further explication is required to guide future research ([Jabbour and Renwick, 2018](#)).

3. Research methodology

A narrative review is adopted as the methodology to research information on the RQs identified above. Narrative reviews, along with systematic reviews, have been used predominantly to understand and explain the intellectual content of the HRM field ([Panayiota et al., 2017](#)). A narrative review or a semi-systematic review enables research synthesis from compiled information in a systematic, transparent, and reproducible manner ([Tranfield et al., 2003](#)). In addition, Narrative reviews help in presenting conclusions of a scope where the published literature provides a database from which the author(s) can draw interpretations on the merits of existing conceptualizations ([Snyder, 2019](#)). The intent is to develop novel insights or inferences that advance theory development. Narrative reviews have been criticized for being too impressionistic or using research questions that are eventually addressed through quantitative scholarship ([Panayiota et al., 2017](#)). The narrative review method is valuable when linking different topics for reinterpretation or interconnection ([Baumeister and Leary, 1997](#)).

In this review, the authors used a narrative style by collecting articles from high-quality peer-reviewed journals, sourced from different online databases, including ScienceDirect, Emerald Insight, SpringerLink, Wiley, Ebsco, Proquest, and Google Scholar. The process was done according to ABDC and Scopus categorizations to ensure diversity, rigor, and quality of publications, thus allowing the authors to draw comprehensive conclusions from the broad array of evidence collected. Based on the research criteria, the focus was on including all empirical papers published in the period 2015–2020 obtained from the above-identified databases. This period coincides with spikes in publications on GHRM, thus providing an ideal opportunity to refine the investigation scope and leverage the article buildup, with the intent of providing richer explanations about the progress of GHRM as a research domain ([Pham et al., 2020c](#), p. 852; [Paulet et al., 2021](#), p. 59). This approach finds precedence in prior academic investigations, which focused on generating more explanatory knowledge ([Podgorodnichenko et al., 2020](#)).

The following search strings have been used by previous researchers while conducting literature reviews on GHRM trends and emerging areas of inquiry:

{“green human resource”, “green HRM”, “environmental HRM”, “green training”, and “environmental training” ([Yong et al., 2019](#), p. 3)}, {“green human resource management”, “sustainability”, and “sustainable development” ([Amrutha and Geetha, 2019](#), p. 3)}. Thus, so far it can be inferred that literature reviews have focused on GHRM’s relationship with either environment management or with the macro goal of sustainability.

The present study uses the conceptualization of “sustainable HRM” based on the objectives of the review. Thus, the combination of keywords (“green human resource management,” “sustainable human resource management,” “green HR,” “green HRM,” etc.) used in the research paper helped in optimizing the search results and identifying those articles that investigate the linkage between GHRM and sustainable HRM and how this is expected to progress further in the future. Additionally, evidence from a content mapping of the HRM field indicates that the literature on the mechanisms that link HR practices to desired organizational outcomes has witnessed the fastest growth during the period 1992–2015 (Panayioti *et al.*, 2017), making the current inquiry both topical and relevant to prevalent academic interests.

Since previous reviews already mapped the trends in GHRM literature from 1995 to 2019, in the current study, the authors use a narrative review as a research strategy to delve deeper into the formation of different relations reported in the GHRM literature and how they connect back to the broader organizational context of sustainability and CS/CSR objectives.

After applying the exclusion criteria, where all conceptual papers, thought articles, bibliometric analyses, discussion papers, and qualitative studies were not considered according to the pre-specified research objectives, the authors identified 38 empirical papers for detailed analysis from a total of 118 articles on GHRM-sustainable HRM topics published in the identified time frame.

4. Results

4.1 Operationalization of GHRM in academic literature (2015–2020)

The operationalization of GHRM as a construct needs to be understood better to comprehend how more generalizable insights can be drawn as there are multiple assumptions regarding its concept, usage, and points of agreement and argument (Amrutha and Geetha, 2019). This investigation has so far not been done in previous literature reviews; therefore, a knowledge gap exists, as outlined in the research objectives presented above.

Early researchers of GHRM literature wrote about the role of HRM practices in fostering the organizational goal of sustainability, realized through the implementation of environment-supportive activities (Jackson *et al.*, 2011). Table A1 captures the different approaches (behavioral, functional, capability, and employee perception of GHRM) identified to understand how GHRM has been investigated in recently published empirical studies.

GHRM as a research domain has formally been recognized as an area for inquiry since 2011 (Paulet *et al.*, 2021, p. 167). Quantitative evidence is still emerging and there is a need to recognize new perspectives beyond the functional and behavioral approaches usually adopted by most researchers while conceptualizing and consequently operationalizing research constructs (Pham *et al.*, 2020a–c; Ren *et al.*, 2018, p. 776). In the current study, the authors examine, suitable evidence, and propose a common basis for how GHRM research problems are formulated. The understanding behind the logic of how evidence is gathered for evaluating GHRM effectiveness is expected to not only enable the refinement of its measurement but also enhance conceptual clarity and aid in further theorizing. While a few papers included in the review have explicitly stated the logic, in many papers, the approach remains tacit. Although these perspectives have been proposed in previous research articles (Kramar, 2014; Ones and Dilchert, 2012; Renwick and Robertson, 2008; Renwick *et al.*, 2013; Jackson and Seo, 2010) as guiding approaches to designing GHRM studies, scholars would find the aggregated view useful in understanding the application of these perspectives.

The research paper suggests that by focusing on how the GHRM problems are used for developing different conceptualizations instead of solely analyzing the study findings, the phenomenon can be understood better. A brief review of the questions reveals that GHRM studies aim is to investigate its differential impact on organizational and environmental

sustainability. Furthermore, to overcome the problem of generalization, which many of the researchers have mentioned as a limitation (Ren *et al.*, 2018), the validation of the results of the model in the context where it was developed would be more meaningful, thus underlying the importance of context embeddedness in developing GHRM constructs. The four approaches as listed in Table A1 provided in Appendix would aid researchers to determine the direction in which they would want to advance their inquiry.

4.2 Findings: causes, effects, and associations tested in the literature

Table A1 presents the guiding approaches used by scholars to define the investigation logic that has shaped the GHRM construct development. It is further important to analyze the interlinkages among the different variables for future theoretical modeling.

Theoretical testing of the conceptual frameworks has enabled GHRM scholars to advance their knowledge about the growing field and contribute to the knowledge creation process. The following subsections present a summary of the relations that have been quantitatively tested in the recent period (2015–2020), which gives an indication of the evolution of the GHRM field and how it has affected organization sustainability.

4.2.1 GHRM practices. As described in Table A1, GHRM practices have functioned as determinants of sustainability-related outcomes or as links that support or strengthen the realization of these outcomes. In their study, O'Donohue and Torugsa (2016) have tested the moderating effect of GHRM on small- and medium-sized enterprises' (SMEs') financial performance and proactive environmental management. Their study provides important evidence on the role of GHRM practices as an alternative route to technological investment for the greening strategy of SME firms. In the study by Guerci *et al.* (2016), GHRM practices are considered mediators between stakeholder pressure and environmental performance. Their study provides insights into role of complex network of actors and their influence on organizational processes, which in turn affects environmental performance. GHRM practices were further found to mediate the relation between leadership support, employee behaviors, and attitudes toward green innovation and creativity (Jia *et al.*, 2018; Singh *et al.*, 2020).

GHRM practices have shown a positive association with green supply chain management (GSCM) practices (Nejati *et al.*, 2017; Zaid *et al.*, 2018), indicating their multidisciplinary nature in influencing organizational green outcomes. Further, GHRM practices have also been observed as important antecedents/causes to behavioral outcomes at the individual, group, and organizational levels, indicating a multilevel impact (Ogbeibu *et al.*, 2020; Pham *et al.*, 2020a; Pinzone *et al.*, 2016, 2019; Ren *et al.*, 2020; Saeed *et al.*, 2019; Song *et al.*, 2020). Yu *et al.* (2020) have reported a positive association between GHRM practices and environmental cooperation—a type of stakeholder behavior. GHRM practices have also been identified as a cause of environmental performance (Lee, 2020) and sustainable performance (Jerónimo *et al.*, 2020; Mousa and Othman, 2020; Yong *et al.*, 2020). The evidence reviewed in the study reflects how GHRM practices act as an important tool for driving environmental and organizational performance. Future studies can further explore how GHRM practices can impact sustainable performance through interaction with other functions as suggested below.

Proposition 1. Explore how GHRM practices interact with other functions (Marketing, R&D, IT, and so on) to support organization greening and sustainability efforts. Identify outcomes (organizational or individual) that are likely to occur as a result of multi-disciplinary approach adopted.

4.2.2 GHRM behaviors. This perspective attempts to understand how individual behaviors and attitudes play a role in sustainability. The data from the review of the above empirical studies show that sustainability outcomes are determined by social and cognitive processes that affect employees' motivation to perform green tasks. The studies have explored different

socio-psychological processes to achieve green behavioral outcomes at the employee and organizational levels (Benn *et al.*, 2015; Bhatnagar and Aggarwal, 2020; Davis *et al.*, 2019; Kim *et al.*, 2017; Xing *et al.*, 2019; Zoogah, 2016). The role of leadership in the GHRM behavioral literature has been one of the emerging areas of inquiry in the selected period, with researchers trying to understand the association between different leadership styles and behaviors with the subsequent adoption of GHRM systems and practices impacting sustainability goals. A study on the impact of the CEO's ethical leadership style (Ren *et al.*, 2020) has tested the relationship between formal GHRM systems and the informal cues on environmental performance, as signaled by the top management. Similarly, other studies show the linkage between green transformational leadership and green innovation and creativity (Jia *et al.*, 2018; Singh *et al.*, 2020). Hence the following proposition is suggested to guide future research to understand the behavioral mechanisms that are involved as part of GHRM implementation.

Proposition 2. How do leadership style and behavior impact organizational sustainability?

4.2.3 GHRM perceptions. Employees' perceptions about GHRM implementation have gained academic attention, with researchers trying to understand how such perceptions will affect behaviors and attitudes at the workplace, which subsequently impacts company's environmental performance and other organizational and employee outcomes. Studies have reported a positive association between perceived GHRM and employees' green performance and behaviors (Dumont *et al.*, 2017; Hameed *et al.*, 2020). Spillover effects of perceived GHRM on employees' non-green task performance and other workplace outcomes have been identified (Shafaei *et al.*, 2020; Shen *et al.*, 2018). Linkages to environmental performance have been explored through individual actions arising from self-beliefs, values, and attitudes (Kim *et al.*, 2019; Umrani *et al.*, 2020). The role of perceived organizational actions that are environmentally supportive has been investigated as well (Paillé *et al.*, 2020). Perceived GHRM has also been found to be positively associated with the leadership style and approach to achieving desired employee outcomes (Ahmad and Umrani, 2019). The role of attribution literature in understanding the impact of environmental initiatives on organizational sustainability has been growing and hence, the following proposition is provided below to guide future inquiry in this area.

Proposition 3. How does employee perception of organization's green initiatives affect the three pillars of sustainable performance-environmental, economic, and social?

4.2.4 GHRM capabilities. This perspective involves how GHRM practices, processes, and behaviors are combined with organizational tools and resources to create capabilities for achieving sustainability. The core argument of this perspective is that organizations have different abilities in terms of implementing sustainability, and the underlying mechanisms through which they are realized need to be understood. Some aspects that have been explored here are the role of green intellectual capital (Yong *et al.*, 2019; Yusliza *et al.*, 2020), ecological routines (Zoogah, 2018), and big data technologies (Singh and El-Kassar, 2019). The following proposition is suggested to further build knowledge on how GHRM capabilities will impact organizational performance.

Proposition 4. What organizational and individual factors explain the differences in firm sustainability performance?

4.2.5 Contextual variables. In their review, Ren *et al.* (2018) have mentioned the need to incorporate the context in the research design to highlight the differential impact of a firm's sustainability efforts due to the GHRM design being influenced by external factors.

The extant literature on organizational sustainability and sustainable use of resources has focused on large firms rather than SMEs, whereas SMEs that together produce a large portion of the environmental impacts from commercial activities remain under-researched in the academic literature (Singh and El-Kassar, 2019). External pressures from outside stakeholders that shape GHRM processes and strategies have also been subjects of intense exploration (Guerci *et al.*, 2016; Yu *et al.*, 2020). The industry type can affect the orientation of the GHRM practices. Most manufacturing companies have aimed to eliminate the waste generated during the production and disposal of their products and have, therefore, improved their corporate performance. Regarding service industries such as hotels, their green efforts include reducing waste, conserving energy and water in their operations, and educating customers and employees (Kim *et al.*, 2019). Thus, scholars will need to consider how the choice of industry affects environmental performance and the configuration of people's green practices as part of their studies. Technological turbulence and environmental dynamic capability (Ogbeibu *et al.*, 2020) are other external stimuli factors that influence GHRM and environment sustainability (ES) relations. From the behavioral and capability perspective, individual values (Dumont *et al.*, 2017) and organizational processes (Davis *et al.*, 2019; Zoogah, 2018) moderate the association between green behavior, antecedents, and outcomes. Employees' values, attitudes, and perceptions of organizational support for the environment have been found to moderate the association between perceived GHRM and green behavior and environmental performance outcomes (Hameed *et al.*, 2020; Paillé *et al.*, 2020; Shen *et al.*, 2018; Umrani *et al.*, 2020). GHRM researchers as listed above have outlined the importance of outside factors and surrounding situations that impact environmental performance and the approach adopted towards achieving organization sustainability. As a result, the following proposition is provided to ensure future theoretical frameworks consider the inclusion of these external factors and their role in influencing organization sustainability.

Proposition 5. What role do outside factors play in explaining the differential impact of GHRM implementation and how does it affect firm sustainability efforts?

5. Discussion of the findings

5.1 GHRM and environment performance

The review finds the use of different theoretical lenses as listed in Table A1 to explain the diverse GHRM conceptualizations empirically investigated. These theoretical lenses have explained the interlinkages through which GHRM outcomes are realized, which can be categorized under three main streams of literature related to environment management, strategic HRM, and sustainable HRM. While the discussion on the role of GHRM in environment management has been in focus since the 1990s, strategic HRM and its role in explaining the GHRM connection with corporate environmental performance and its implications on firm financial performance emerged as a new direction for GHRM research that has gained traction from 2010 onwards (Jackson and Seo, 2010). Furthermore, there has been a recent call among scholars to understand GHRM's role in fostering organizational sustainability, which continues to be an under-researched stream despite gaining significant academic attention as a result of the ongoing climate change discourse. So far, the studies that have examined the GHRM–environment management dynamics have tried to specify the effects of GHRM practices and behaviors and the intermediating mechanisms through which they influence corporate environmental performance. Guerci *et al.* (2016) uses Paauwe's (2004) theory on context-based HRM to explain how economic and regulatory factors impact the influence of GHRM practices on environmental performance. The theory has been further used to explain the importance of contextual factors in influencing employee green behaviors and attitudes (Saeed *et al.*, 2019). The stakeholder theory (Freeman, 1984) has been used to

explain the differential impact of stakeholder pressures and requirements on corporate environment performance (Guerci *et al.*, 2016; Yasir *et al.*, 2020). The resource-based view (RBV) theory (Barney, 1991) shows how GHRM practices can support environmental outcomes (Ren *et al.*, 2020) and has been used to explain the integration effect of GHRM practices with GSCM, which has a positive influence on organization ecological performance (Zaid *et al.*, 2018; Nejati *et al.*, 2017). The natural resource-based view (NRBV) theory (Hart, 1995) further supports the link between GHRM practices and GSCM to improve energy efficiency and environmental performance (Lee, 2020). The supplier–values fit theory (Edwards, 1996) explains the role of individual values as a contextual factor influencing employee environment-friendly behaviors (Dumont *et al.*, 2017; Hameed *et al.*, 2020). The social identity theory (Tajfel and Turner, 1979) and the social exchange theory (Blau, 1964) explains the effect of perceived GHRM practices on individual employee green performance (Kim *et al.*, 2019; Paillé *et al.*, 2020).

Ability-motivation-opportunity (AMO) theory (Appelbaum *et al.*, 2000) and the contingency theory (Schoonhoven, 1981) together have been used to explain how GHRM practices can influence stakeholder cooperation for eco-initiatives (Yu *et al.*, 2020). AMO theory has been used by researchers to explain how GHRM practices affect environmental performance and its influence on employee green behavior and attitudes (Pinzone *et al.*, 2016, 2019; Saeed *et al.*, 2019). Finally, behavioral theories have explained the link between green practices, employee behaviors, and environmental performance (Benn *et al.*, 2015; Pinzone *et al.*, 2016, 2019; Zoogah, 2016; Kim *et al.*, 2017; Davis *et al.*, 2019; Xing *et al.*, 2019; Umrani *et al.*, 2020; Jerónimo *et al.*, 2020). Thus, the theoretical lenses applied by researchers as summarized above reveal the improvement of employee participation in eco-initiatives, integration with other functions for supporting firm environment goals, and better corporate environmental performance as the key areas through which GHRM studies have contributed to environment management literature.

5.2 GHRM and organization performance

The studies that have tried to locate GHRM research in the strategic HRM literature have attempted to explain its role in supporting firms' strategic goals that exhibit linkage to organizational financial performance. High-performance work practices (Huselid, 1995) have been used to explain the synergistic and performance-enhancing effects of GHRM practices to achieve strategically important business-related objectives (O'Donohue and Torugsa, 2016). Evolutionary Economics (Schumpeter, 1934; Alchian, 1950) has been used as a lens to examine how organizational processes impact employee green behaviors and their subsequent effect on organization performance (Zoogah, 2018). AMO theory (Appelbaum *et al.*, 2000) has been used for explaining how GHRM practices impact organization performance by influencing employee green behaviors, green creativity, and transformational leadership (Jia *et al.*, 2018; Pham *et al.*, 2020b).

Thus, the review of the above-listed strategic HRM-focused papers shows how the implementation of GHRM practices, its integration with other management functions and connection with leadership behavior led to enhanced financial and environmental outcomes for organizations through effective channeling and monitoring of organizational resources (Chams and García-Blandón, 2019).

5.3 GHRM and sustainable performance

The sustainable HRM literature is at a nascent stage, with researchers trying to understand how GHRM implementation affects each of the three dimensions of organizational performance. The RBV theory (Barney, 1991) has been used to understand how GHRM practices differentially affect economic, environmental, and social firm performance (Yong *et al.*, 2020). It has been

further used along with Dynamic Capabilities Theory (Teece *et al.*, 1997) to explain the link between GHRM practices, firm's resources, and green behaviors and their impact on green innovation performance and environment performance (Singh and El-Kassar, 2019). Another application of RBV Theory (Barney, 1991) in conjunction with AMO (Appelbaum *et al.*, 2000) is for explaining the impact of GHRM practices on organization innovation and environment performance (Singh *et al.*, 2020). AMO has been additionally used to examine the impact of GHRM practices on sustainability performance (Mousa and Othman, 2020). The human capital theory (Lepak and Snell, 1999) explains how the implementation of GHRM practices affects green innovation and green human capital. The Intellectual Capital View (Edvinsson and Malone, 1997; Sveiby, 1997) explains how green human, relation, and structural capital impact the firm environment and economic performance (Yusliza *et al.*, 2020).

Social theories, such as the social exchange theory (Blau, 1964) and the social identity theory (Tajfel and Turner, 1979) have been used to explain the linkage between the perception of GHRM implementation and employee well-being-related outcomes to gauge firms' social performance (Ahmad and Umrani, 2019; Bhatnagar and Aggarwal, 2020; Shen *et al.*, 2018). Other psychological theories such as the Job Characteristics Model (Hackman and Oldham, 1976) and Supplies/values fit theory (Edwards, 1996) explain the impact on job-related attitudes based on employee perception of GHRM implementation, leadership behavior, and values (Ahmad and Umrani, 2019; Shafaei *et al.*, 2020). Stakeholder theory (Freeman, 1984) explains how GHRM can support stakeholder organization goals on innovation performance (Ogbeibu *et al.*, 2020). Thus, so far GHRM studies conceptualized using a sustainability focus have helped in identifying the different dimensions of firm performance beyond the traditional financial and environmental perspective.

A summary of the different theories used to explain the impact of various GHRM constructs on different organization and individual outcomes is provided in Table 2.

6. Future conceptualization-impact of GHRM constructs

The measurement perspectives outlined in Table A1 show the use of different theoretical frameworks being applied for designing GHRM studies. The functional perspective shows the adoption of ability, motivation, opportunity (Appelbaum *et al.*, 2000) model suggested by Renwick and Robertson (2008) as the most frequently used framework for the conceptualization and measurement of GHRM practices, its applications have increased to study a wide range of individual and firm-level ecological goals by using GHRM bundles rather than focusing on individual GHRM practices (Mousa and Othman, 2020; Ogbeibu *et al.*, 2020; Pham *et al.*, 2020b; Pinzone *et al.*, 2016; Singh *et al.*, 2020). Furthermore, there is an attempt to expand knowledge by understanding the indirect and interactive influences of these practices on corporate environmental performance (Pham *et al.*, 2020b). The perception of environmental performance and GHRM implementation has emerged as an important lens through which researchers have tried to understand its multilevel effects and intermediating mechanisms through which it affects employee environment and workplace outcomes (Ahmad and Umrani, 2019; Shafaei *et al.*, 2020; Shen *et al.*, 2018; Hameed *et al.*, 2020). In addition, studies (Dumont *et al.*, 2017; Hameed *et al.*, 2020) using employee perception of GHRM as a measurement perspective have examined the role of contextual influences on GHRM practices addressing the recommendations made by Renwick and Robertson (2008), Renwick *et al.* (2013). The differential effect of stakeholder pressures on GHRM practices that have an impact on environmental performance and sustainability has been investigated using the functional and behavioral perspective (Guerci *et al.*, 2016; Ogbeibu *et al.*, 2020; Yasir *et al.*, 2020). The role of organizational actors in the adoption of GHRM practices has been taken up as a research subject as well (Ren *et al.*, 2020) and the impact of its implementation on stakeholder behavior (Yu *et al.*, 2020).

Theory	Explanation of GHRM construct impact	Literature stream
Context-based HRM (Pauwe, 2004)	Role of GHRM in developing environment performance in response to economic and regulatory pressures (Guerci <i>et al.</i> , 2016)	Environment management
High-performance work practices (Huselid, 1995)	Importance of contextual factors in influencing employee green behaviors and attitudes (Saeed <i>et al.</i> , 2019)	Environment management Strategic HRM
Stakeholder theory (Freeman, 1984)	HRM practices to be considered synergistic and performance-enhancing to achieve strategically important business-related objectives (O'Donohue and Torugsa, 2016)	
	Differential impact of stakeholder pressures on firms' environmental performance (Guerci <i>et al.</i> , 2016)	Environment management Sustainable HRM
	How perceived organization support affects the relationship between perceived green HRM and employee organization identification and its subsequent impact on employee workplace attitudes (Shen <i>et al.</i> , 2018)	
	Impact of stakeholder requirements on environment performance (Yasir <i>et al.</i> , 2020)	Environment management Sustainable HRM
	Explain how GHRM practices support stakeholder organization goals (Ogbeibu <i>et al.</i> , 2020)	
Resource-based view (Barney, 1991)	Integration between GHRM and GSCM that supports environment performance (Zaid <i>et al.</i> , 2018)	Environment management Sustainable HRM
	How GHRM practices affect green innovation performance and environment performance (Singh and El-Kassar, 2019)	
	Shows the link between GHRM practices and sustainability (Yong <i>et al.</i> , 2020)	Sustainable HRM
	Effect of GHRM practices on organizational performance for creating sustained competitive advantage (Singh <i>et al.</i> , 2020)	Sustainable HRM
	Explains how effective integration of GHRM with supply chain management process can be achieved (Nejati <i>et al.</i> , 2017)	Environment Management
	Explains how GHRM can support better environment performance outcomes (Ren <i>et al.</i> , 2020)	Environment management
Supplies/values fit theory (Edwards, 1996)	Moderating the role of individual values on employee green behavior (Dumont <i>et al.</i> , 2017)	Environment management Sustainable HRM
	Relation between employee perception of leadership behavior and green values and how it affects job-related attitudes (Ahmad and Umrani, 2019)	
	Explains the role of values as a contextual factor influencing green behavior (Hameed <i>et al.</i> , 2020)	Environment management
Natural resource-based view (Hart, 1995)	How GHRM links GSCM with energy efficiency and environmental performance (Lee, 2020)	Environment management
Social exchange theory (Blau, 1964)	Relation between POS-E, eco-initiatives, and employee job attitudes (Bhatnagar and Aggarwal, 2020)	Sustainable HRM
	The indirect effect of GHRM on individual environmental performance through POS-E (Paillé <i>et al.</i> , 2020)	Environment management
	Links GHRM practices with employees' green behavior (Pham <i>et al.</i> , 2020a)	Environment management Sustainable HRM
	Relation between employee perception of leadership behavior, and job satisfaction (Ahmad and Umrani, 2019)	
Social identity theory (Tajfel and Turner, 1979)	Relation between environmental commitment and eco-friendly behaviors (Kim <i>et al.</i> , 2019)	Environment management
	Relationship between perceived green HRM and non-green employee task performance, organization citizenship behavior, and intention to quit (Shen <i>et al.</i> , 2018)	Sustainable HRM
Contingency theory (Schoonhoven, 1981)	GHRM's relation to stakeholder behavior (Yu <i>et al.</i> , 2020)	Environment management Sustainable HRM
Intellectual capital view (Edvinsson and Malone, 1997; Sveiby, 1997)	Role of intellectual capital in predicting economic and environmental performance (Yusliza <i>et al.</i> , 2020)	
	Role of intellectual capital in GHRM implementation (Yong <i>et al.</i> , 2019)	Environment management Sustainable HRM
Human capital theory (Lepak and Snell, 1999)	GHRM practices impact on green innovation and green human capital (Song <i>et al.</i> , 2020)	
Dynamic capability theory (Teece <i>et al.</i> , 1997)	Interactions between a firm's resources and green practices and behaviors create sustainable capabilities (Singh and El-Kassar, 2019)	Sustainable HRM

Table 2.
Role of theories in explaining the application of GHRM constructs (2015–2020)

(continued)

Theory	Explanation of GHRM construct impact	Literature stream
Self-determination theory (Deci and Ryan, 1985) and goal setting theory (Locke et al., 1981)	Effect of environmental motivation on green behavior and its consequent impact on environmental performance (Davis et al., 2019)	Environment management
Positive organization scholarship (Cameron et al., 2003)	Influence of non-linear dynamics of ecological behavior based on positive organizational scholarship paradigm and its implications for environmental sustainability efforts made by organizations (Zoogah, 2016)	Environment management
Work engagement (Kahn, 1990)	Impact of environmental initiatives on employee attitudes and response towards participation in such programs (Benn et al., 2015)	Environment management
Organizational identity theory (Albert and Whetten, 1985)	Effects of organizational and behavioral determinants on corporate environmental performance (Xing et al., 2019)	Environment management
Organizational citizenship behavior (Bateman and Organ, 1983; Smith et al., 1983)	Explain the antecedents of voluntary green behavior in the workplace (Kim et al., 2017)	Environment management
	Understand the perceived impact of GHRM implementation on environmental performance and identify the intermediating mechanisms that affect this relationship (Umrani et al., 2020)	Environment management
	Explains how GHRM practices are connected with organization-level green behaviors (Pinzone et al., 2016)	Strategic HRM
Evolutionary economics (Schumpeter, 1934; Alchian, 1950)	Examine the role of organizational processes on environment-friendly behaviors and their impact on organizational performance (Zoogah, 2018)	Strategic HRM
Job characteristics model (Hackman and Oldham, 1976)	Explains the mechanisms through which employees view the impact of GHRM implementation and its effects on job-related attitudes (Shafaei et al., 2020)	Sustainable HRM
Organization culture (Schein, 1992)	Explains the role of culture as an antecedent to green HRM implementation and its impact on environmental performance (Shafaei et al., 2020)	Environment management
Ability-motivation-opportunity theory (Appelbaum et al., 2000)	Impact of GHRM practices on perceived firm sustainable performance (Jerónimo et al., 2020)	Environment management
	Influence of GHRM practices on employee green behaviors and attitudes (Pinzone et al., 2016, 2019; Saeed et al., 2019)	Environment management
	Impact of GHRM practices on organization innovation outcomes (Singh et al., 2020)	Sustainable HRM
	Impact of GHRM practices on organization performance and employee green behavior outcomes (Pham et al., 2020b)	Strategic HRM
	Impact of GHRM practices on creativity and leadership (Jia et al., 2018)	Strategic HRM
	Impact of GHRM practices on sustainability performance (Mousa and Othman, 2020)	Sustainable HRM

Table 2.

Jabbour and Santos (2008) and Jabbour and De Sousa Jabbour (2016) have pointed out the need to test the interconnections of GHRM with GSCM to ensure the effective implementation of environment supportive measures across the supply chain. Evidence from research suggests that both internal and external-focused operations link GHRM bundles to sustainable operative practices using the functional and capability lens (Lee, 2020; Zaid et al., 2018), indicating that GHRM practices act as integrators within the firm and externally impact the environment and organization performance.

The research studies from the review that have employed a behavioral or capability lens have attempted to identify and explain the impact of GHRM implementation on organizational dynamics and internal processes that influence environment and organization performance outcomes (Benn et al., 2015; Bhatnagar and Aggarwal, 2020; Davis et al., 2019; Kim et al., 2017; Singh and El-Kassar, 2019; Umrani et al., 2020; Xing et al., 2019; Yasir et al., 2020; Yong et al., 2020; Yusliza et al., 2020; Zoogah, 2016, 2018).

The examination of the various published papers in this period reveals that different lenses have been adopted to analyze GHRM implementation and adoption success. Additionally, the review points out how the purpose has shifted from environmental management to the broader theme of sustainability. One of the aspects underscored earlier is

the need to understand how GHRM connects with the broader literature on sustainable HRM. GHRM and sustainable HRM are at times used interchangeably although they support different objectives. Alternatively, there is a need to investigate how these two concepts relate to the CS/CSR agenda. As outlined earlier, organizations look at ways to embed sustainability as a core component of their daily functioning. Thus, there is a need to examine new ways to operate, modify behaviors, add capabilities, and develop new routines. An organized approach to how GHRM and sustainable HRM can together or separately contribute to these goals would help organizations realize their sustainability agenda. Figure 1 explains the interconnections among GHRM, sustainability, and CS/CSR goals.

The GHRM knowledge domain has been referred to while trying to understand the HRM-CS/CSR linkage, but a deep dive into the outcomes have not been done (Podgorodnichenko *et al.*, 2020). With evidence obtained through quantitative testing, the model explains how GHRM, when evaluated with a sustainability focus, is more closely aligned with CSR/CS objectives as opposed to applying only the environment management perspective. When used to achieve sustainability-related outcomes, as shown in the research studies included in the review, GHRM reflects a multiplicity of foci corresponding to the triple bottom line, continuity, and stakeholder expectations, which is a core understanding stemming from the CSR/CS literature (De Prins *et al.*, 2014). The data from the systematic literature review by Podgorodnichenko *et al.* (2020) show that the articles have primarily explored CSR–HRM interconnections from the ethics and responsibility perspectives. Few articles have studied the direct connection between environmental performance and CSR, while the intersection of CSR, environmental goals, and sustainability remains the least studied aspect. Thus, the evidence from the above review is expected to help address this knowledge gap. Furthermore, the model shows how implementing environmental initiatives addresses the macro-

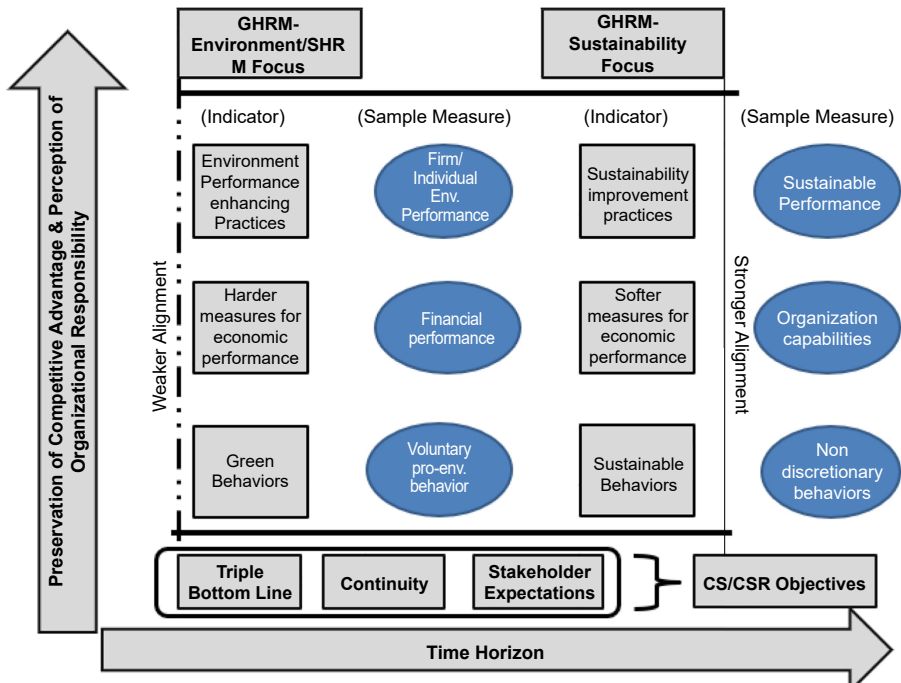


Figure 1. Represents GHRM–sustainability–CS/CSR linkage

objectives of preserving competitive strength and social support over a longer period through the outcomes they generate, more so when done with a sustainability focus. HRM activities help embed CS/CSR principles in organizations. Organizations face the pressure of demonstrating long-term value to active shareholders, which requires them to differentiate themselves as employers of choice from the HRM perspective (Ehnert, 2009). GHRM can act as one of the ways in which organizations can demonstrate their CSR/CS commitment (Stahl *et al.*, 2020). Green issues are at the forefront of all current discussions on addressing sustainability (Hughes and Semeijn, 2017). Organizations look for ways to address their sustainable development goals, and implementing environmental initiatives is one of the ways in which this can be achieved. The results from the above review show that when linked with a sustainability focus, GHRM has a wide-ranging effect on organizations than when it is used only for environmental management. This finding is further validated by the viewpoints expressed in the sustainable HRM literature, which states its primary goals as developing an innovative place with internal and external social involvement, increasing awareness of and responsibility toward environmental preservation, and improving the distribution and consumption of resources to promote organizational success in a competitive environment (Chams and García-Blandón, 2019). Kramar (2014) has argued that environmental and human/social outcomes are interrelated and contribute to organizational sustainability. The development and the implementation of advanced environmental policies and capabilities depend on the location of the HRM policies that create trust among the employees, the management, and the communities where the organizations operate. For organizations to provide positive ecological/environmental outcomes, there is a need to manage their staff in particular ways as well. Thus, based on the evidence gathered, this study proposes that GHRM can offer pathways through which organizational sustainability can be enhanced through effective implementation and management of environment-supportive initiatives.

The diversity of perspectives emerging from the GHRM literature suggests that scholars wanting to pursue research in this area should avoid generic adaptation of constructs (Ren *et al.*, 2018). Instead, the constructs that have been used show how organizational processes are interlinked with sustainable outcomes and the role of contextual factors as boundary conditions for the associations identified. Based on the academic evidence generated in this period, it can be concluded that the conceptual frameworks have not only laid down an exo-structure for investigation but have also laid the groundwork for researchers to identify questions that probe the deeper layers of organizational dynamics that are affected when GHRM practices are implemented.

7. Conclusion

Based on this review, it can be concluded that while the focus so far has been on theory application, theory development will likely occur as more data emerges from the field. Therefore, it can be inferred that conceptualizing different relations would play an important role in generating more insights about the phenomenon unfolding in the field offering researchers an opportunity to discover newer explanations. Thus, this research paper offers scholars not only a comprehensive list of existing theories and variables but also explanations of their applications.

Additionally, the review provides a categorical basis by identifying different conceptualization perspectives to enable future researchers to develop or adopt more comprehensible measures for GHRM assessment (Pham *et al.*, 2020a; Umrani *et al.*, 2020).

The necessity to update GHRM conceptualization on an ongoing basis has also been recognized as an academic need (Ren *et al.*, 2018). The evidence shows the broadening of the GHRM school of thought from the function and behavioral perspectives to include perceptions and capabilities (Jackson and Seo, 2010; Kramar, 2014). An advantage of this

review is that it describes how in-depth GHRM theorizing has been done in recent research. Previously, this was only briefly covered, and it was acknowledged that more scholarly effort would be required to understand the same (Ren *et al.*, 2018). Previous reviews as listed earlier in the methodology section also identified themes and trends of GHRM research, leaving the process of theorizing an unexplored area. Future studies can explore the different configurations of how GHRM has been implemented to conceptualize multiple pathways for achieving organizations' environmental and sustainability goals.

Comparative studies on GHRM implementation will contribute to understanding the contextual and cultural implications, helping researchers to systematically understand and define the boundary conditions that strengthen the real-time foundations of the theoretical models. Evidence from the review points out that most GHRM theoretical models have tried to incorporate context in the research design, which has been identified as a need for advancing the GHRM scholarship (Ren *et al.*, 2018).

While GHRM has been traditionally linked to environmental management goals and more recently, to organizational performance, the evidence from the review shows a trend toward understanding its linkage to sustainability, which has been scarcely discussed in the literature (Chams and García-Blandón, 2019). The studies (Bhatnagar and Aggarwal, 2020; Song *et al.*, 2020; Singh and El-Kassar, 2019; Shen *et al.*, 2018) so far have found evidence of GHRM connections to employee well-being, organizational performance, and environmental performance, thus addressing all three pillars of organizational sustainability. However, more scholarly efforts are needed to further identify and classify the human, organizational, and environmental dimensions that are shaped by green practices, behaviors, perceptions, and capabilities, leaving a rich scope of knowledge contribution in this area. Therefore, the future focus for sustainability researchers would be to catalog the effects of all environmental initiatives and their consequent impact on organizational sustainability.

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Measurement perspective	Research questions	Author(s) and journal name	Theoretical basis	Construct operationalization
Behavioral	Does an association exist between an organization's environmental support and employee outcomes? While businesses undertake and support environmentally sustainable pursuits, do these organizations also receive and undertake internal paybacks in the form of employee behaviors or mental models?	Bhatnagar and Aggarwal (2020) <i>Employee Relations: The International Journal</i> , 0142–5,455	Social exchange theory (Blau, 1964)	(1) POS-E (2) Employee Eco initiatives (3) Psychological capital (4) Meaningful work (5) Alienation
	Does autonomous environmental motivation influence the extent to which the employees engage in green human resource management (GHRM) interventions?	Davis et al. (2019) <i>Business Strategy and the Environment</i> , 29(4), 1–12	Self-determination theory (Deci and Ryan, 1985) Goal setting theory (Locke et al., 1981)	(1) Employee green behavior (2) Goal commitment (3) Feedback (4) Autonomous environmental motivation
	How does ecological transcendence affect ecological behavior?	Zoogah (2016) <i>Management Research Review</i> , 3(99), 1,034–1,055	Positive organization scholarship (Cameron et al., 2003)	(1) Ecological transcendence (2) Ecological behavior
	What is the impact of HRM practices on the attitudes of an organization's employees as a result of the implementation of environmental initiatives? How does employee participation in environmental initiatives affect their perception of organizational environment performance and does it impact their engagement and attitude towards the organization?	Beim et al. (2015) <i>Persomel Review</i> , 44(4), 492–510	Work engagement (Kahn, 1990)	(1) Organization's environmental performance (2) Participation in environmental initiatives (3) Employee engagement (4) Job satisfaction (5) Intention to quit
	What are the interrelations among green organizational identity, innovation performance, and green competitive advantage and how do they impact environmental performance? What roles do external factors play in regulating innovation performance?	Xing et al. (2019) <i>International Journal of Environmental Research and Public Health</i> , 16(6)	Organizational identity theory (Albert and Whetten, 1985)	(1) Green organizational identity (2) Corporate environmental performance (3) Sustainability exploration innovation (SER) (4) Sustainability exploitation innovation (SEI)
	What are the roles of individual and contextual factors and their dynamics that act as antecedents of voluntary green behavior in the workplace (VGBW)?	Kim et al. (2017) <i>Journal of Management</i> , 43(6), 1,335–1,358	Organization citizenship behavior (Bateman and Organ, 1983; Smith et al., 1983)	(1) Conscientiousness (2) Moral reflectiveness (3) VGBW for leaders and group members (4) Work group green advocacy
	Is there any link between environmental orientation and environmental performance? If so, what internal mechanisms mediate this link? What is the role of top management's environmental awareness on environmental performance?	Yasir et al. (2020) <i>Journal of Cleaner Production</i> , 275, 123003	Stakeholder theory (Freeman, 1984)	(1) Environmental orientation (2) Environmental performance (3) Green business strategies (4) Top management environmental awareness (TMEA)

(continued)

Table A1. GHRM measurement approaches (2015–2020)

Measurement perspective	Research questions	Author(s) and journal name	Theoretical basis	Construct operationalization
Capability	Does green intellectual capital predict sustainable performance (environmental, economics and social performance)??	Yusliza <i>et al.</i> (2020) <i>Journal of Cleaner Production</i> , 249, 11933-34	Intellectual capital view (Edvinsson and Malone, 1997; Sveiby, 1997)	(1) Environmental performance (2) Economic performance (3) Social performance (4) Green human capital (5) Green structural capital (6) Green relational capital (7) Green human capital (8) Green relational capital (9) Green structural capital (10) GHRM practices
	Does green intellectual capital (green human capital, green structural capital, and green relational capital) predict GHRM?	Yong <i>et al.</i> (2019) <i>Journal of Cleaner Production</i> , 215, 364–374	Intellectual capital view (Edvinsson and Malone, 1997; Sveiby, 1997)	(1) High-performance organizing (2) Environmental management practices (3) Organizational performance (4) Green decisions (5) Green behaviors
	How do green decisions, green behaviors, and ecological organizing routines affect organizational performance?	Zoogah (2018) An evolutionary economics perspective. <i>Human Resource Management</i> , 57(1), 159–175	Evolutionary economics (Schumpeter, 1934; Alchian, 1950)	(1) High-performance organizing (2) Environmental management practices (3) Organizational performance (4) Green decisions (5) Green behaviors
	How do GHRM practices influence the integration of big data technologies in organizational processes to augment the relations between internal and external green supply chain management (GSCM) practices? In turn, how do these practices influence sustainable performance?	Singh and E-Kassar (2019) <i>Journal of Cleaner Production</i> , 213, 1,264–1,273	Dynamic capability theory (Teece <i>et al.</i> , 1997) Resource-based view (Barney, 1991)	(1) Corporate commitment (2) Big data acceptance (3) Big data routinization (4) Big data assimilation (5) Green supply chain collaboration (6) Green process innovation (7) Green product innovation (8) GHRM practices (9) Environmental performance (10) Organizational performance
	How do sustainable capabilities, driven by corporate commitment and resulting from the integration of big data technologies, GHRM practices, and GSCM, enhance firms' operational and environmental performance?	Singh <i>et al.</i> (2020) <i>Technological Forecasting and Social Change</i> , 150	Resource-based view (Barney, 1991) Ability-motivation-opportunity theory (Appelbaum <i>et al.</i> , 2000)	(1) Green ability (2) Green motivation (3) Green opportunities (4) Green process innovation (5) Green product innovation (6) Green innovation performance (7) GHRM practices (8) Environmental performance (9) Social performance (10) Internal and external GSCM practices
	How does green HRM affect the green innovation performance of SMEs? Does green transformational leadership relevant and the use of green HRM practices for SME' - green innovation and performance?	Zaid <i>et al.</i> (2018) <i>Journal of Cleaner Production</i> , 204, 965–979	Resource-based view (Barney, 1991)	(1) GHRM practices (2) Environmental performance (3) Economic performance (4) Social performance (5) Internal and external GSCM practices
	What is the link between GHRM and GSCM and their impact on the triple bottom line TBL performance?			

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Table A1.

Measurement perspective	Research questions	Author(s) and journal name	Theoretical basis	Construct operationalization
Employee perception of GHRM	What is the relation between GHRM practices and sustainability?	Yong <i>et al.</i> (2020) <i>Business Strategy and the Environment</i> , 29(1)	Resource-based view (Barney, 1991)	(1) GHRM practices (2) Sustainability
	How does GHRM affect green innovation?	Song <i>et al.</i> (2020) <i>European Journal of Innovation Management</i> . Vol. 24 no. 3, pp. 951–967	Human capital theory (Lepak and Snell, 1999)	(1) GHRM practices (2) Managerial environmental concern (3) Green human capital (4) Green innovation
	How do organizational GHRM practices affect individual green behavior in the workplace?	Dumont <i>et al.</i> (2017) <i>Human Resource Management</i> , 56(4), 613–627	Supplies/values fit theory (Edwards, 1996)	(1) Perceived GHRM (2) Psychological green climate (3) Individual green values (4) In-role green behavior (5) Extra-role green behavior
	How does GHRM influence the association between leadership and employee-level outcomes? What are the mediating mechanisms through which GHRM affects this relation?	Ahmad and Umrani (2019) <i>Leadership and Organization Development Journal</i> , 40(6), 534–547	Supplies/values fit theory (Edwards, 1996) Social exchange theory (Blau, 1964)	(1) Ethical leadership style (2) Psychological safety (3) Perceived GHRM (4) Job satisfaction
	How does GHRM lead to positive outcomes at organizational and individual (i.e. employee) levels? What are the mechanisms through which green HRM leads to employees' positive outcomes at the individual level?	Shafiq <i>et al.</i> (2020) <i>International Journal of Manpower</i> , 41(7), 1,041–1,068	Job characteristics model (Hackman and Oldham, 1976)	(1) Perceived GHRM (2) Organization's environmental culture (3) Environmental performance (4) Meaningfulness through work (5) Job satisfaction
	How does the implementation of GHRM practices enhance the environmental performance of an organization? How does environmental concerns and environmental responsibility impact the relationship between GHRM and environmental performance?	Umrani <i>et al.</i> (2020) <i>Journal of Hospitality and Tourism Management</i> , 44, 50–60	Organization citizenship behavior (Bateman and Organ, 1983; Smith <i>et al.</i> , 1983)	(1) Perceived GHRM (2) Environmental concerns (3) Environmental responsibility (4) Environmental performance
	How does the implementation of GHRM practices enhance environmental performance via employees' commitment and eco-friendly behavior?	Kim <i>et al.</i> (2019) <i>International Journal of Hospitality Management</i> , 76, 83–93	Social identity theory (Tajfel and Turner, 1979)	(1) Perceived GHRM (2) Employees' organizational commitment (3) Employees' eco-friendly behavior (4) Environmental performance
	How do perceived GHRM influence employees' non-green attitudes and behaviors in the workplace?	Shen <i>et al.</i> (2018) <i>Group and Organization Management</i> , 43(4), 594–622	Social identity theory (Tajfel and Turner, 1979)	(1) Perceived GHRM (2) POS-E (3) Organizational identification (4) Task performance (5) Organizational Citizenship Behavior toward the Organization (OCBO) (6) Intention to quit

(continued)

Measurement perspective	Research questions	Author(s) and journal name	Theoretical basis	Construct operationalization
	What social and psychological processes connect GHRM to employee outcomes?	Hameed <i>et al.</i> (2020) <i>International Journal of Manpower</i> , 41(7), 1061–1079	Organization citizenship behavior (Bateman and Organ, 1983; Smith <i>et al.</i> , 1996) Supplies/values fit theory (Edwards, 1996) Social exchange theory (Blau, 1964)	Perceived GHRM (1) Green employee empowerment (2) Organizational citizenship behavior toward the environment (3) OCBE (4) Individual green values (1) Perceived GHRM (2) Perceived organizational support for the environment (POSE) (3) Individual environmental performance (4) Satisfaction with the organization's environmental engagement (1) GHRM practices (2) Environmental cooperation with suppliers (3) Environmental cooperation with customers (4) Internal GSCM (1) Green recruitment and selection (2) Green development and training (3) Green employee empowerment (4) Green pay and reward (5) Green performance management and appraisal (6) Resistance to change (7) GSCM (1) Green hiring (2) Green training (3) Green compensation (4) Sustainability (1) GHRM practices (2) Proactive environmental management (3) Financial performance (1) GHRM practices (2) Top Management Team green commitment (3) CEO ethical leadership (4) Environmental performance
Functional	How does GHRM, POSE, and employee satisfaction with organizational engagement, affect individual environmental performance?	Pailé <i>et al.</i> (2020) <i>Journal of Cleaner Production</i> , 260	Contingency theory (Schoonhoven, 1981) AMO	
	Does GHRM affect environmental cooperation with suppliers and customers?	Yu <i>et al.</i> (2020) <i>International Journal of Production Economics</i> , 219, 224–235	Resource-based view (Barney, 1991)	
	Does internal GSCM moderate the relation between GHRM and environmental cooperation?	Nejati <i>et al.</i> (2017) <i>Journal of Cleaner Production</i> , 168, 163–172	Ability-motivation-opportunity theory (Appelbaum <i>et al.</i> , 2000)	
	Does GHRM influence the implementation of GSCM? Is this relation moderated by employees' resistance to change?	Jerónimo <i>et al.</i> , 2020 <i>Journal of Business Research</i> , 112, 413–421	High-performance work practices (Huselid, 1995) Resource-based view (Barney, 1991)	
	How do GHRM practices affect the perceived organizational rationale for sustainability?	O'Donohue and Torugsa (2016) <i>International Journal of Human Resource Management</i> , 27(2), 239–261 Ren <i>et al.</i> (2020) <i>International Journal of Manpower</i>		

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Measurement perspective	Research questions	Author(s) and journal name	Theoretical basis	Construct operationalization
	How does green training influence job satisfaction, an important indicator of the internal social sustainability of the organization? How does green training affect the OCBs by employees to help attain their organization's environmental sustainability goals?	Pizzone <i>et al.</i> (2019) <i>Journal of Cleaner Production</i> , 226, 221–232	Ability-motivation-opportunity theory (Appelbaum <i>et al.</i> , 2000)	(1) Green training (2) Green POSE (3) Green goal difficulty (4) Job satisfaction (5) Organization-focused citizenship behavior towards Environment (OCBE-O) (6) Co-worker focused citizenship behavior (OCBE-I)
	What are the direct, indirect, and interactive influences of GHRM practices on corporate environmental performance? What is the role of employees' environmental commitment to OCBs in such connections?	Pham <i>et al.</i> (2020b) <i>International Journal of Hospitality Management</i> , 88	Ability-motivation-opportunity theory (Appelbaum <i>et al.</i> , 2000)	(1) Green training (2) Green performance management (3) Green employee involvement (4) Employees' environmental commitment (5) Organizational citizenship behavior towards the environment (OCBE)
	What factors affect employees' green creativity, and how are they interrelated?	Jia <i>et al.</i> (2018) <i>Sustainability</i> 10(9)	Ability-motivation-opportunity theory (Appelbaum <i>et al.</i> , 2000)	(1) GHRM practices (2) Green creativity (3) Transformational leadership (4) Green passion
	What is the impact of external stakeholder pressures (regulatory and customer) on environmental performance? How do GHRM practices affect this association?	Guerci <i>et al.</i> (2016) <i>Journal of Human Resource Management</i> , 27(2), 262–289	Context-based HRM (Paanwe, 2004) Stakeholder theory (Freeman, 1984)	(1) GHRM practices (2) Environmental performance (3) Stakeholder pressures (4) Customer pressure
	What is the interplay among GHRM bundles, green team creativity, and green product innovation? What are the roles of technological turbulence and environmental dynamic capability in the above linkages?	Osgeibu <i>et al.</i> (2020) <i>Journal of Cleaner Production</i> , 244	Stakeholder theory (Freeman, 1984)	(1) Regulatory pressure (2) Green recruitment and selection (3) Green performance and compensation (4) Green training, involvement, and development (5) Technological turbulence (6) Green team creativity (7) Green product innovation (8) Environmental dynamic capability
	What is the link between different GHRM practices and employees' collective engagement in OCBs? Which mechanisms guide this linkage?	Pizzone <i>et al.</i> (2016) <i>Journal of Cleaner Production</i> , 122, 201–211	Ability-motivation-opportunity theory (Appelbaum <i>et al.</i> , 2000) Organization citizenship behavior theory (Bateman and Organ, 1983; Smith <i>et al.</i> , 1983)	(1) Green competence building (2) Green performance management (3) Green employee involvement (4) Collective OCB (5) Collective affective commitment

(continued)

Table A1.

Table A1.

Measurement perspective	Research questions	Author(s) and journal name	Theoretical basis	Construct operationalization
	What is the link between GHRM practices and sustainable performance?	Mousa and Othman (2020) <i>Journal of Cleaner Production</i> , 243, 118585	Ability-motivation-opportunity theory (Appelbaum et al., 2000)	(1) Green hiring (2) Green training and involvement (3) Green performance management and compensation (4) Environmental performance (5) Economic performance (6) Social performance (1) Environmental training (2) Employees' environmental commitment (3) Employees' in-role green performance (4) Cultural influence (1) GHRM practices (2) Pro-environmental psychological capital (3) Environmental knowledge (4) Pro-environmental behavior (1) GHRM practices (2) Environmental uncertainty (3) GSCM practices (4) Environmental performance (5) Energy efficiency
	What is the link between green training and employees' in-role green performance? How does culture influence this association?	Pham et al. (2020a) <i>Journal of Environmental Management</i> , 269, 110781	Social exchange theory (Blau, 1964)	
	What is the role of GHRM practices in enhancing employees' pro-environmental behaviors?	Saeed et al. (2019) <i>Corporate Social Responsibility and Environmental Management</i> , 26(2), 424–438 Lee (2020) <i>International Journal of Energy Economics and Policy</i> , 10(3), 332–339	Ability-motivation-opportunity theory (Appelbaum et al., 2000) Context-based HRM (Peauwe, 2004) Natural resource-based view (Hart, 1995)	
	What are the roles of GHRM practices, environmental uncertainty, and GSCM in improving environmental performance? What are the roles of GHRM practices, environmental uncertainty, and GSCM in improving energy efficiency?			