



Analyzing the effect of green human resource management to attain organizational sustainability

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Abstract Practices of green human resource management help organizations and employees meet the fundamental needs of sustainability for social justice, health, and well-being in addition to achieving economic stability and ecological balance. Green human resource management is the integration of environmental consciousness throughout the entire human resource management process, including the hiring of employees, the provision of training to employees, the rewarding of the employees' efforts, and the development of a green workforce that is aware of environmentally friendly morals, practices, and standards. The sustainability and effectiveness of an organization are greatly relying on the quality of its human resource management. Green HRM promotes proper guidelines, policies, standards, and practices that create a considerable effect in the improvement of sustainability in organizations. For organizations applying GHRM is a challenging task. This survey intends to make review green human resource management by reviewing the contributed 55 papers. Those papers were collected from the year 2013 to 2021. In this, the literature review analyses the diverse techniques regarding Green human resource management. Additionally, this paper provides a comprehensive study concerning the chronological review based on each publication. Also, the performed analysis in each research paper is manifested. As a final point, it extends the different research issues which can be helpful for the researchers to complete further research on practices of Green HRM.

Keywords GHRM · Organizational sustainability · Effectiveness · GHRM practices

Abbreviations

CEO	Chief executive officer
CSR	Corporate social responsibility
GHRM	Green human resource management
GSCM	Green supply chain management
GTL	Green transformational leadership
HR	Human resource
HRM	Human resource management
ICT	Information and communication technology
PLSSEM	Partial least square structural equation modeling
R&D	Research and development
SCM	Supply chain management
SEM	Structural equation modeling
SME	Small and medium enterprise

1 Introduction

Human Resource Management (HRM) is highly incorporated with green concepts, which helps in the exposure of Green Human Resource Management. Green HRM helps the organization in achieving economic constancy and ecological stability by assembling sustainability necessities for social justice, health, and well-being of organizations and employees (Nisar et al. 2021). Green Human Resource Management involves undertaking eco-friendly Human Resource initiatives ensuing in greater work efficiency, lower cost for production, and enhanced work commitment of employee and employee work retention (Marrucci et al. 2021). The emerging role of developing sustainable organizations in

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the competitive market is finding difficult in the current situation.

Fine-tuning practices of Green HRM and paying little attention to the effectiveness of environmental management. Until 2008, Green HRM methods were classified as environmental management as methods of recruitment and selection (Sabokro et al. 2021). For evaluation and management of performance, green training, organizational development, labor relations, green pay, and green reward through human resource professionals, organizations are trying to use strategies that make their business greener. Practices of Green HRM must be enhanced to make sure that these available resources are maximized within the organization and provide preferred public sector innovation. This requires a modification in the way people are managed, especially in Small and medium enterprises, to achieve desired outcomes by developing an approach that takes into account employee orientation and sustainability in an organization's environment. Green HRM is followed by the organization to improve the sustainability of both the organization and its environment (Mousa and Othman 2020). Some of the Green HRM practices which are constantly followed by the organization are namely.

1.1 Green recruitment and selection

The process which creates a positive impact on the environment of the organization by minimizing the usage of paper and undergoing the process of recruitment. Through online resources like electronic mail, Global talent pool, and other mediums the applications are retrieved and processed. Some job seekers choose to give up their probable wages to work for environmentally conscientious organizations (Jamal et al. 2021). Successful Recruitment and Selection Methods are Core Components Items Points Human Resources for any organization. Strategies of effectual recruitment and green selection result in effective improvement of the organization. Recruitment involves attracting potential candidates to apply for existing vacancies within or outside the organization, thus attracting employees to the platform for environmental protection knowledge as well as environmental conservation interests. By selecting candidates with an ecological mindset, companies can hire experts who know of stable processes.

1.2 Green employee involvement

Green employee participation refers to the prospect for employees to discover environmental strategies and how they can be applied to combat pollution and other environmental problems. Organizations require to demeanor an environmental review, thus altering the organizational culture, concerning waste management, pollution, and serving

the general public, those who are getting exaggerated by pollution (Afum et al. 2020).

1.3 Green performance

Management of the environment and policy handling will be properly maintained when green performance is adopted in the organization (Farias et al. 2019). Green performance is a procedure that motivates employees to improve their skills which is essential for their profession. Also, the green performance of employees helps to achieve the aim, objectives, and scope of the organization. Consciousness about the strategies proposed by the corporates is delegated by managing the performance of the organization in green aspects (Belhadi et al. 2018). The green performance of an organization also influences the business strategy of corporates globally.

Damages will be reduced to defend the organization's environment by properly maintaining green performance. Also, human resource managers can motivate employee to improve their performance in green aspects. Some companies today are tackling green performance management by establishing enterprise-wide performance levels of organizations' environment and information reviews of the environment to generate constructive environmental performance data (Pipatprapa et al. 2017). This overall concept of green HRM is briefly shown in Fig. 1.

1.4 Green organizational culture

The diversified concept of organizational culture in green aspects includes eco, an environmental, sustainability-oriented friendly culture which is specially designed to improve and extend the culture of an organization in the context of green-oriented. Green organization culture is the collection of shared values, norms, beliefs, perspectives, and other guidelines that helps the employees of an organization to behave properly during the process of economic business (Shah et al. 2021; Afum et al. 2020). For achieving corporate social responsibility the organizational culture should be maintained in the green aspects. The most significant thing in project management is performance evaluation. Additionally, to meet the value of reliability, adequacy, and fairness, successful evaluation provides useful criticism to employees and contributes to the unremitting enhancement of the environmental concert of an organization. Environmental green performance assessment litigation addresses the necessitate for managers to be held responsible for environmental green performance in adding up to broader performance scope. According to the hypothesis, HRM may play a beneficial function by finding, choosing, training, and fairly compensating their skilled, capable, and competent personnel, which ultimately raises their level of motivation and productivity. Additionally, it increases their effectiveness and efficiency

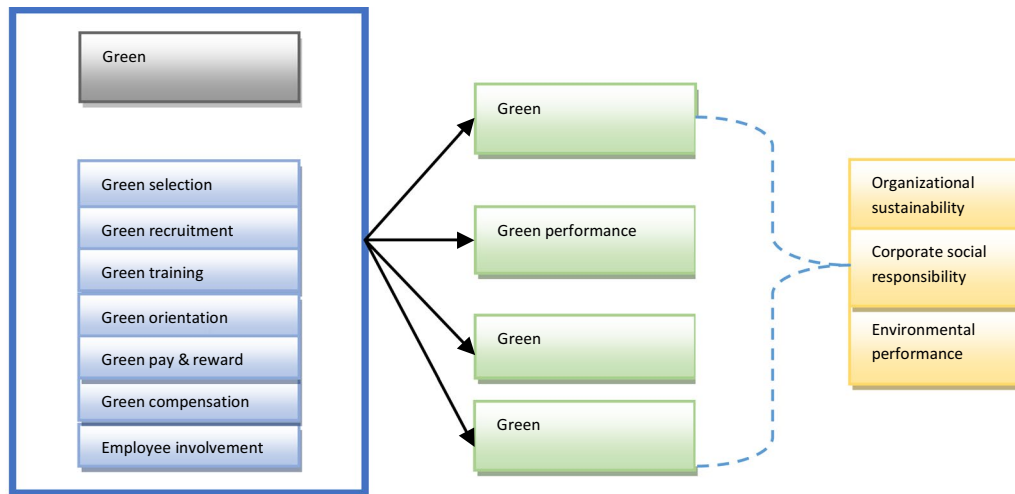


Fig. 1 Overall model of green human resource management concept

in terms of improved quality, maximum profit, and increased profit.

The contribution of this research work is as follows:

- A concise summary of 55 research publications on green human resource management is provided. The papers that had been gathered were from the year (2013–2021).
- Structured survey questions were used to gather data for analysis, and they were distributed to the appropriate authorities of various organizations, manufacturing companies, and industries.
- PLS-SEM and fuzzy set comparative analysis were used as the analysis types for determining the effects of Green HRM.
- Future researchers will look back on this as a turning point because it also depicts the current difficulties with the structure and methods of green human resource management.

The remainder of this paper is organized as follows: The summary of the gathered research papers is covered in Sect. 2. Section 3 presents the analysis of the compiled research papers. In Sect. 4, the highlighted research gaps and difficulties are addressed. Section 5 provides a conclusion to this study.

2 Literature review

In this research work, a total of 55 research papers have been collected, and all these papers have been selected from standard journals like the journal of human resources, Elsevier, Springer, Taylor and Francis, and so on. The papers

are collected from the year (2013–2021). The papers are selected based on green human resources practices.

2.1 Related works

Green HRM helps the organization to upgrade itself to maintain a high level of work and performance sustainability in the organization. For that purpose, more green HRM practices and drivers are involved to enhance the outcome of the organization. Green HRM helps to improve process efficiency, reduce costs, eliminate environmental waste, and update HR products, tools, and measures. By becoming environmentally aware, organizations are beginning to incorporate an environmental approach into their normal working environment with civilization. Those drivers and practices are explained in the following existing works of literature. Table 1 depicts the sustainability practices created by the authors.

2.1.1 Green human resource management practices

Green HRM encompasses environmentally friendly workforce management initiatives that increase efficiencies, lower costs, and improve employee commitment and retention, helping organizations reduce their employees' carbon footprint through green human resource practices. To create firms that are environmentally trustworthy, resource-efficient, and socially responsible, green HRM offers a collection of policies, procedures, and systems that support green behavior among employees.

Nisar et al. (2021) have examined the practices of Green HRM and their role in the performance of organizations' environments. They looked into the relationship between employees' ecological behavior and their intellectual capital

Table 1 Sustainability practices created by authors

Citation	Context	Definition
Nisar et al. (2021), Marrucci et al. (2021), Sabokro et al. (2021), Mousa and Orthman (2020), Jamal et al. (2021), Obedat et al. (2020), Paillé et al. (2020), Malik et al. (2020), Elishaer et al. (2020), Malik et al. (2021), Amjad et al. (2021), Fawehinmi et al. (2020), Rawashdeh (2018), Al Kerdawy (2019), Tang et al. (2018)	Green HRM practices	Green HRM is expanding its role within the organization to promote and achieve sustainable goals. The word Green HRM is mainly applied to HRM policies and activities of an organization. Some of the practices followed by the organizations are green recruitment, hiring, selection, training, and green orientation
Zhu et al. (2021), Dumont et al. (2017), Kim et al. (2019), Chaudhary (2021), Al-Ghazali and Afsar (2021), He et al. (2021), Bohlmann et al. (2018), Zhang et al. (2019), Saeed et al. (2019), Ansari et al. (2021)	Green employee behavior	Sustainable employee behavior has a direct impact on the effectiveness of an organization's environmental protection and is the key to ensuring the organization's sustainability. Sustainability in employee behavior refers to a set of actions taken by employees to reduce negative environmental impacts and promote sustainability
Shah (2019), Srivastava and Shree (2018), Liu et al. (2020), Xie et al. (2020), Pinzone et al. (2019)	Green training	Green training is an essential factor of motivation that helps to improve the behavior of organizations' employees by offering knowledge concerning the organization. Green training makes the employees obtain and equip with the activities followed by the organization
Ge et al. (2016), Wang et al. (2017), Jabbour et al. (2016), Feng et al. (2017), Abbas (2020), Pipatprapa et al. (2017), Farias et al. (2019), Belhadi et al. (2018)	Green performance	Green performance explains the employee's focus on improving the efficiency of work in an effective way to get a better result. The work productivity of the organization gets increased by providing green training to the employees
García-Machado and Martínez-Ávila (2019), Yang et al. (2019), Shah et al. (2021), Asmuni et al. (2014), Chen et al. (2020), Chandra et al. (2021), Afum et al. (2020)	Green organizational culture	A company's culture is said to be "green" if its employees strive to have a greater beneficial impact on society while also reducing its negative production practices that hurt the environment

for sustainability. They prepared survey questions and distributed them to the respective authorities of the organization. From 374 employees they collected the data and performed PLS-SEM analysis. They identified that green development, training, and discipline management create the greatest impact on green intellectual capital in the organization. Their study correlates GHRM practices with the environmental behavior of organizations and green intellectual capital. They also evaluate the organization's recital with the help of the practices of GHRM. They also recommend the organization punish the employee if they disobey the rules and guidelines followed by the respective organization.

Marrucci et al. (2021) have evaluated the consequence of GHRM on the performance and reputation of the firm. They examined the practices of GHRM such as green training, recruiting, involvement, green rewarding, and performance management. They prepared a constructive questionnaire and collected samples from the registered organization. They found that corporations had begun appearing on their functionality to step forward their sustainability control. They identified that GHRM positively impacts the performance of the organization. Additionally, they evaluated the affiliation between GHRM and the circular economy.

Sabokro et al. (2021) have investigated the effect of CSR and green psychological climate on the green behavior of employees in the organization. They surveyed by distributing the structured questionnaire to the managers of the organization and performed PLS-SEM for the collected data. They found that GHRM creates an impact on the organization's social responsibility, the green behavior of the employee, and their psychological capital. They also demonstrated the role of Green HRM in attaining organizational sustainability. They also suggested founding sustainable practices for minimizing resource consumption.

Mousa and Othman (2020) have evaluated the deployment of green HRM and its' influence on organizational performance and sustainability. They conducted semi-structured interviews to gather the information. Also, the data has been gathered from the HR managers, CEO, and operational managers. A structured survey was conducted by them using quantitative tools from 69 employees of health care centers. Their study showed that green HR management creates a high-level collision in the sustainable performance of health care centers. They also discovered that green hiring, training, and interaction are the most crucial green HR management approaches. They also looked at the route coefficient to determine how green HRM affected achieving environmental sustainability. Additionally, they assessed how green HR management affected workers' eco-friendly behavior.

Jamal et al. (2021) have recognized the influencing nature of green HR management practices in the industry; they considered the practices of Green HRM as green training, recruitment, pay and rewards, training, and involvement of

employees. They surveyed 200 industry managers and gathered their responses. They delivered PLS-SEM for analyzing the performance. Their findings resulted that practices in Green HRM positively impact green selection, recruitment, pay and reward, and green involvement. Also, they found that green training is not impacted the sustainability of the organization.

Obeidat et al. (2020) have demonstrated the Green HRM role in the industry. They developed hypotheses and analyzed the Green HRM effects on the industry. They prepared a set of questions and collected data from 144 industrial managers. They analyzed the collected data using PLS-SEM analysis. They find out that Green HRM creates a high-level impact on the firms' effective performance. Furthermore, they found that the firms' performance is influenced by the performance of the firm environment.

Paillé et al. (2020) have researched to discover the effect of Green HRM practices to achieve sustainability in an organizational environment. They collected data from 221 respondents and found that practices of Green HRM indirectly affect the performance of the organization and its' environment. Their result found that training given to the employees completely impacts the environmental activities of the organization and employee satisfaction.

Malik et al. (2020) have evaluated the influencing nature of practices of green HR management and intellectual capital in achieving sustainability of the organization. They considered the practices of green HR management as a green selection of the candidate, recruitment of the candidate, and rewards given to the employees and the dimension of green intellectual capital as Green structural, green human, and green relational capital. They established that green HR management and intellectual capital create a high-level impact on the sustainability of the organization. They recommended exploring the influence of practices of Green HRM and the pressure on stakeholders in the sustainability area.

Elshaer et al. (2020) have focused more on environmental behavior, performance, and Green HRM in the organization to understand the efficiency or work. They examined the impact of Green HRM in small enterprises to increase their performance. They prepared survey questions and distributed them to the employees in the industry. They performed SEM analysis for the collected data and they found that the environmental performance of the industry is not influenced by the Green HRM. They also explained the impacting role of green HR management and the performance of the industrial environment in small-scale enterprises.

Malik et al. (2021) have demonstrated the role of employee behavior in an organization and its' relationship toward practices of green HR management like green selection, training, recruitment, reward, and evaluation of performance, CSR, and sustainable organizational performance. They prepared structured survey questions and delivered

them to 150 industries. They analyzed the collected data using PLS-SEM and tested the proposed hypothesis. They found that employee behavior is impacted by the CSR and practices of Green HRM.

Amjad et al. (2021) have revealed the effect of green HR management practices on the management to attain sustainability of organizational performance. The practices of green HRM include employee training, employee development, reward and performance appraisal of the employee, and compensation provided to the employee. They prepared survey questions and distributed them to 165 employees in the textile industry. Their results show that the sustainability of an organization is significantly impacted by the practices of green HRM.

Fawehinmi et al. (2020) have examined the influence of Green HRM on the green behavior of employees in the organization. They surveyed universities by distributing a questionnaire to 425 respondents. From the collected data they performed PLS-SEM and found that green HR management affects the green behavior of the employee in an organization.

Rawashdeha (2018) have explored the correlation between practices of green HRM and the performance of the organization's environment. They considered green HR management practices such as Green recruitment of candidates, Green selection of candidates, Green training provided to employees, Green development of employees, and Green rewards given to the employees. They prepared a structured questionnaire for collecting the data. From the response, they performed the analysis and found that green recruitment of candidates and green training given to the employees have less correlation with green training and green development. Also, their result concluded that an optimistic relationship exists between the practices of HR management and organizational performance.

Al Kerdawy et al. (2019) have demonstrated the influence of green HRM in corporate social responsibility. They conducted a survey and collected data from 326 respondents from 30 registered industries. With the collected data they performed an SEM analysis and found that there is an affirmative impact and connection between green HR management and CSR.

Tang et al. (2018) have explained the important factors of green HRM to develop the organization's productivity. They considered the factors of green HR management as green recruitment of candidates, green selection of candidates, the green performance of employees and management, green pay given to employees, green training provided to the employees, and green involvement of employees. They performed confirmatory factor analysis and their results showed that green recruitment of candidates, green selection of candidates, the green performance of employees and management, green pay given to employees, green training provided

to the employees, and green involvement of employees are the factors of green HR management.

Qureshi et al. (2020) suggested the results of the current study show that employees in the public sector were not properly informed about the government's policies and vision for green human resource management practises, which hampered the achievement of organisational environmental goals and, by extension, attempts to sustain the nation as a whole.

2.1.2 Green employee behavior

Sustainable employee behavior in green aspects refers to a set of actions taken by employees to reduce negative environmental impacts and promote a sustainable environment. Sustainable employee behavior contributes to an environmental collision in the organization. Within the framework of "green" HR management, the role of the organization and its impacting features are more efficient and effective. Organizational communication and green transformational leadership promote good environmental behavior among employees. Green employee behavior is key to creating a prominent and effective workplace.

Zhu et al. (2021) have examined the Green HRM impact on voluntary and task-related green behavior of employees in the organization. They collected data from 228 respondents using structured questionnaires from respective organizations. Their obtained results show that Green HRM impacts Voluntary and task-related employee behavior positively.

Dumont et al. (2017) have evaluated the effect of green climate and green value in Green HRM. Their outcome shows that green behavior is directly and indirectly impacted by the Green HRM of an organization. They also found the mediating effect of green psychological capital. Their findings also examined the effect of green HR management on the role of employee green behavior in an organization and found whether green HR management impacts the in-role green behavior of employees or extra-role green behavior of employees.

Kim et al. (2019) examined the improvement of employee behavior and performance with the help of Green HRM. They prepared survey questions and distributed them to 177 employees in the hotel to collect the required information. With the collected data they performed analysis and found that green HR management helps in the enhancement of performance and behavior of employees in hotels. They also recommended the respective hotel management derive Green HRM policies and guidelines.

Chaudhary (2021) have conducted a research study to find the role of green HR management in employees' environmental performance. They examined the impacting nature of practices of Green HRM on the behavioral performance of employees such as voluntary and task-related behavior. Their

proposed hypothesis is analyzed using hierarchical regression. From the performed analysis they found that Green HRM creates a high-level impact on the green behavior of the employee. Their study also revealed the effect of Green HRM on achieving organizational sustainability.

Al-Ghazali and Afsar (2021) have examined the practices of Green HRM's effect on the green creativity of employees. They also demonstrated the role of green values and intention toward environmental performance. They surveyed 437 respondents of the organization. From the collected data they performed analysis and found that Green HRM positively affects green creativity. They also found the relationship between practices of Green HRM, employee behavior, and green intention.

He et al. (2021) have surveyed and find the effectiveness of green HR management, CSR, and green leadership on the green behavior of the employee and employee performance over the task. They collect the data from 261 employees of five-star hotels and performed analysis. Through analysis, they found that CSR, Green HRM, and leadership create an impact on employee green behavior and their performance. Their analysis enhanced the performance framework and highlighted the sustainability of the organization.

Bohlmann et al. (2018) demonstrated the green behavior of the employee, overall performance, task-related behavior, and productive behavior at work. They used a design namely an experimental policy-capturing approach to find the rating of participants about the work performance and employee work behavior. With the ratings retrieved from the managers, analysis is performed and they found that job performance is impacted highly by employee task-related behavior. They also analyzed the ratings for the green behavior of employees, citizenship behavior in an organization, and work performance of employees.

Zhang et al. (2019) have explained the practices of green HR management like the life cycle of employees, training, empowerment of employees, and involvement of employees. They demonstrated the effect of green behavior in organizations. They conducted a structured survey and collected the sample data from respondents. With the help of collected data, they performed an analysis and found that there is a relationship exists between green HRM and the green behavior of the employee.

Saeed et al. (2019) have examined the practices of green HR management and its effect on the pro-ecological activities of workers in the organization. They considered the practices of green HR management as a green selection of candidates, green recruitment of candidates, green training provided to employees, green performance of employees, green appraisal given to employees, green reward offered to employees, green compensation provided to employees, and green involvement of employees. They delivered a review and collected the required information from 347 respondents

of the organization. Their obtained results show that practices of green HRM highly influence the pro-ecological behavior of employees in an organization.

Ansari et al. (2021) have examined the pro-ecological activities of employees in the organization and explained the significant impact of it on the Green HRM. They carried out a survey and received the necessary data from 342 respondents. Their results confirmed that practices of Green HRM impact the green commitment of employees and the pro-ecological performance of employees in the organization.

2.1.3 Green training

Green training helps to equip the employees of the organization about the policies and guidelines followed by the organization. Employees' green innovation and creativity are also enhanced by green training. Employees are encouraged to increase their work efficiency through green training. This will promote the employees to improve their work performance in the organization.

Shah (2019) developed a valid scale for measuring Green HRM. Their study explained the practices of green HRM like green creativity, green training, green recruitment, green development, and green selection. They performed structural equation modeling to measure the performance. For performing analysis they prepared a structured questionnaire and performed data collection. In addition, they performed CFA, convergent validity, and discriminant validity.

Srivastava and Shree (2018) explained green training and its role in CSR. The working hotel staff was where they gathered the necessary data. They conducted EFA and CFA using the data they had gathered. In addition, they also performed a hierarchical regression analysis to find out the impacting nature of green training. Their study found that providing maximum green training to the employee will impact green involvement and relates the CSR.

Liu et al. (2020) have demonstrated green training and its moderating role in manufacturing firms. They described that top management of the manufacturing firm commonly uses green training as a tool to improve the worker's performance. They prepared a structured questionnaire comprised of 221 questions and collect information from the top management of the firm. They performed regression analysis to find the affiliation between green training and CSR.

Xie et al. (2020) developed a hypothesis relating green training and the career growth of employees. They also explained the green performance of employees in the organization. They prepared a questionnaire and collected data from 35 firms. They conducted CFA, reliability, and discriminant validity analysis using the collected data. They discovered from the analysis that green training serves as a pathway for both the professional development and job performance of employees in firms.

Pinzone et al. (2019) have evaluated the engagement and behavior of the employee with the effect of green training. They also explained that green training will develop job satisfaction among working employees. They carried out a survey and gathered information from 260 healthcare experts. They conducted regression analysis and Cronbach alpha tests using the data they had gathered. Finally, they discovered the importance of green training for healthcare workers' job satisfaction and productivity.

2.1.4 Green performance

The green performance of the organization is measured using green organization development and its activities towards the environment. The practices of green HR management actively help the company to increase the attainment of the organization in green aspects. Also, green performance is enhanced by the TQM and CSR of the organization and its environment.

Ge et al. (2016) anticipated a model to examine the correlation between green performance, green legitimacy, and green orientation. They collected data from 235 green firms to perform analysis. They performed discriminant, validity, reliability, correlation analysis, regression, and rotated factor analysis. They found that green orientation and green attainment have a significant certain correlation.

Wang et al. (2017) conducted a survey in 29 sectors of manufacturing industries in China. They developed a hypothesis and check the relationship between green innovation in the manufacturing industry and the green performance of employees in the firm. They also estimated the level of performance of employees and their innovation of them in green aspects. They also investigated the gap and tools which helps to increase the firms' work efficiency.

Jabbour et al. (2016) have explained the barriers to operational practices of firms in green aspects and analyzed the effect of practices in the green performance and green operational performance of the organization. They analyzed the developed hypothesis using PLS-SEM. They collected sufficient data from 75 organizations and performed the analysis. From the analysis, they found that an affirmative bond exists between green practices and green operational organizations' performance.

Feng et al. (2017) explained the green performance and gree development of the organization and impacting nature of it among the organization. They collected data from 165 sub-regions of a country. They performed analysis for the developed hypothesis and found that there is a positive correlation between the influencing characteristics of green performance and the green development performance of the organization.

Abbas (2020) have demonstrated the role of CSR and the impacting character of TQM on organizations' performance in green aspects. They performed structural analysis for the collected data from medium-size firms and small-size firms. They discovered a link between TQM and the organization's success in terms of going green. They also noticed how TQM affected the organization's CSR.

Pipatprapa et al. (2017) have evaluated the green performance of the employee and its effectiveness to enhance the quality of the management. They prepared a structured questionnaire and delivered it to the 178 managers working in the food industry. With the gathered information they performed the SEM analysis. From the performed analysis they found the fitness of the proposed variables. Finally, their results stated that TQM has an optimistic interrelationship with the green performance of the food industry.

Farias et al. (2019) have developed an approach to establish the collision of green practices in maximizing the performance of organizations in green aspects. To discover the connection between the variables of the proposed hypothesis, they applied the ANP approach. To gather the information, a questionnaire was created. They concluded the analysis that there is a strong link between the organization's green practices and its green performance.

Belhadi et al. (2018) explained the impacting nature of lean practices on the performance of SMEs. They prepared a structured questionnaire to collect data from the employees of enterprises to perform analysis. Finally, they concluded that there is a correlation exists between lean practices and the performance of enterprises in green aspects.

Alshammrei et al. (2023) This study shows that the application of GHRM can improve the implementation of GI by businesses, which would improve the sustainability of those businesses. Additionally, this data strengthens and supports conventional wisdom. The study also shows how environmental management strategies in the innovation and human resource sectors might lead to higher sustainability.

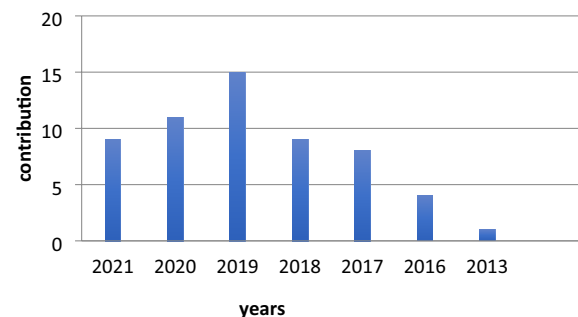


Fig. 2 Chronological review of collected papers

2.1.5 Green organizational culture

An organization's culture determines the correct way to perform within the organization. This organizational culture comprises shared beliefs and principles set by leaders and is ultimately communicated and non-breakable through a variety of ways to shape employee perceptions, behaviors, and understandings. Green culture is a collective belief in sustainable and environmentally friendly style (cooperative) production shared by the majority of the organization's members.

García-Machado and Martínez-Ávila (2019) demonstrated the effect of innovation and the relationship occurrence between green performance and green culture. They used 157 observations as a sample for measuring the performance. For the collected data they performed a PLS-SEM analysis. From the performed analysis they found the fitness of the proposed hypothesis. Finally, they conclude that there is a positive correlation occurs between green culture and organization performance.

Yang et al. (2019) explained the concept of green information systems, green innovation, and green culture. They collected data from 300 companies respectively. With the collected information they performed an analysis to find the relationship between green culture, innovation, and information system performance. They concluded that there is significant positive relationship exists between the three variables namely green innovation, culture, and performance of organizations' information systems.

Shah et al. (2021) demonstrated the impact of practices of green HRM on the organizational culture and climate in green aspects. They collected sufficient data using a structured questionnaire from 480 working employees of various organizations. Using the collected data they performed a PLS-SEM analysis. Finally, they concluded that there is significant relationship exists between the green culture and the climate of the organization, and is impacted positively by the practices of green HRM.

Asmui et al. (2014) explained the green organizational culture and commitment of the organization. They constructed a questionnaire and distributes it to the workers of the educational institution. With the collected information they performed a statistical analysis using the SPSS tool. From the performed analysis they found a relationship between organizational commitment and green organizational culture.

Chen et al. (2020) defined the green culture of an organization and its impact on enhancing the green performance of the organization. They collected data using the developed survey questions. By distributing the questions they get the data. With the retrieved data, they performed analysis and found a positive relationship between the green culture of the organization and the green performance of the organization.

Chandra et al. (2021) examined the impacting nature of green organizational culture on the performance of the organization and explained the mediating effect of innovation in the green aspect. They prepared a structured survey question and collect the data from the managers, CEO, and team members of the manufacturing firms. With the collected information they performed SEM analysis to find the fitness level of each variable. Finally, they concluded that the green culture of an organization impacts the performance of the organization positively.

Afum et al. (2020) collected the required information from 157 manufacturing industries to find out the impact of organizational culture impact on the performance of the organization's environment and the management of the organization in the green aspect. They formulated the hypothesis and performed PLS-SEM to find the goodness of fit indices.

2.1.6 Organizational sustainability

Maintaining sustainability in an organization determines having the quality leadership role, global understanding, and revolutionizing strategies needed to address the exclusive challenges faced by organizations in today's conditions. This includes, but is not defective to diminishing the worldwide talent pool across four multicultural generations. The main goal of Green HRM is to educate employees on the complexities of environmental management, what actions are required, how they work, and how they benefit the environment. This movement truly motivates employees and builds pride in being part of the Greening program.

Sathasivam et al. (2021) have undergone a qualitative study that explored the environmental sustainability of companies by using Green HRM. They conducted an in-depth interview and collect the required data. They evaluated the sustainability of an organization with three drivers such as embracing, embarking, and building sustainability in the organizational environment. Their study explored that for maintaining sustainability in organizations they should maintain the practices of green HRM like green recruiting, employee involvement, employee participation, green training, orientation, and rewards.

Roscoe1 et al. (2019) has explained the performance and sustainability of organizations' environment. This study evaluated the correlation between the practices of green HRM and the culture of the organization. They performed a survey with 204 respondents in the manufacturing industry. Their findings resulted that the practices of green HRM like green training, rewards, recruiting, and appraisal help in the deployment of organizational culture. They also explained the mediating effect of organizational culture in practices of green HRM and the performance of the organizational environment.

Table 2 Analysis of source of data collection

Author (citation)	Source of data collection
Nisar et al. (2021)	Survey questionnaire
Marrucci et al. (2021)	Questionnaire survey
Sabokro et al. (2021)	Questionnaire
Mousa and Othman (2020)	14 Semi-structured interviews
Jamal et al. (2021)	250 Questionnaires
Obeidat et al. (2020)	144 Managers 300 questionnaires
Paillé et al. (2020)	27 Questionnaires
Malik et al. (2020)	510 Complete questionnaires
Elshaer et al. (2020)	Questionnaire
Malik et al. (2021)	200 Questionnaire
Amjad et al. (2021)	160 Questionnaires
Fawehinmi et al. (2020)	665 Questionnaires
Rawashdeh (2018)	Questionnaire survey
Al Kerdawy (2019)	Self-reported questionnaire
Tang et al. (2018)	Questionnaire
Zhu et al. (2021)	Questionnaire
Dumont et al. (2017)	Questionnaire
Kim et al. (2019)	Online questionnaire
Chaudhary (2021)	Google doc questionnaire
Al-Ghazali and Afsar (2021)	Questionnaire-based survey
He et al. (2021)	Questionnaire-based survey
Bohlmann et al. (2018)	Survey questionnaire
Zhang et al. (2019)	Cross-sectional survey
Saeed et al. (2019)	Survey questionnaire
Ansari et al. (2021)	Survey questionnaire
Shah (2019)	Survey questionnaire
Srivastava and Shree (2018)	Survey questionnaire
Liu et al. (2020)	Survey questionnaire
Xie et al. (2020)	Survey questionnaire
Pinzone et al. (2019)	Survey questionnaire
Ge et al. (2016)	Online survey questionnaire
Wang et al. (2017)	Data retrieved from existing papers
Jabbour et al. (2016)	Survey questionnaire
Feng et al. (2017)	Survey questionnaire
Abbas (2020)	Questionnaire-based survey
Pipatprapa et al. (2017)	Questionnaire-based survey
Farias et al. (2019)	Questionnaire
Belhadi et al. (2018)	Questionnaire-based survey
García-Machado and Martínez-Ávila (2019)	Survey questionnaire
Yang et al. (2019)	Survey questionnaire
Shah et al. (2021)	Survey questionnaire
Asmui et al. (2014)	Questionnaire
Chen et al. (2020)	Questionnaire
Chandra et al. (2021)	Questionnaire-based survey
Afum et al. (2020)	Questionnaire-based survey
Sathasivam et al. (2021)	12 In-depth interviews
Roscoe et al. (2019)	Online questionnaire
Islam et al. (2020)	Questionnaire survey
Jerónimo et al. (2020)	Online survey
Zaid et al. (2018)	Questionnaire survey
Mousa and Othman (2020)	14 Semi-structured interviews

Table 2 (continued)

Author (citation)	Source of data collection
Yong et al. (2020)	Cross-sectional empirical examination
Bombiak and Marciniuk-Kluska (2018)	Questionnaire survey
Paillé et al. (2014)	Questionnaire survey
Mishra (2014)	Questionnaire survey

Islam et al. (2020) have explored the challenges in achieving organizational sustainability with the help of practices of green HRM. They underwent qualitative research in which the data are collected from respective authorities of the industry with planned survey questions. They found the effect of green HRM is maximized by the rules and guidelines, monitoring, and training programs followed in the organization.

Jerónimo et al. (2020) have explained green HRM as the factors which help the organization attain sustainability. They examined the aim of green hiring, training, and compensation of sustainable organizations. They performed a fuzzy-set qualitative comparative analysis with the collected data from 275 respondents. Their results show that the sustainability of the organization is mainly achieved by green hiring and less likely by green training. Also, they confirmed that green training is more important for younger employees than older employees of the organization.

Zaid et al. (2018) have investigated the relationship between practices of green HRM and green supply chain management. Also, explained the impacting nature to achieve organizational sustainability. They underwent a survey of 121 manufacturing firms. With the collected data they performed PLS-SEM and their analyzed result showed that there is a positive relationship between green HRM and supply chain management.

Mousa and Othman (2020) have identified the practices of green HRM to achieve sustainability in the organization. They also evaluated the influence of green HRM on the sustainability of an organization and its' performance. They interviewed 69 respective authorities of the organization, They performed PLS-SEM for the collected data and their results show that green hiring, training, and involvement highly impact the sustainability of the organization. The evaluated outcome of the path coefficient shows that sustainability in organizational performance is highly influenced by the practices of green HRM.

Yong et al. (2020) have examined the impact of practices of green HRM on achieving the sustainability of the organization. They conducted a structured survey in 112 manufacturing industries and collected data from respective authorities. From the collected data they confirmed that there is no relationship exists between green

selection, assessment, reward, and sustainability of manufacturing firms.

Bombiak and Marciniuk-Kluska (2018) have demonstrated the role of practices of green HRM to achieve sustainable development in the organization. They surveyed by collecting a sample from 150 respondents. Their study shows that green HRM highly helps in the development of a sustainable organizational environment.

Paillé et al. (2014) have explained the correlation between HRM, employee behavior in an organization, and the organization's performance. They prepared a set of 151 questions and distributed them to the respondents for collecting the data. Using the collected data they found that there is a positive effect and relationship between organizational employee behavior, human resource management, and the performance of the organization.

Mishra (2014) have explored the gap that exists between green HRM and organizational sustainability. They explained the practices of green HRM. They conducted a survey and collected data from the respective organizations to perform analysis. Their results showed that practices of green HRM like training, recruiting, appraisal for employee performance, compensation of an employee, and employee involvement highly impacted the sustainability of the organization and its' work performance. Table 1 shows the Sustainability practices created by the authors.

2.2 Objective of review

The following goals were specifically achieved with the help of this paper:

1. To identify related topics and briefly offer an introduction to green HR management.
2. The purpose of this survey is to look into and examine the main GHRM practices.
3. This study identifies specific areas of Green Human Resource Management research shortages.
4. This surveyed article provides a view for potential future effects.

Table 3 Analysis of data collection of respondents

Author (citation)	Data collection of respondents
Nisar et al. (2021)	374 Workers from the Malaysian Association of Hotels who work in
Marrucci et al. (2021)	819 Employees from registered organizations
Sabokro et al. (2021)	384 HR managers and employees
Mousa and Othman (2020)	69 HR managers, operational managers, and CEO
Jamal et al. (2021)	200 Human resource professionals
Obeidat et al. (2020)	286 Response 42 informants, 244 nurses, and auxiliary nurses
Paillé et al. (2020)	HR managers and directors
Malik et al. (2020)	Employees
Elshaer et al. (2020)	Employees in hotel
Malik et al. (2021)	HR managers and directors
Amjad et al. (2021)	165 Respondents
Fawehinmi et al. (2020)	425 Responses from lecturers
Rawashdeh (2018)	91 Responses from hospital managers
Al Kerdawy (2019)	326 Respondents from managers
Tang et al. (2018)	Students of MBA classes
Zhu et al. (2021)	228 Employees from manufacturing enterprises
Dumont et al. (2017)	Employee and supervisor
Kim et al. (2019)	Employee
Chaudhary (2021)	Three hundred-one employees from the automobile sector
Al-Ghazali and Afsar (2021)	437 Employees working in organizations
He et al. (2021)	The millennial employee in a 5-star hotel
Bohlmann et al. (2018)	Thirty-eight managers
Zhang et al. (2019)	Samples were taken from employees
Saeed et al. (2019)	347 Employees working in coal generating, power industry, food, chemical, and pharmaceutical industries
Ansari et al. (2021)	Employees in the manufacturing industry of Pakistan
Shah (2019)	Assistant professors of management studies
Srivastava and Shree (2018)	Employees working in the hotel
Liu et al. (2020)	170 Questionnaires to the MBA students
Xie et al. (2020)	Manufacturing firms located in the Yangtze Delta Region
Pinzone et al. (2019)	Professionals working at the hospital
Ge et al. (2016)	MBA students
Wang et al. (2017)	29 Sectors of China's manufacturing industry
Jabbour et al. (2016)	Employees of the Chinese automobile industry
Feng et al. (2017)	145 Countries sub-region
Abbas (2020)	Employees of medium-size firms
Pipatprapa et al. (2017)	178 Managers in the food industry
Farias et al. (2019)	Production and environmental manager, lean coordinator
Belhadi et al. (2018)	–
García-Machado and Martínez-Ávila (2019)	Mexican audience
Yang et al. (2019)	Contacts of 500 companies
Shah et al. (2021)	Employee of firms
Asmui et al. (2014)	Employees of higher education institutions
Chen et al. (2020)	Workers in Taiwanese manufacturing industry
Chandra et al. (2021)	Employees of the manufacturing industry
Afum et al. (2020)	Workers of Ghana's numerous industries
Sathasivam et al. (2021)	Executive director of the company, 12 relevant participants
Roscoe et al. (2019)	204 Employees at Chinese manufacturing firms
Islam et al. (2020)	12 Managers from the production, human resource (HR), finance, marketing, and merchandising departments of the RMG factories in Dhaka, Bangladesh

Table 3 (continued)

Author (citation)	Data collection of respondents
Jerónimo et al. (2020)	275 Portuguese employees
Zaid et al. (2018)	220 Manufacturers from manufacturing companies in Palestine
Mousa and Othman (2020)	69 Respondents, hr managers, operational managers, and CEO in the healthcare sector, West Bank
Yong et al. (2020)	200 Employees from a manufacturing firm of Malaysia
Bombiak and Marciniuk-Kluska (2018)	150 Young enterprises
Paillé et al. (2014)	151 Responses from top management team members, the CEO, and frontline workers
Mishra (2014)	6 Manufacturing organization

3 Analysis of existing research

3.1 Chronological review

In this survey, a total of 55 research papers have been gathered for study, and they have all been examined from a variety of angles. The research papers were assembled between 2013 and 2021. A great deal of attention is paid to the research papers released in recent years to have a clear and correct understanding of green human resource management (i.e. 2019–2021). Figure 2 depicts the historical overview of the compiled research publications. The gathered research papers include 1 and 4 papers, respectively, from the years 2013 and 2016. Additionally, there are 8, 9, 15, 11, and 9 research papers total from the years 2017, 2018, 2019, 2020, and 2021, respectively. The majority of the 15 papers have been gathered.

3.2 Analysis of source of data collection

The analysis is carried out in this phase to comprehend the method used to get the data for analysis. Distribution of structured survey questionnaires and in-depth interviews with senior managers, human resource managers, operational managers, chief executive officers, and employees of the organization, manufacturing enterprises, and other sectors are used to collect data for the study paper. Table 2 shows that the majority of research publications used survey questions to get their data. Mousa and Othman (2020), Shah et al. (2021), Sathasivam et al. (2021) collected the information by conducting in-depth interviews with the relevant organizational authorities.

3.3 Analysis of data collection of respondents

In this study, a total of 55 research articles were gathered, each of which was written by a different author with expertise in a distinct field. Some authors obtained the necessary information from the staff members in their particular industry, while others obtained it via human resource

management. We selected a sample of operational managers, superior officers, and chief executive officers from a particular organization, manufacturing firm, or industry Table 3.

3.4 Analysis of statistical tools

The majority of the research papers included in the collection use PLS-SEM for analysis. Alpha Cronbach's coefficient, descriptive statistics of variables, robust test, multiple linear regression analysis, reliability, convergent and discriminant validity, hierarchical linear modeling, and path analysis are all used to perform analyses on the collected data in 13 research papers using PLS-SEM to determine performance analysis, and 11 research papers using measurement models. Table 4 displayed those numbers.

3.5 Analysis of variables

Variables like a dependent variable, independent variable, and intermediate variable can be discovered in the study papers that have been gathered. These factors were used for analysis and for a hypothesis to be put forth. The independent variable is identified as the factor influencing the other factor. The dependent variable is the one that is affected by the other, and the mediator variable is the one that acts as a link between the two factors. There is a list of variables in Table 5.

3.6 Framework of overall green human resource management concept

To increase the sustainability of an organization, corporate social responsibility, and performance of the organizational environment Green HRM practices should be maintained. Nisar et al. (2021), Marrucci et al. (2021), Sabokro et al. (2021), Mousa and Othman (2020), Jamal et al. (2021), Obeidat et al. (2020), Paillé et al. (2020), Malik et al. (2020, 2021), Elshaer et al. (2020), Amjad et al. (2021), Fawehinmi et al. (2020), Rawashdeh (2018), Al Kerdayy (2019), Tang et al. (2018) explained the practices of Gren HRM as green

Table 4 Analysis of Statistical tools

Author (citation)	Statistical tools
Nisar et al. (2021)	PLS-SEM
Marrucci et al. (2021)	Alpha Cronbach coefficient and descriptive statistics of variables
Sabokro et al. (2021)	Measurement model
Mousa and Othman (2020)	PLS-SEM
Jamal et al. (2021)	PLS-SEM
Obeidat et al. (2020)	Measurement validation model
Paillé et al. (2020)	Confirmatory factor analysis
Malik et al. (2020)	PLS-SEM
Elshaer et al. (2020)	Measurement Model
Malik et al. (2021)	PLS-SEM
Amjad et al. (2021)	Measurement and structural model
Fawehinmi et al. (2020)	Measurement model
Rawashdeh (2018)	Multiple linear regression analysis
Al Kerdawy (2019)	SEM
Tang et al. (2018)	Confirmatory factor analysis
Zhu et al. (2021)	Regression analysis
Dumont et al. (2017)	Confirmatory factor analysis
Kim et al. (2019)	Reliability, convergent and discriminant validity
Chaudhary (2021)	Hierarchical regression analysis
Al-Ghazali and Afsar (2021)	Partial least squares—structural model
He et al. (2021)	–
Bohlmann et al. (2018)	Linear regression analysis
Zhang et al. (2019)	Hierarchical linear modeling
Saeed et al. (2019)	Hierarchical regression and path analysis
Ansari et al. (2021)	Hierarchical regression and CFA
Shah (2019)	SEM analysis
Srivastava and Shree (2018)	EFA, CFA, and hierarchical regression
Liu et al. (2020)	Regression methods
Xie et al. (2020)	Dual-stage moderated mediation model
Pinzone et al. (2019)	Regression analysis
Ge et al. (2016)	Correlation and regression
Wang et al. (2017)	–
Jabbour et al. (2016)	PLS-SEM
Feng et al. (2017)	Data envelopment analysis
Abbas (2020)	SEM
Pipatprapa et al. (2017)	SEM
Farias et al. (2019)	Analytic Network Process
Belhadi et al. (2018)	–
García-Machado and Martínez-Ávila (2019)	PLS-SEM
Yang et al. (2019)	SEM
Shah et al. (2021)	Regression
Asmui et al. (2014)	Descriptive and correlation statistics
Chen et al. (2020)	Measurement model
Chandra et al. (2021)	SEM
Afum et al. (2020)	PLS-SEM
Sathasivam et al. (2021)	–
Roscoe et al. (2019)	Covariance-based SEM
Islam et al. (2020)	–
Jerónimo et al. (2020)	Fuzzy-set qualitative comparative analysis
Zaid et al. (2018)	PLS-SEM

Table 4 (continued)

Author (citation)	Statistical tools
Mousa and Othman (2020)	PLS-SEM
Yong et al. (2020)	Measurement and structural model
Bombiak and Marciniuk-Kluska (2018)	Measurement Model, correlation
Paillé et al. (2014)	PLS-SEM
Mishra (2014)	–

recruitment of candidates, green orientation, green selection of employees, green training provided to employees, employee involvement of employees, green pay given to employees, rewards offered to employees, and compensation provided by the organization. Shah et al. (2021), Asmui et al. (2014), Chen et al. (2020), Chandra et al. (2021), Afum et al. (2020), Sathasivam et al. (2021), Roscoe et al. (2019), Islam et al. (2020), Jerónimo et al. (2020), Zaid et al. (2018) demonstrated the impact of practices of green HR management in attaining organizational sustainability, improving the performance of the organization's environment, and achieving CSR. Zhu et al. (2021), Dumont et al. (2017), Kim et al. (2019), Chaudhary (2021), Al-Ghazali and Afsar (2021), He et al. (2021), Bohlmann et al. (2018), Zhang et al. (2019), Saeed et al. (2019), Ansari et al. (2021) provided the importance of green employee behavior to increase the performance of the organization. Shah (2019), Srivastava and Shree (2018), Liu et al. (2020), Xie et al. (2020), Pinzone et al. (2019) shows the impacting nature of green training in achieving the sustainability of an organization. Ge et al. (2016), Wang et al. (2017), Jabbour et al. (2016), Feng et al. (2017), Abbas (2020), Pipatprapa et al. (2017), Farias et al. (2019), Belhadi et al. (2018) explained the quality of green performance and work efficiency of employees to reach corporate social responsibility and achieve sustainability in the organization. García-Machado and Martínez-Ávila (2019), Yang et al. (2019), Shah et al. (2021), Asmui et al. (2014), Chen et al. (2020), Chandra et al. (2021), Afum et al. (2020) analyzed the influencing drivers of green organization culture to achieve a sustainable organizational environment.

3.7 Analysis of *t*-value and *p*-value

The *p*-value is used to find out the significance level and it will measure the impact between the variables. The *t*-value is used to find out the difference between the variables. The *p*-value is the likelihood that, if the null hypothesis is correct, each test will result in a *t*-value with an absolute value at least as large as the one we observed in the sample data. The *t*-value is a way to measure the difference between population means. The *t*-value and *p*-value analysis is demonstrated in Table 6.

3.8 Analysis of reliability and validity

The consistency of the measure is defined as the reliability and the accuracy of the measure is defined as the validity. Table 7 shows the reliability and validity analysis. When the AVEs' square root values are greater than the corresponding correlation coefficients between the constructs, this is known as discriminant validity. Where CR is the construct reliability and AVE is the average variance extracted. The Cronbach alpha is reliably valid between the range of 0.5–0.8. The outcomes of green human resource management techniques, including sustainable performance, corporate social responsibility (CSR), organization citizenship behavior toward the environment (OCBE), and green training and performance assessment (economic, social, and environmental). All of the constructs have first-order factor loadings of more than 0.7, composite reliability (CR) > 0.70, average validity (AVE) > 0.50, and Cronbach's alpha > 0.70.

Table 5 Analysis of variables

Author	Independent variable	Dependent variable	Mediator variable
Nisar et al. (2021)	3	2	1
Marrucci et al. (2021)	6	1	-
Sabokro et al. (2021)	1	1	2
Mousa and Othman (2020)	3	3	-
Jamal et al. (2021)	4	1	-
Obeidat et al. (2020)	3	1	1
Paillé et al. (2020)	1	2	-
Malik et al. (2020)	8	1	-
Elshaer et al. (2020)	1	1	2
Malik et al. (2021)	5	1	1
Amjad et al. (2021)	3	1	2
Fawehinmi et al. (2020)	1	1	1
Rawashdeh (2018)	4	1	-
Al Kerdawy (2019)	1	1	1
Tang et al. (2018)	5	2	-
Zhu et al. (2021)	1	2	2
Dumont et al. (2017)	1	1	2
Kim et al. (2019)	5	1	-
Chaudhary (2021)	6	3	2
Al-Ghazali and Afsar (2021)	1	2	1
He et al. (2021)	1	1	3
Bohlmann et al. (2018)	1	3	-
Zhang et al. (2019)	5	2	1
Saeed et al. (2019)	5	1	2
Ansari et al. (2021)	2	1	1
Shah (2019)	1	2	-
Srivastava and Shree (2018)	1	2	2
Liu et al. (2020)	2	2	1
Xie et al. (2020)	2	3	-
Pinzone et al. (2019)	4	1	-
Ge et al. (2016)	4	1	1
Wang et al. (2017)	1	1	-
Jabbour et al. (2016)	2	3	-
Feng et al. (2017)	3	1	-
Abbas (2020)	5	2	1
Pipatprapa et al. (2017)	4	2	-
Farias et al. (2019)	4	2	-
Belhadi et al. (2018)	5	2	2
García-Machado and Martínez-Ávila (2019)	1	1	1
Yang et al. (2019)	5	2	-
Shah et al. (2021)	2	2	1
Asmui et al. (2014)	4	2	-
Chen et al. (2020)	5	1	-
Chandra et al. (2021)	4	2	1
Afum et al. (2020)	3	1	1
Sathasivam et al. (2021)	4	2	1
Roscoe et al. (2019)	1	1	1
Islam et al. (2020)	1	1	1
Jerónimo et al. (2020)	-	-	-

Table 5 (continued)

Author	Independent variable	Dependent variable	Mediator variable
Zaid et al. (2018)	6	2	-
Mousa and Othman (2020)	5	3	2
Yong et al. (2020)	1	1	1
Bombiak and Marciniuk-Kluska (2018)	6	1	-
Paillé et al. (2014)	1	1	1
Mishra (2014)	3	1	-

Table 6 *t*-Value and *p*-value Analysis

Citation	<i>t</i> -Value	<i>p</i> -Value
Elshaer et al. (2020)	7.691	<i>p</i> < 0.001
Malik et al. (2021)	2.896	<i>p</i> < 0.05
Rawashdeh (2018)	1.087	<i>p</i> < 0.277
Tang et al. (2018)	<i>t</i> > 0.60	<i>p</i> < 0.001
Dumont et al. (2017)	<i>t</i> > 0.62	<i>p</i> < 0.001

Table 7 Reliability and validity analysis

Citation	Cronbach Alpha	CR	AVE
Nisar et al. (2021)	0.894	0.915	0.410
Marrucci et al. (2021)	0.884	0.918	0.662
Sabokro et al. (2021)	0.873	0.880	0.664
Malik et al. (2020)	0.697	0.905	0.64
Amjad et al. (2021)	0.698	0.912	0.697
Zhu et al. (2021)	0.940	0.922	0.66

4 Research gaps in green human resource management

Several research papers mainly focus on the behavior of the organizational environment and the individuality of employees within the organization. There are more gaps in the Green HRM that need to be filled in both theoretical and empirical ways. There are more gaps found to be filled concerning Green HRM. Nisar et al. (2021), Al Kerdawy (2019) explained only a few of the Green HRM practices like green development, training, discipline management, green training, recruiting, involvement, green rewarding, performance management (Marrucci et al. 2021; Malik et al. 2020), green pay, and compensation (Amjad et al. 2021; Rawashdeh 2018). There is an issue that arises that only a few practices of Green HRM are considered. To overcome this issue few other practices of Green HRM should be introduced. Issues in data sampling: While collecting the data many research papers have taken only limited samples. So that while performing analysis reliability value will not reach the threshold value. By collecting more data samples accurate results

can be obtained. Also, some researchers found that during data collection done through a questionnaire there may be a possibility of answering the question dishonestly by the respondents. To resolve this issue better follow the stealth observation way of data collection. Issues in approaches: Some of the research work focused only on a few dimensions of Green HRM and the effect of Green HRM is not fully mentioned. Defining the characteristic of Green HRM and its usefulness to attain organization give more detailed information about Green HRM.

The following are the identified research gap and findings regarding the context of Green HRM.

4.1 Analysis of research gap and findings on Green HRM practices

Green HRM is maintained in the organization to improve the sustainability of the organization and to maximize the performance of the organizational environment. Some of the practices of Green HRM that are followed by the organizations are green recruitment, green hiring of candidates, green selection of candidates, green training provided to the selected employees, green compensation offered by the organization to the employees, green pay given to the employees, and green reward provided to the workers. These practices will directly influence the sustainability of the organization or else each one of the practices of Green HRM will separately help to develop workplace performance. Some of the findings and research gap based on practices of Green HRM in the existing literature is mentioned in below Table 8.

4.2 Analysis of research gap and findings on green employee behavior

The sustainability of an organization is increased by the green behavior of employees in the workplace. Employee behavior in an organization is classified as task-related work behavior and voluntary work behavior of employees. Also, employee green behavior helps to increase the work commitment of the organization. Some of the findings and research gap based on green employee behavior and work

Table 8 Analysis of research gap and findings on Green HRM practices

Author	Findings	Research gap
Nisar et al. (2021)	Practices of Green HRM will create a constant impact on the performance of the organizational environment Founded the characteristic of green intellectual capital	Only limited practices of Green HR management are considered. Include more other practices of Green HRM No findings on the impact of green intellectual capital on achieving a more sustainable organization
Marrucci et al. (2021)	The practices of green HRM provide a positive effect on the performance of the organization An organization's circular economy does not affect the performance of the organization and its' environment. Also, it does not affect the circular adoption practices of the organization	No consideration of moderating the role of green consciousness and the social behavior of employees in the organization
Sabokro et al. (2021)	Found the significant influence of activities of Green HRM on the career and life of an individual The resultant practices of Green HRM are consciousness, and sharing of information; environmental factors regarding personal interaction were identified	The measure of the green attitude of the employee in attaining positive organizational performance
Mousa and Othman (2020)	Impact of practices of Green HRM to attain sustainable environment Usage of Green HRM in both developed and developing countries	Lacking knowledge about the practices of Green HRM in the healthcare sector Examine the performance of the organization's environment socially and the incorporation of corporate social responsibility
Jamal et al. (2021)	Impact of practices of Green HRM like green recruitment, green selection, green pay, green rewards, green training, and green employee involvement on achieving CSR	Various qualitative practices of green HR management The functionality of green orientation and culture in the organization
Obeidat et al. (2020)	There is a positive link between the performance of the organization and its environment with the moderating effect of green HR management	Explore the optimistic consequence of green orientation and green HRM to attain sustainable environmental performance
Paillé et al. (2020)	Green training predicts the performance of the organizational environment positively The performance of the organizational environment increased by the employees' green behavior	No updation is available about the practices of sustainability to improve the organizations' level of performance
Malik et al. (2020)	Green recruitment, green selection, and rewards are the practices of green HR management that create a high level of impact on the sustainability of a firm's level of performance Green intellectual capital and practices of Green HRM have a positive impact on developing sustainable organizations	Impact of the practice of green HR management and importance of management activities and pressure of stakeholders in achieving environmental sustainability of the organization
Elshaer et al. (2020)	The positive impact of Green HRM and its practices on task-related and proactive behavior of the organizational environment Relationship between the performance of enterprise environment and Green HRM	Data is collected only from temporary workers The positive effect of employees' behavior in achieving environmental sustainability ability
Malik et al. (2021)	The behavior of employees in an organization has a high-level influence on Green HRM practices	CSR, practices of Green HRM achieving organizational sustainability and improving the performance of the organizational environment
Amjad et al. (2021)	The positive impact of practices of green HR management like green training given to employees, green development, green performance appraisal, and green reward offered to employees helps in achieving organizational sustainability with the performance of the environment and employees	Provide the ultimate combination of Green HRM and its practices required for attaining sustainability in an environment which contributes to attaining sustainability in the organization
Fawahimmi et al. (2020)	Green HRM highly affects the green behavior of employees with the help of environmental knowledge	Impact of Green HRM in promoting behavior of work-based environmental friendly in an organization and its environment

Table 8 (continued)

Author	Findings	Research gap
Rawashdeh (2018)	The role of practices of Green HRM in Jordanian hospitals There exists the strongest relationship between green training and recruitment	Green HRM and environment defense are not finely developed in rising countries like Jordan
Al Kerdaway (2019)	Green HRM persuades absolutely on adopting CSR actions	The collision of GHRM on adopting CSR in firms
Tang et al. (2018)	The influencing drivers of Green HRM consist of the following dimensions: green recruitment, green selection, green training and performance management, pay, and green involvement. and green reward	Provide green human resource practices for managing the organizational environment

performance of the employee in the existing literature is mentioned in below Table 9.

4.3 Analysis of research gap and findings on green training

Green training provided to the employees acts as an important component for achieving the sustainable development of the organization. Small and medium enterprises mainly use the concept of green training to produce green employees. Green training in an organization helps the newly appointed employees to know about the functionality of the organization and is a valuable predictor for attaining sustainability. Some of the findings and research gap based on green training and its effect on achieving organizational sustainability in the existing literature are mentioned in Table 10.

4.4 Analysis of research gap and findings on green performance

Green performance helps to maximize the work commitment in the organization and achieve sustainable development in the organization. Green performance acts as a perfect mediator between the green behavior of employees and the work efficiency of the organization. Green performance and work behavior of employees play a major role in attaining organization environment sustainability. Some of the findings and research gaps based on green innovation and its effect on achieving organizational sustainability in the existing literature are mentioned in Table 11.

4.5 Analysis of research gap and findings on green organizational culture

To maintain sustainability in an organization green organizational *culture* and green HRM should maintain a good relationship. This both acts as a mediator of performance improvement in an organization. Some of the findings and research gaps based on green innovation and its effect on achieving organizational sustainability in the existing literature are mentioned in Table 12.

4.6 Challenges in green HRM

The main focus of this entire survey is on the effect of green human resource management in attaining organizational sustainability and is mentioned in the below research questions:

Research Question 1: What are the important practices of green human resource management that help the organization to develop its performance?

Research Question 2: Is the employees’ pro-environmental behaviors in an organization impact the organization’s work performance?

Table 9 Analysis of research gap and findings on green employee behaviour

Author	Findings	Research gap
Zhu et al. (2021)	Green HRM affects the Task-related and voluntary green behavior of employees positively Environmental belief creates the positive in-cooperation between Green HRM and the Voluntary green behavior of employees The green identity of an organization mediates the Green HRM and Task-related green behavior of employees positively Green HRM impacts the in-role employee's green behavior directly and indirectly The green values of employees moderated the factor of a green culture Green HRM enhances the organizational commitment of employees, their friendly nature, and hotels' performance towards the environment GHRM significantly impacted both task-related employee green behaviors and voluntary employee green behaviors	Explore the influencing feature of Green HRM on the outcome of employees using the multi-level technique Rectify the environmental conditions of Green HRM on the green behavior of employees The influencing factor of green recruitment, training, and performance of employees on green behavior of employees Impact of extra-role employee green behavior, through the mediating effect of green culture Hotel top management and HR managers should concentrate more on Green HRM policies Identify the positive relationship between Green HRM and employee green behaviors in the organization Practices of Green HRM positively impact the green creativity of employees in an organization
Dumont et al. (2017)		
Kim et al. (2019)		
Chaudhary (2021)		
Al-Ghazali and Afsar (2021)	Practices of Green HRM positively impact the role of green creativity in the organization Green values of employees moderated the interconnection between the practices of Green HRM and the creativity of employees in the organization Positive interactive effectiveness of CSR, Green HRM, and leadership on employee green behavior and performance exists The performance of the employee towards task contributed to analyzing the ratings of work performance Green HRM creates a moderate impact on the behavior of employees in the organization	Improvement in employee behavior is a good predictor of analyzing the performance of an organization Impact of green HRM in sustainable organizational performance More involvement of employees to create green behavior in organizations' workplaces An increase in the behavior of employees is employed by the practices of Green HRM Mediating relationship between Green HRM, commitment, and behavior of employees in the organization
He et al. (2021)		
Bohlmann et al. (2018)		
Zhang et al. (2019)		
Saeed et al. (2019)	The positive relation between the knowledge of employees in the organization and the behavior of employee create a moderating effect on the practices of Green HRM	
Ansari et al. (2021)	There exists a positive impact between the employee's attitudes and employee behavior in minimizing the footprint of the environment to enhance the sustainability of the organization	

Table 10 Analysis of research gap and findings on green training

Author	Findings	Research gap
Shah (2019)	Dimensions of green training and its positive effect on achieving sustainability in an organization and improving the performance of the organization environment	Green training at the managerial level, green product and process innovation, and its influencing nature on the organization
Srivastava and Shree (2018)	Sustainable Development dimensions have a positive role in attaining organizational productivity with the help of green training	Other moderating variables for achieving sustainability are green knowledge behavior, absorptive, and internal and external knowledge transfer
Liu et al. (2020)	The positive effect of green training in top-level management The significant impact of green training on green employee behavior	Green training and new industry creation have no impact on the green entrepreneur
Xie et al. (2020)	The positive effect of green training on the career growth of the employee	Impacting nature of green training in improvement of organization performance and work efficiency of employees
Pinzone et al. (2019)	Driving factors of green training and its impact on the environmental behavior of employees Effectiveness of green training in the job satisfaction of employees	The study can be extended to other various sectors to find the generalization of green training in those sectors

Table 11 Analysis of research gap and findings on green leadership

Author	Findings	Research gap
Ge et al. (2016)	Demonstrate the relationship between green pro-activeness orientation (GPO), performance, and green legitimacy	Firms should improve the commitment of resources for promoting green performance to employees
Wang et al. (2017)	Green performance in China's manufacturing industry shows a shift to green growth	Implementation of green agenda of organization to find the impact of sustainable achievement
Jabbour et al. (2016)	The positive effect of green performance and operational performance Adoption of green HRM practices in the organization	Green performance increases the commitment level of an organization
Feng et al. (2017)	Various impacting factors of green development performance	Enterprises must increase the organization in green aspects
Abbas (2020)	The positive relationship between TQM and green performance The mediating effect of CSR in green performance	The green performance of the employee helps to measure the productivity of the organization
Pipatprapa et al. (2017)	The effect of TQM on the green performance of the food industry The impact of TQM on the innovativeness of the food industry	Develop market-driven, TQM capacity and innovation to achieve green performance in the food industry
Farias et al. (2019)	Assessment of the green and lean performance of the manufacturing firms	Expand the knowledge in different levels of sectors
Belhadi et al. (2018)	Implement green and lean innovation modules The strong correlation between operational metrics advancement and green metrics development	Explore other tools, techniques, and processes

Research Question 3: Does green recruitment of candidates, green selection of the candidate, green training provided to employees, a green reward given to employees for their activities, and compensation offered to employee helps in the sustainable development of an organization?

Research Question 4: Which methodology is mainly used to recognize the impact of green human resource management in achieving sustainable organization?

Research Question 5: What is the role of organizations' green performance in improving the value of the organization and its sustainability?

Research Question 6: Do green human resource management and green organizational culture positively impact the sustainable development of an organization?

In an organization, the Department of Human resources is mainly responsible for framing guidelines and policies to invent green effective employees. The human resource

Table 12 Analysis of research gap and findings on green organizational culture

Author	Findings	Research gap
García-Machado and Martínez-Ávila (2019)	Relationship between human resource management and green organizational culture Green HRM plays an important role to improve the performance of the organization Green organizational culture plays an important role to improve the performance of the organization	Green HRM and organizational culture create an impact on the performance of organizations and the environment of other management systems of organizations
Yang et al. (2019)	HRM green practices influence the performance of manufacturing firms with the effect on employees' behavior Green organizational culture influences the performance of manufacturing firms with an effect on employees' behavior	Green HRM and organizational culture at academic and managerial levels
Shah et al. (2021)	Green HRM and organizational culture acts as a mediator of performance improvement in an organization	Effect of Green HRM and organizational culture at other managerial levels
Asmui et al. (2014)	Internal Green organizational culture does not impact organizational performance	Effectiveness of Green HRM in changing the organizational culture
Chen et al. (2020)	Green training creates a high-level impact on organizational culture in a greenway	Green training and its opportunity in the organization to generate a green organizational culture system
Chandra et al. (2021)	The relationship between green organizational culture and performance The competitive advantage of green innovation	Environmental factors should be considered
Afum et al. (2020)	Impact of environmental performance and green organizational culture Impact of green organizational culture in manufacturing firms	Managers ensure the goals of environmental performance in the organization

department faces many challenges during the entire process of promoting Green HRM. Also, green values and green practices establishment faces many challenges in an organization. All the employees in the organization will maintain their own beliefs, attitudes, and perceptions and they will act accordingly.

- The first important challenge of green HRM is creating consciousness about the organizational environment. Incorporating the green attitude is a growing need of human life across all circumstances. All organizations should maintain a green environment for attaining organizational sustainability.
- Another key challenge faced by organizations in this process is creating green consciousness among the workforce and encouraging the employees to adopt a green work-life balance. The organization needs to enlighten the employees about the issue and encourage the integration of green behavior.
- One of the difficult tasks faced by the organization is recruiting a green employee for better work performance. Green recruitment is considered one of the key challenges for human resource managers. Each employee in the organization will not get motivated for achieving their job in green aspects.
- While selecting and assigning the employees Human Resource managers face more pressure for the deploy-

ment of Green HRM in the organization. Also, the recruited employees will take more time to adapt to the new environment in green aspects.

- Issues about the organizational environment should be provided properly by the finance and workforce groups to spread consciousness and training on green environment.
- The infrastructure of each organization/ industry/firm/ company/ other sector is not strong to accept the emerging technological changes which are considered friendly to the environment.
- Employees' lack of interest and unwillingness to work on a critical task is an additional immense challenge. A few employees think that it is not their responsibility to guard their organization's environment. They do not like to take inventiveness to pursue green practices.
- Preliminary unit cost on green practices minimizes the retribution and earnings of the organization. For example, high cost is demand in installing the solar system on the roof of a particular organization.

5 Conclusion

This study gives managers an overview of a research area that is very important to the integration of GHRM practices with organizational sustainability. It also makes suggestions on how managers might incorporate sustainability

into regular business operations. To test, alter, and improve these claims as part of further research, researchers and managers are invited to conduct additional studies. Analysis techniques like a structural model, measurement model, correlation, regression, and Cronbach alpha coefficient analysis are used to determine each research paper's performance. According to the analysis, Green HRM has a positive impact on creating a sustainable work environment. The research gap faced by the existing research paper and the findings of those papers were mentioned briefly in this survey article. Also, managers of the organization will face a challenge in explaining the consciousness and issues in the organization to develop a green environment. Such challenges faced by the human resource managers on deploying the Green HRM are portrayed, and this will be a helpful one for future researchers.

A theoretical study about achieving sustainability in the organization is explored in this paper by analyzing the practices of green HRM, green behavior of the employee, green training provided to the employees, the green performance of employees & organization, and green organization culture at the workplace. The researchers demonstrated different types of Green HRM practices adoption to attain a sustainable organizational environment. This study has also reviewed the influencing feature of green training, green employee behavior, and green organizational culture in improving the performance of the organization in the green aspect. The existing studies found a limitation in data collection. They have collected data from only a few sectors. If it is possible to collect data from many other sectors reliability will achieve constantly. In the future, empirical studies can be performed to relate the practices of Green HRM to maintain organizational culture change. Also, future researchers can undergo studies on the intermediate features of green intellectual capital and green employee retention towards attaining organizational sustainability.

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