

Green HRM: Cultivating Competitive Edge through Sustainable Practices, Empowered by Organizational Support

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Abstract

To attain a green and sustainable environment, the current study focuses on the need to think and act green to achieve sustainable development in human resource management. This paper focuses on the need to develop green HRM policies so that a competitive edge can be attained through organizational support. For this purpose, data was collected from the pharmaceutical industry in Rawalpindi and Islamabad, with a total of 208 responses from 250 distributed questionnaires. The research investigates the relationship between Green HRM practices and competitive advantage, with Green Perceived Organizational Support (GPOS) as a mediating variable. Using Hayes' process of regression analysis, both direct and indirect effects were analyzed. The findings revealed that Green HRM practices have a significant positive impact on competitive advantage, and this relationship is strongly mediated by GPOS. Overall, this research contributes to the existing literature on Green HRM by highlighting the importance of attaining a competitive edge and having motivation through perceived organizational support. Thus, this study will contribute to the future by helping organizations look into the practices that best match the employees to create a competitive edge in the market which leads to innovation, resilience, and sustainable goals. The results provide practical insights for organizations seeking to foster innovation, resilience, and sustainable goals through effective green HRM strategies.

Keywords: *Green HRM Practices, Green Perceived Organizational Support, Competitive Advantage, GPOS, Sustainable environment*

1. Introduction

In an age where sustainability has flattered into a point of convergence for worldwide organizations, the fusing of green practices in Human Resources has come out as an important goal (Lee & Trimi, 2021). Among enterprises at the front of this paragon stands the pharmaceutical sector, portrayed by its difficult functional prospect and huge environmental footprints. As companies inside this industry attempt to explore the sensitive equilibrium between economic viability and ecological responsibility, the responsibility of HRM in encouraging economic practices takes on escalated importance. As this industry always features the work-life balance

drives and prioritizes employee well-being with sustainable environmental practices. At its center, the paper looks to resolve how the execution of environmentally conscious HRM procedures for an association's capacity to acquire a competitive edge in a strong marketplace

Green HRM practices apply safe ecosystem human resources management practices, such as green training and development for the improvement and green performance of executive (Sarmad et al., 2023). Green HRM practices cover green enrolment practices, green employee training programs, and green appraisal, and compensation methods, and these variables positively affect green HRM practices. Green HRM strategies that aim to align human resource strategies with environmental sustainability (Yong & Mavi, 2021). From enrolment and selection that always focus on eco-cognizant qualities to training programs cultivating environmental mindfulness among employees of an organization, Green HRM drives are intended to supportable standards in the company's environment (Cheema & Javed, 2017). Adopting such practices has significant implications for the organization's performance and reputation in the pharmaceutical industry, where ethical imperatives and stringent regulatory frameworks intersect with concerns about sustainability.

Central to this research is the conciliated role of perceived green organizational support, which indicates workers 'intellectual impression of the situation to which their company values and supports natural sustainability drives (Al-Hawari & Melhem, 2021). By investigating at the effect of perceived green organizational support as a conciliator, this paper looks to enlighten the instruments through which Green HRM rehearses transforms into a substantial competitive advantage for the pharmaceutical firms. Additionally, the pharmaceutical industry's rival prospect is set apart by elements like mechanical advancement, administrative consent, and market elements. Against this setting, understanding how Green HRM rehearses tend to upgrade authoritative competitiveness becomes compulsory for firms looking for viable long-term development and flexibility. In a variety of firms, POS (perceived green organizational support) plays an important role in affecting employee's attitudes toward environmental sustainability. POS has a positive effect on employee environmental performance, according to studies (Chowdhury & Shamsher, 2023). In addition, a study demonstrates that worker green awareness strengthens the connection between Perceived Green Organizational Support and environmental behaviour among employees (Setyaningrum, 2023). The findings underscore the significance of encouraging a green environment to drive support of natural ways of behaving among workers and work on generally speaking environmental execution.

Having a competitive advantage in pharmaceutical companies means being distinct from rivals in a way that makes consumers choose you over them. The paper discusses Porter's concept of the value chain and how it can be used to create and sustain competitive advantage. Porter's concept of the value chain torn apart a company into "activities", or the distinct purpose or procedures that represent the elemental building bar of competitive advantage (Helmold, 2023) as mentioned in this paper, has become an essential part of global business thinking, taking plan from wide vision to an internally compatible configuration of activities. Competitive advantage is measured through profitability and market share growth, impacting financial performance (de Brito & Brito, 2012). To gain this competitive advantage, businesses frequently place strong

attention on the creation of creative medicines, the reduction of costs connected with their manufacturing processes, and financing in research that directs to gain a superior understanding of ailment. They work on areas of strength for building with experts, patients, and controllers to guarantee their medicines have faith in and are broadly utilized. By accomplishing this competently, a pharmaceutical organization can acquire a competitive advantage on the lookout. The pharmaceutical industry's growing emphasis on environmental stewardship and sustainability has brought attention to a significant research gap, especially when it comes to how Green Human Resource Management (GHRM) practices affect the industry's capacity to compete (Kerdpitak, 2020). The pharmaceutical industry is still particularly understudied, even though previous research has examined the connection between Green HRM practices and several organizational outcomes, including employee engagement and environmental sustainability. This research contributes to the literature in the following way. Firstly, this study investigates the mediating effect of Green Perceived Organizational Support (GPOS) in the relationship between GHRM practices and competitive advantage in pharmaceutical companies which thereby addresses this important gap in knowledge. Secondly, this research highlights the critical role that organizational support and employee attitudes have in determining the performance and sustainability of pharmaceutical companies, in contrast to previous studies that have mostly concentrated on the direct effects of GHRM practices (Hameed & Naeem, 2020; Carballo-Penela et al., 2023) through the analysis of how employees' perceptions of their organization's sustainability commitment impact the efficacy of GHRM efforts, this study offers important new insights into how Green HRM practices support competitive advantage. Thirdly, the study emphasizes how GHRM policies can have a greater influence on organizational performance and resilience by supporting environmental activities and cultivating good employee perspectives.

The rest of this article is structured as follows. Section 2 provides an outline of the theoretical framework and the literature review of related studies. Section 3 describes the research methodology and Section 4 presents the empirical results of this investigation. The final part of the paper includes the discussion, the conclusion, the Relevance of the study, and the prospects of the research.

2. Literature Review

2.1 Theoretical Background

The Ability-Motivation-Opportunity (AMO) theory posits that enhancing employee engagement, fostering meaningful opportunities for involvement, and building organizational capability are important drivers of improved performance among employees (Appelbaum et al., 2000). Green Human Resource Management (GHRM) aligns with these principles by focusing on environmental stewardship through tailored HR practices. For instance, GHRM contributes to green performance within organizations by providing targeted green training, hiring employees who are knowledgeable in sustainability, and encouraging participation in environmentally friendly initiatives. It also promotes the active involvement of employees by establishing green performance targets and incentive systems (Jabbour & de Sousa Jabbour, 2016). Research on GHRM's influence on organizational environmental performance has shown that these HR

practices can lead to substantial improvements. However, GHRM in isolation may not fully establish a green competitive edge for companies (Kim et al., 2019). Other organizational dimensions, such as a supportive culture and sustainable operational practices, can further strengthen the abilities, motivation, and opportunities of employees to achieve green goals (Paillé et al., 2020; Tang et al., 2018). As companies strive to address environmental concerns while meeting the demands of eco-conscious stakeholders, green innovation has become increasingly important. This innovation encompasses developing sustainable manufacturing methods and eco-friendly products aimed at reducing environmental impact. Green innovation is gaining traction globally in response to pressing issues, for instance, climate change and the degradation of the environment (Yong et al., 2019).

2.2 Research Framework and Hypotheses Development

2.2.1 Impact of Green HRM practices on an organization's competitive advantage

Green human resource management (GHRM) has become one of the critical success factors in organizations. Following business drivers, GHRM supports the attainment of organizational advantages while at the same time reducing organizations' negative impact on the environment (Malik et al., 2020). The adoption of green HRM practices enables organizations to gain a competitive advantage and position themselves as leaders in their respective industries (Bombiak & Marciniuk-Kluska, 2018). Similarly, Delery and Roumpi (2017) note that green practices are a key driver in the quest to attain sustainable competitive advantage by integrating human resource management practices with organizational strategies. Such a strategic alignment can enable the firms to optimally leverage their human resources for innovation and development (Chowhan, 2016). Thus, the use of Green HRM creates long-term sustainable HRM structures in organizations, capable of addressing diverse environmental and social issues. Additionally, Green HRM practices are believed to have strategic HRM implications, for achieving sustainable development of business organizations in, economic, social, and environmental contexts (Yu et al., 2021). These practices can be seen as having a key moderating function in enhancing the link between environmental ethics, organizational performance, and competitive advantage. By implementing Green HRM, firms can magnify the effects of environmental ethics on organizational performance and consequently, increase their competitiveness (Majid et al., 2022). Also, Green HRM practices enable organizational development and sustained competitive advantage by encouraging and achieving employees' commitment. These factors act as a bridge between the implementation of strategic HRM practices and firm performance for organizations to maintain competitive advantage. However, if corporations develop the appropriate level of human capital competency and retention, the complete potential of Green HRM can be realized whereby innovation, resilience, and sustainable competitiveness are achieved (Hamadamin & Atan, 2019).

H1: Green HRM practices positively affect an organization's competitive advantage.

2.2.2 Green HRM practices effect on green perceived organization support

By implementing Green Human Resource Management practices, organizations can foster a tradition of sustainability, leading to increased Green apparent Organizational Support (GPOS) among employees. Higher GPOS, in turn, drives employee commitment, innovation, and faithfulness, ultimately contributing to a positive ecological impact. Through Green HRM practices, companies can generate a supportive work environment, empowering employees to make a distinction and promoting a sustainable future (Saeed et al., 2019). These practices spotlight on developing employees' green skills, offering incentives for eco-friendly behaviors, and as long as opportunities for employees to contribute to environmental goals and objectives. Green HRM rehearses have arisen as an imperative technique for associations to motivate representatives to make proactive ecological moves, exhibiting hierarchical citizenship ways of behaving that benefit the planet (Chen et al., 2021). Green HRM rehearses significantly affect hierarchical maintainability, impacting both inward and outside green store networks the executives rehearse (Piwowar-Sulej, 2021). Green HRM rehearses assume a crucial part in developing a green labor force, enabling representatives to drive feasible strategic policies and environmental (Bombiak & Marciniuk-Kluska, 2018). Green HRM practices are a vital driver of hierarchical achievement, with a critical positive relationship to reasonable execution and ecological stewardship. By executing Green HRM, associations can encourage a culture of manageability, prompting expanded Green Apparent Hierarchical Help (GPOS) among workers. (Din et al., 2023).

H2: Green HRM practices positively affect the green perceived organization's support.

2.2.3 Effect of green perceived organizational support on organization's competitive advantage

Research studies have shed light on the important role of Green Perceived Organizational Support (POS) in promoting an organization's competitive edge, with Green HRM practices portion as a catalyst. By developing a culture of eco-friendliness and employee appointment, Green HRM and Green POS can drive modernism, efficiency, and environmental sustainability. Different studies have shown that Green POS is a key differentiator, enabling organizations to be prominent in a packed market and catch the attention of environmentally conscious customers and talent (W. Wang et al., 2023). Besides, Green Apparent Hierarchical Help (POS) assumes a vital part in upgrading the effect of Green HRM rehearses, for example, green preparation, on representative work fulfillment (Chen, 2011). The environmental initiative, capacity, and green store network the board are pivotal mainstays of green upper hand, and Green HRM rehearses assume a fundamental part in their turn of events, By prioritizing Green HRM and Green POS, organizations can build a robust foundation for environmental leadership, capability, and competitive advantage setting them apart in a crowded market.

H3: Green perceived the organization's support positively affects the organization's competitive advantage.

2.2.4 Effect of green perceived organizational support on green HRM practices and organization's competitive advantage

Green Organizational Perceived Support (GPOS) has been probed to enhance significantly the effect of Green HRM practices as well as encourage employees to environmentally sustainable attitudes. This in turn promotes positive environmental attitudes, which have a positive impact on the competitive position because the organization has a good reputation in the area of environmentalism. Enhanced corporate image and increased employee morale are also some of the benefits of strategic leadership that lead to sustainable future business performance. Implementing Green HRM practices therefore can help organizations to leverage the employee capacity and enhance their leadership in sustainability (Chen et al., 2021). GPOS helps the capacity of its employees, as well as their productivity, to promote a favorable change towards sustainable environmental practices. It also affects mobility limitations and plays a role in establishing a sustainable competitive advantage for a firm (C. Wang et al., 2023). Additionally, GPOS aids in the adoption of organizational green strategies thus enhancing the green performance, thereby enhancing the external image of the organization (Agyabeng-Mensah et al., 2020).

Also, GPOS fosters the environmentally conscious actions and practices of its employees. Hence, when integrated with Green HRM practices, GPOS enhances organizational citizenship behavior toward the environment, thus enhancing environmental performance and sustainability (Wang, 2019). With the increasing competitiveness of the market environment, Green HRM has become a competitive advantage for companies. Bombiak and Marciniuk-Kluska (2018) argue that when environmental sustainability factors are incorporated into HR policy, organizations get a strategic edge. In turn, GPOS posits that green practices are capable of moderating the relationship between environmental ethics and business performance, which in turn brings about enhanced performance (Majid et al., 2022).

H4: Green perceived organization's support mediates the relationship between Green HRM practices and the organization's competitive advantage.

2.3 Theoretical Framework

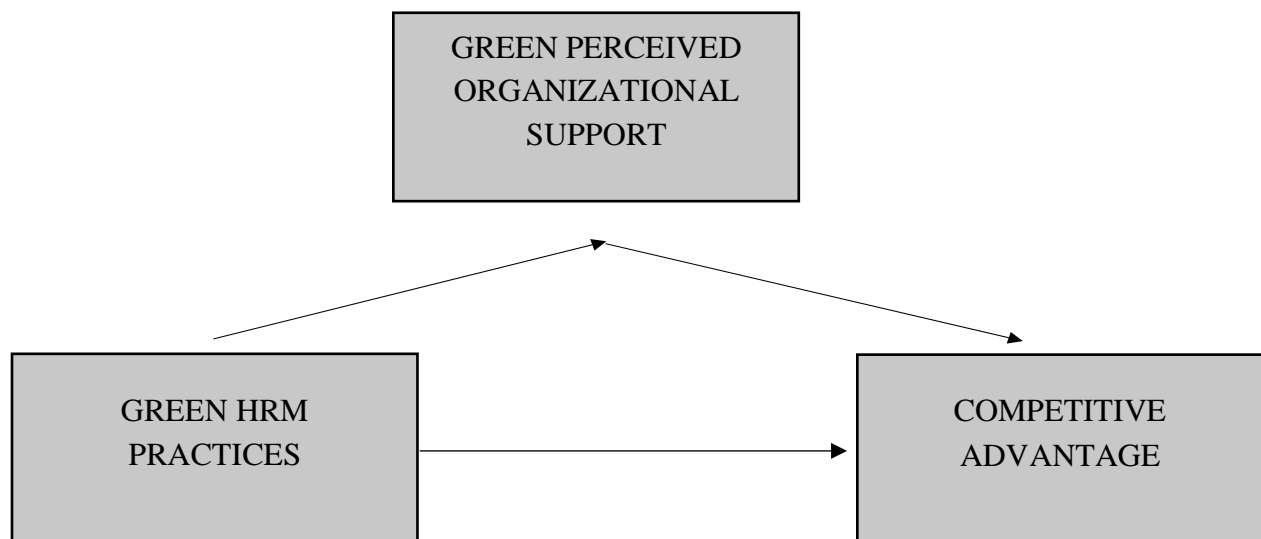


Figure 1: Theoretical Framework for Model

3. Research Methodology

3.1 Sample size and population

The study population comprises employees from pharmaceutical companies located in the Rawalpindi and Islamabad regions of Pakistan. The sample size of 208 employees was chosen to represent the industry workforce. The sample included both male and female employees aged between 25 and 55 years. A non-probability convenience sampling technique was employed, whereby participants were selected based on their availability and accessibility. This method ensured practical data collection while capturing the relevant population's perspectives on GHRM practices and their organizational impact. Data was collected through an online questionnaire created using Google Forms, which was distributed to employees of various pharmaceutical companies in the target region. The survey ensured that respondents participated voluntarily and without any form of compulsion. The questionnaire was based on established scales from previous research, with GHRM practices measured by a five-item scale Haldorai et al. (2022), GPOS by a seven-item scale (Kim et al., 2018) and COMPAD by a six-item scale (Barney, 1991). After data collection, a range of statistical analyses was conducted, including descriptive statistics, correlation analysis, Cronbach's alpha reliability tests, regression analysis, and mediation analysis, to examine the relationships between GHRM, GPOS, and competitive advantage. As the data was collected at a single point in time, this study employed a cross-sectional research design.

4. Data Analysis

4.1 Demographic Analysis

The table 1 of respondent characteristics provides valuable insights into the demographics of the sample population, crucial for interpreting the findings and drawing meaningful conclusions about the relationships under investigation. Among the 208 employees surveyed, 126 were male (60.6%) and 82 were female (39.4%). The age distribution reveals that the majority of respondents (63.5%) are between 18 and 30 years old, with 132 employees in this bracket. Employees aged 31-40 make up 24.5% (51 individuals), those aged 41-50 account for 10.6% (22 individuals), and 1.4% (3 individuals) are 50 or older. Educational attainment shows a predominantly well-educated workforce: 60.6% hold a graduate degree, 28.4% have a master's degree, 5.3% are matriculated, 3.4% have not completed matriculation, and 2.4% possess a Ph.D. This high level of education is likely to impact job roles and career opportunities within the pharmaceutical sector. Professional experience further adds depth to the analysis, with 34.1% of respondents having less than one year of experience, 35.6% with 2-5 years, 18.8% with 6-10 years, and 11.5% with over 10 years of experience. This diverse range of experience levels may affect leadership development, knowledge transfer, and organizational stability within the industry.

Table 1

Demographic Analysis

Variable	Frequency	Percentage
Gender		
Male	126	60.6
Female	82	39.4
Total	208	100
Age		
18-30	132	63.5
31-40	51	24.5
31-40	51	24.5
50 Above	3	1.4
Qualification		
Under matric	7	3.4
Matric	11	5.3
Graduation	126	60.6
Master	59	28.4
PhD	5	2.4
Illiterate	---	---
Experience		
6 month-1 year	71	34.1
2-5 year	74	35.6
6-10 year	39	18.8
10 Above	24	11.5
Total	208	100

4.2. Descriptive Statistics

The analysis begins with an exploration of descriptive statistics as illustrated in Table 2, which shows an exposure of the central tendencies and variability within each variable. Mean scores provide the average value for the set of numbers. In the table, the mean for Green Human Resource Management Practices is 1.9567, for Green perceived organizational support is 2.1393, and for the Organization's Competitive advantage is 1.9911. While standard deviations show the degree of dispersion around the mean. A high standard deviation means that the data points are far from the mean. The value of standard deviation for Green Human Resource Management Practices is .80064, for Green perceived Organizational Support, is .75685 and for the Organization's Competitive advantage is .74408. These measures serve as foundational metrics, setting the stage for deeper analysis.

Table 2

Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
GHRM	208	1	5	1.9567	0.80064
GPOS	208	1	5	2.1393	0.75685
COMPAD	208	1	5	1.9911	0.74408

4.3. Correlations Analysis

The correlation study provides valuable insights on how perceived organizational support (GPOS), competitive advantage (COMPAD), and green human resource management (GHRM) are related to one another. The following significant findings are shown by the results, as shown in Table 3.

Table 3

Correlational Analysis

	GHRM	GPOS	COMPAD
GHRM	1		
GPOS	.693**	1	
COMPAD	.765**	.831**	1

With a correlation coefficient of 0.693, the analysis shows a strong positive relationship between GHRM and GPOS. Accordingly, it can be inferred that companies that have strong Green HRM practices would probably have greater employee support, which is a sign that these companies effectively support environmental projects. Furthermore, a strong positive correlation is indicated by the coefficient of 0.765 between GHRM and Competitive Advantage, indicating that firms that adopt all-encompassing Green HRM practices have a higher probability of gaining a competitive advantage in the marketplace. Organizations that cultivate an atmosphere that supports environmental activities are better positioned to achieve and maintain competitive advantages, as evidenced by the strong positive correlation coefficient of 0.831 between GPOS and Competitive Advantage.

4.4. Reliability Analysis

Reliability analysis was employed to find out the internal consistency of measurement scales used for each variable. The Cronbach's alpha is implied to test the reliability and it indicates the reliability or consistency of the scale of each variable and the value should be greater than 0.70. So, the value of Cronbach Alpha for the variables Green Human Resource Management Practices is .894, for Green perceived Organizational Support is .871 and for Organization's Competitive advantage is .882 as shown in Table 4.

Table 4

Reliability Analysis

Variable	Cronbach's Alpha	No of items
GHRM	0.906	5
GPOS	0.86	7
COMPAD	0.857	6

4.5 Hypothesis testing

4.5.1. Direct and mediation effects

Competitive advantage (CA), green perceived organizational support (OS), and green human resource management (GHRM) are shown in Table 5 to be significantly positively correlated by the analysis. In particular, GHRM has a positive beta coefficient of 0.240 in the first case and 0.321 in the second, both of which have p-values of 0.000 and 0.002, respectively, indicating that they are statistically significant. This implies that Competitive Advantage is positively impacted by an increase in Green HRM practices. Furthermore, Green Perceived Organizational Support (OS), with a very significant p-value of 0.000 and a beta coefficient of 0.490, has a strong positive effect on Competitive Advantage. This suggests that an organization's competitive advantage is positively correlated with higher levels of perceived organizational support.

Table 5

Direct relationship results

Hypothesis	Beta Coefficient	Standard Deviation	T statistics	P values
<i>GHRM -> CA</i>	0.240	0.048	5.000	0.002
<i>OS -> CA</i>	0.490	0.059	8.305	0.000
<i>GHRM -> CA</i>	0.321	0.051	6.294	0.000

4.5.2 Mediation analysis

Baron and Kenny's (1986) approach to testing mediation was applied in the testing of this partial mediation model. This method outlines three requirements for assessing mediation models: all direct relationships between the model variables must be significant. In addition, bootstrapping was used to investigate how GHRM practices affected Competitive Advantage through Green Perceived Organizational Support (GPOS) in both direct and indirect ways. With a p-value of 0.0213, the overall impact of GHRM on Competitive Advantage was determined to be 0.6438,

suggesting that it is statistically significant. This total effect includes GHRM's direct impact as well as its indirect impact through GPOS. The GHRM practices had a direct impact of 0.1723, and the relationship's significance was confirmed by a p-value of 0.0213. This shows that advances in GHRM procedures directly contribute to an enhanced Competitive Advantage which is presented in table 6.

Table 6

Total Effect			Direct Effect		
Hypothesis	Coefficient	P values	Hypothesis	Coefficient	P values
GHRM -> COMPAD	0.6438	0.0213	GHRM -> COMPAD	0.1723	0.0213

Furthermore, the p-value for the indirect effect, which represents the influence of GHRM on Competitive Advantage through GPOS was 0.4715. The importance of GPOS in mediating the link between GHRM practices and Competitive Advantage is highlighted by this significant indirect effect as shown in Table 7. It captures the extent to which changes in the Green human resource management practices affect the competitive advantage through the pathways established by the green perceived organizational support

Table 7

Total indirect effect

	Coefficient	Standard deviation	T statistics	P values
GHRM ->GPOS-> COMPAD	0.4715	0.073	6.452	0.000

5. Discussion

This study set out to investigate the impact of Green Human Resource Management (GHRM) practices on an organization’s competitive advantage, with Green Perceived Organizational Support (GPOS) serving as a mediating factor. The finding shows that Green HRM practices have a positive effect on an organization's competitive advantage. The results align with previous research, such as that by (Bombiak & Marciniuk-Kluska, 2018), which demonstrated that integrating green practices into HR management significantly contributes to enhancing the competitive position of the company by fostering innovation, employee engagement, and operational efficiency. Thus, supporting H1. Secondly, the finding shows that Green HRM practices positively influence perceived organizational support. This is consistent with prior studies, such as those by Chen et al. (2006) , which emphasized that organizations prioritizing

environmental initiatives create a stronger sense of support among employees. As employees perceive higher organizational support for green initiatives, they are more likely to engage in sustainable practices, which further reinforce the organization's commitment to environmental goals. Thus, supporting H2. The H3 is supported as well, with the findings revealing a positive relationship between green-perceived organizational support and competitive advantage. This result corroborates research by (Agyabeng-Mensah et al., 2020) which highlighted the role of organizational support in enhancing environmental performance and competitive advantage. When employees feel supported in their green initiatives, they are more motivated to contribute to the overall success of the company which thus improves both sustainability and competitive standing. The study provides evidence that supports H4 which demonstrates that green-perceived organizational support mediates the relationship between Green HRM practices and competitive advantage. This mediation effect reflects previous findings by C. Wang et al. (2023) who found that perceived organizational support serves as a critical link between green HRM strategies and organizational outcomes. The current results reinforce the notion that perceived support amplifies the impact of Green HRM on competitive advantage which helps the organizations maximize the benefits of their sustainability efforts.

5.1 Theoretical and Practical Implication of the Study

The theoretical contribution of this study lies in applying the Ability-Motivation-Opportunity (AMO) theory to Green Human Resource Management (GHRM) practices. AMO theory highlights the importance of equipping employees with the right abilities, motivating them effectively, and providing ample opportunities for the engagement of employees. This study contributes to this framework by highlighting how GHRM can foster green behaviors through green training (enhancing abilities), incentive systems (enhancing motivation), and participatory initiatives (enhancing opportunities). These practices encourage the employees to adopt eco-friendly behaviors, thus aligning with organizational environmental goals. In the context of the pharmaceutical industry, GHRM practices can play a key role in fostering a workforce that actively participates in sustainable processes, for instance, green production and reduction of waste which enhances both the organization's competitive edge and its commitment to environmental responsibility.

From a practical standpoint, this research offers actionable recommendations for HR managers, particularly within the pharmaceutical industry, to improve competitive and environmental performance. By adopting GHRM practices that align with the AMO framework, managers can drive meaningful change. For example, providing specific green training programs equips employees with the necessary skills needed to implement sustainable practices, such as reducing chemical waste in production. Additionally, offering incentives for green performance, such as rewards for achieving sustainability targets, can motivate employees to actively contribute to eco-friendly initiatives. Companies can create opportunities for employees to participate in sustainability decision-making processes such as setting up green committees or suggestion programs which fosters a sense of ownership and involvement in the organization's green goals.

These actions not only strengthen the environmental reputation of a company but also attract environmentally conscious customers and employees which thus position the company as a leader in sustainable pharmaceutical practices and enhancing its long-term market standing.

5.2 Limitations and Future Direction of Study

This study has several limitations that should be considered. First, the research focuses solely on the pharmaceutical industry, which may limit the generalizability of the findings to other sectors with different environmental priorities or the resources for implementing Green Human Resource Management (GHRM) practices. Future research could explore GHRM's impact across multiple industries to provide the broader insights. Additionally, the cross-sectional design of the study limits causal inferences. A longitudinal approach would allow for a deeper understanding of how GHRM practices influence the behavior of employees and organizational outcomes over time. Moreover, while this study emphasizes the employee's perceptions of organizational support, other factors such as leadership styles, organizational culture, and external pressures may also play crucial roles in shaping the effectiveness of GHRM practices. Including these elements in future research could provide a more comprehensive understanding of GHRM's impact. Future research could also examine the role of leadership styles and organizational culture in enhancing the effectiveness of GHRM practices, particularly how transformational or sustainability-focused leadership influences the green behaviors.

6. Conclusion

This research investigates the impact of Green Human Resource Management (GHRM) practices on an organization's competitive advantage, with the mediating role of Green Perceived Organizational Support (GPOS). This research aimed to provide insights into how green HR initiatives can enhance the performance of organizations and contribute to long-term sustainability, particularly within the context of the pharmaceutical sector in Pakistan. To achieve this objective, the study employed a cross-sectional research design. A total of 208 responses were obtained from an online survey of various pharmaceutical companies located in the Rawalpindi and Islamabad regions. The collected data was analyzed using Structure Equation Modelling. The analysis revealed several important findings. First, it was found that Green HRM practices positively influence the competitive advantage of an organization. This suggests that by adopting environmentally friendly HR practices, organizations can enhance their competitiveness through improved operational efficiency, innovation, and employee engagement. Furthermore, the analysis showed that Green HRM practices positively affect employees' perception of organizational support for green initiatives, which in turn motivates them to engage more actively in sustainable activities. Lastly, the results confirmed that GPOS plays a significant role in enhancing competitive advantage by mediating the relationship between Green HRM practices and organizational success. The impact of perceived organizational support on green HRM practices could be further clarified by including moderators like responsible leadership, while mediators like "greenwashing" could provide a more nuanced understanding of employee responses to environmental initiatives.

Examining these divergent viewpoints is important because not all employees may be in favour of the company's green initiatives. Using experimental or longitudinal designs to find long-term impacts and causal links could further enhance the research process. In addition, the results' limited generalizability due to the pharmaceutical company's focus implies that additional research in various industries and contexts is necessary. Enhancing the robustness and application of the conclusions will also require undertaking research in countries other than Pakistan and increasing the sample size beyond 208 employees.

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Declaration

Competing Interests: The authors have not disclosed any competing interests.

Appendix A

Scale Items

Factors	Serial No	Items	References
Green Human Resource Practices	1	Our organization hires candidates with green values, knowledge, and awareness.	Haldorai et al. (2022)
	2	Our organization provides green training programs to develop employees' green skills.	
	3	Our organization evaluates employees' green behaviors in the performance management process.	
	4	Our organization provides employees with opportunities to participate in green management	
	5	Our organization rewards employees for their green behaviors	
Perceived Green Organizational Support	6	Our organization values my contribution to green management issues.	Kim et al. (2018)
	7	Our organization considers my environmental values and goals.	
	8	Our organization cares about my opinions on green management issues.	
	9	Our organization takes pride in my accomplishments on green management issues	

	10	Our organization would ignore any complaint from me on green management issues.	
	11	Our organization values my extra effort from me on green management issues.	
	12	Our organization cares about my satisfaction with green management issues.	
Competitive Advantage	13	The quality of the products or services that our company offers is better than that of the competitor's products or services.	Barney (1991)
	14	Our company is more capable of R&D than the competitors.	
	15	Our company has better managerial capability than the competitors.	
	16	Our company's profitability is better	
	17	The corporate image of our company is better than that of the competitors.	
	18	The competitors are difficult to take the place of our company's competitive advantage	

References

- Al-Hawari, M. A., Quratulain, S., & Melhem, S. B. (2021). How and when frontline employees' environmental values influence their green creativity? Examining the role of perceived work meaningfulness and green HRM practices. *Journal of Cleaner Production*, 310, 127598.
- Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., & Owusu, D. (2020). The influence of lean management and environmental practices on relative competitive quality advantage and performance. *Journal of Manufacturing Technology Management*, 31(7), 1351-1372.
- Appelbaum E, Bailey T, Berg P, Kalleberg AL, Bailey TA (2000) Manufacturing advantage: why high-performance work systems pay off. Cornell University Press
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
- Bombiak, E., & Marciniuk-Kluska, A. (2018). Green human resource management as a tool for the sustainable development of enterprises: Polish young company experience. *Sustainability*, 10(6), 1739.
- Carballo-Penela, A., Ruzo-Sanmartín, E., Álvarez-González, P., & Paillé, P. (2023). How do GHRM practices influence firms' economic performance? A meta-analytic investigation of the role of GSCM and environmental performance. *Journal of Business Research*, 165, 113984.
- Cheema, S., & Javed, F. (2017). The effects of corporate social responsibility toward green human resource management: The mediating role of sustainable environment. *Cogent Business & Management*, 4(1), 1310012.
- Chen, S., Jiang, W., Li, X., & Gao, H. (2021). Effect of employees' perceived green HRM on their workplace green behaviors in oil and mining industries: Based on cognitive-affective system theory. *International Journal of Environmental Research and Public Health*, 18(8), 4056.

- Chen, Y.-S., Lai, S.-B., & Wen, C.-T. (2006). The influence of green innovation performance on corporate advantage in Taiwan. *Journal of business ethics*, 67, 331-339.
- Chen, Y. S. (2011). Green organizational identity: sources and consequence. *Management decision*, 49(3), 384-404.
- Chowdhury, R. A., & Shamsher, R. (2023). Investigating Employee Green Behavior through Perceived Organizational Support for the Environment in the Hotel Industry: A Moderated-Mediation Analysis. *Business Perspective Review*, 5(1), 12-30.
- Chowhan, J. (2016). Unpacking the black box: understanding the relationship between strategy, HRM practices, innovation and organizational performance. *Human Resource Management Journal*, 26(2), 112-133.
- de Brito, R. P., & Brito, L. A. L. (2012). Competitive advantage, creation of value and their effects on financial performance/Vantagem competitiva, criação de valor e seus efeitos sobre o desempenho/Ventaja competitiva, creación de valor y sus efectos sobre el desempeño. *RAE*, 52(1), 70-85.
- Delery, J. E., & Roumpi, D. (2017). Strategic human resource management, human capital and competitive advantage: is the field going in circles? *Human Resource Management Journal*, 27(1), 1-21.
- Din, A. U., Yang, Y., Khan, K., Din, Q. M. U., Golo, M. M. A., & Khan, I. U. (2023). Role of employee commitment and individual value in green HRM practices and sustainable firm performance. Second International Conference on Sustainable Technology and Management (ICSTM 2023),
- Haldorai, K., Kim, W. G., & Garcia, R. F. (2022). Top management green commitment and green intellectual capital as enablers of hotel environmental performance: The mediating role of green human resource management. *Tourism Management*, 88, 104431.
- Hamadamin, H. H., & Atan, T. (2019). The impact of strategic human resource management practices on competitive advantage sustainability: The mediation of human capital development and employee commitment. *Sustainability*, 11(20), 5782.
- Hameed, Z., Khan, I. U., Islam, T., Sheikh, Z., & Naeem, R. M. (2020). Do green HRM practices influence employees' environmental performance?. *International Journal of Manpower*, 41(7), 1061-1079.
- Helmold, M. (2023). Virtual and Innovative Quality Management Across the Value Chain. *Management for Professionals*.
- Jabbour CJC, de Sousa Jabbour ABL (2016) Green human resource management and green supply chain management: Linking two emerging agendas. *J Clean Prod* 112:1824–1833
- Kerdpitak, C. (2020). The Effects of Environmental Management and HRM Practices on the Operational Performance in Thai Pharmaceutical Industry. *Systematic Reviews in Pharmacy*, 11(2).
- Kim YJ, Kim WG, Choi H-M, Phetvaroon K (2019) The effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance. *Int J Hosp Manag* 76:83–93
- Kim, B.-J., Nurunnabi, M., Kim, T.-H., & Jung, S.-Y. (2018). The influence of corporate social responsibility on organizational commitment: The sequential mediating effect of meaningfulness of work and perceived organizational support. *Sustainability*, 10(7), 2208.
- Lee, S. M., & Trimi, S. (2021). Convergence innovation in the digital age and in the COVID-19 pandemic crisis. *Journal of Business Research*, 123, 14-22.

- Majid, S., Elahi, R., & Ahmad, N. (2022). The Impact of Environment Ethics and Performance on Firm Competitive Advantage: A Dynamic Capability Framework with Green HRM Practices. *Journal of Development and Social Sciences (JDSS) April-June*, 3(2).
- Malik, S. Y., Cao, Y., Mughal, Y. H., Kundi, G. M., Mughal, M. H., & Ramayah, T. (2020). Pathways towards sustainability in organizations: Empirical evidence on the role of green human resource management practices and green intellectual capital. *Sustainability*, 12(8), 3228.
- Paillé P, Valéau P, Renwick DW (2020) Leveraging green human resource practices to achieve environmental sustainability. *J Clean Prod* 260:121137
- Piowar-Sulej, K. (2021). Core functions of Sustainable Human Resource Management. A hybrid literature review with the use of H-Classics methodology. *Sustainable development*, 29(4), 671-693.
- Saeed, B. B., Afsar, B., Hafeez, S., Khan, I., Tahir, M., & Afridi, M. A. (2019). Promoting employee's proenvironmental behavior through green human resource management practices. *Corporate Social Responsibility and Environmental Management*, 26(2), 424-438.
- Sarmad, M., Pirzada, M. A., & Iqbal, R. (2023). Fostering extra-role green behavior through green HRM practices: mediating role of green absorptive capacity. *International Journal of Manpower*, 44(8), 1535-1552.
- Setyaningrum, R. P. (2023). Achieving employee environmental performance through perceived organizational support towards the environment: a mediated-moderation analysis: A Mediated-Moderation Analysis. *Jurnal Siasat Bisnis*, 17-30.
- Tang G, Chen Y, Jiang Y, Paille P, Jia J (2018) Green human resource management practices: scale development and validity. *Asia Pacific Journal of Human Resources* 56(1):31–55
- Wang, C.-H. (2019). How organizational green culture influences green performance and competitive advantage: The mediating role of green innovation. *Journal of Manufacturing Technology Management*, 30(4), 666-683.
- Wang, C., Liu, H., Wu, D., & Liu, X. (2023). Engineering and environmental evaluation of red mud amended volcanic ash as a sustainable subgrade material. *Journal of Cleaner Production*, 393, 136353.
- Wang, W., Zhang, D., Wang, H., Zhu, Q., & Morabbi Heravi, H. (2023). How do businesses achieve sustainable success and gain a competitive advantage in the green era? *Kybernetes*, 52(9), 3241-3260.
- Yong JY, Yusliza MY, Ramayah T, Fawehinmi O (2019) Nexus between green intellectual capital and green human resource management. *J Clean Prod* 215:364–374
- Yong, J. Y., Yusliza, M. Y., Ramayah, T., Chiappetta Jabbour, C. J., Sehnem, S., & Mani, V. (2020). Pathways towards sustainability in manufacturing organizations: Empirical evidence on the role of green human resource management. *Business Strategy and the Environment*, 29(1), 212-228.
- Yu, X., Li, H., Ling, M., He, B., Wen, J., & Jing, W. X. (2021). Measuring Sustainable Human Resource Management under the new economic era. *E3S Web of Conferences*,