

# From Green HRM to Environmental Performance: How Employee Engagement Mediates the Relationship

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*This study investigates the intricate relationship between Green Human Resource Management (GHRM) practices and Environmental Performance (EP), emphasizing the mediating role of Employee Engagement (EE). A quantitative methodology, using Structural Equation Modelling (SEM), adopted for hypothesis testing. Data has sourced from Sami Pharmaceuticals Pvt Ltd. using purposive sampling. Out of 200 distributed questionnaires, 150 have completed, with 120 valid responses after data cleaning. The findings reveal a robust connection between GHRM practices and increased EE, suggesting that engaged employees contribute positively to EP. However, GHRM's direct influence on EP has found to be statistically insignificant. Nonetheless, EE significantly mediates the relationship between GHRM and EP, underscoring the importance of adopting GHRM practices that enhance EE to improve environmental outcomes. This study offers theoretical insights and practical recommendations for policymakers and managers aiming to achieve sustainable environmental performance.*

**Keywords:** Employee Engagement (EE), Mediation Analysis, Green (HRM), Environmental Performance, Organizational Sustainability, Structural Equation Modelling (SEM).

## Introduction

In the current global landscape, nearly all organizations are facing newly emerging environmental challenges, which have created an unprecedented demand for enhancing the sustainability of green practices within organizations. With increasing concerns surrounding organizational management, many are striving to manage their carbon emissions, resulting in a pervasive focus on the development of green workplace policies. GHRM involves integrating environmental concerns into various HR processes, such as recruitment, training, performance appraisal, and employee relations, to promote organizational sustainability (Renwick et al., 2013). By incorporating GHRM practices, organizations not only advance their environmental objectives but also foster a sustainable culture among employees.

The GHRM framework mandates that Human Resource Management policies align with the organization's environmental strategies, ensuring that employees are actively engaged in these initiatives (Jackson & Seo, 2010). Furthermore, organizations can instill environmental values within their corporate culture, encouraging employees to embrace eco-friendly practices both in the workplace and at home. The Conservation of Resources (COR) theory, proposed by Hobfoll (1989), posits that individuals strive to acquire, maintain, and safeguard resources, and that stress arises when there is a threat of resource depletion, actual resource loss, or insufficient resource gain following an investment (p. 513). According to the COR theory, people seek to recover from or mitigate stress by acquiring or safeguarding resources such as time, energy, and social support to their advantage (Hobfoll, 1989).

When these resources are at risk of depletion, individuals take actions aimed at preserving or replenishing them. In the context of organizational behaviour, COR theory suggests that employees become more committed and supportive of initiatives, such as GHRM, when they perceive their resources are being valued and enhanced (Hobfoll, 2001). In accordance with COR theory, employees engage in behaviours aimed at acquiring, preserving, or protecting their resources (Hobfoll, 1989). Organizations that implement GHRM practices can motivate employees to seek personal resources such as recognition, support, and job satisfaction through sustainable policies (Hobfoll, 2001). Chaudhary (2019a) supports this notion in Proposition G, asserting that emotionally engaged employees are more likely to demonstrate supportive behaviours and participate in environmental initiatives, which leads to improved corporate environmental performance (Muthuswamy, 2023).

In this context, EP refers to an organization's ability to minimize its environmental impact through the adoption of sustainable practices, such as reducing waste and optimizing the use of energy and materials (Daily et al., 2012). The combination of comprehensive GHRM practices and high levels of EE significantly enhances an organization's environmental performance, as engaged employees actively contribute to sustainability efforts (Jabbour & Santos, 2008). When employees perceive GHRM practices as valuable resources, they are more inclined to engage in sustainable activities, both at work and in their personal lives, thereby improving the organization's overall environmental standing (Hobfoll, 2001). Executive organizations implement corporate environmental management and green HRM in a hierarchical and multidimensional manner. Mishra et al. (2014) argue that EE serves as a mediating factor in this relationship, particularly within the context of GHRM (Street, 2023).

This suggests that GHRM influences EE by modulating resource acquisition or conservation. Recent research by [Abdullahi et al. \(2023\)](#) echoes these claims. However, further investigation needed to identify the specific factors underpinning this mediation. These concerns highlight the necessity for additional research in this area, which holds the potential to generate desirable outcomes ([Al-Ghamdi et al., 2024](#)). The present study aims to address this gap by exploring the mediating role of EE in the relationship between GHRM practices and environmental performance. COR, theory suggests that organizations can establish appropriate metrics to help achieve their sustainability objectives by viewing EE as a mediating variable between GHRM practices and environmental performance ([Sunaryo et al., 2024](#)).

## Research Questions

Researchers of this study investigate to address these research questions:

RQ1: How do green human resource management practices influence EE?

RQ2: How does EE influence environmental performance?

RQ3: Is there a mediation effect of EE between GHRM and EP?

## Literature Review

### Green Human Resource Management (GHRM)

GHRM is an area that demands significant attention, particularly in the context of organizational development and corporate social responsibility. GHRM refers to a set of human resource policies and practices designed with an emphasis on environmental sustainability. In the modern global landscape, organizations are seeking highly skilled employees who possess both competency and a deep commitment to environmental protection. To achieve this, companies increasingly adopt green education initiatives to enhance employees' knowledge and skills regarding environmental issues. Additionally, organizations implement green performance management systems to evaluate employee contributions toward achieving environmental goals ([Renwick et al., 2013](#)).

### Employee Engagement

The study of organizational behaviour and human resource management increasingly focuses on the construct of EE, recognizing its significant impact on various organizational outcomes, including productivity, job satisfaction, and organizational commitment ([Kahn, 1990](#)). Recently, engagement has linked to industrial ecological concerns, particularly GHRM, which serves as a mediator between GHRM practices and environmental performance. [Schaufeli et al. \(2002\)](#) define EE as a positive, fulfilling, work-related state of mind characterized by energy, devotion, and absorption. Engaged employees demonstrate high levels of energy at work and possess the mental resilience necessary to navigate challenges ([Balawi & Ayoub, 2022](#)). Their roles become meaningful, stimulating, and demanding, fostering greater engagement ([Hang, 2022](#)).

Similarly, [Kahn \(1990\)](#) describes engagement as personal involvement, where employees invest their physical, cognitive, and emotional energy into their organizational roles. This personal investment is critical for organizations pursuing strategic objectives, including those related to environmental sustainability. The relationship between EE and

organizational performance has extensively studied in academic literature. Engaged employees are more productive, innovative problem solvers who significantly contribute to organizational growth (Harter et al., 2002). Moreover, they enhance customer satisfaction, boost profitability, and improve workplace safety (Diyaley & Chakraborty, 2022). In the context of GHRM, EE is particularly crucial as it shapes employees' understanding of and participation in environmental initiatives (Setiawan et al., 2022). Engaged employees are more likely to adopt pro-environmental behaviours, which positively influence the organization's overall environmental performance (Kim et al., 2017).

A study by Kim et al. (2017) further supports the argument that EE mediates the relationship between GHRM practices and environmental performance. The degree of employee involvement determines the successful implementation and maintenance of GHRM practices, as outlined in green HRM models (Kim et al., 2017). Several studies corroborate the notion that EE functions as a mediating variable in diverse organizational settings. For instance, Robertson and Barling (2013) argue that leadership styles encouraging EE can enhance pro-environmental behaviours (Ester Gisbert Alemany, 2023). This suggests that while EE directly affects individual performance outcomes, its effectiveness amplified when combined with organizational practices such as GHRM, which promote commitment to environmental initiatives (Cano-Ciborro, 2023).

Several factors influence the level of EE within an organization. Leadership, particularly transformational leadership, has identified as a key determinant of engagement (Bass & Avolio, 1993). Additionally, organizational culture, job design, and the perceived fairness and support from the organization contribute to varying levels of engagement (Macey & Schneider, 2008). In the context of GHRM, organizations that foster an environmentally responsible culture and provide opportunities for employees to participate in sustainability efforts are more likely to experience higher levels of engagement, ultimately leading to improved environmental performance.

### **Environmental Performance**

Organizational performance has long been a central focus in management research, encompassing a wide range of outcomes such as financial success, operational efficiency, and employee productivity (Richard et al., 2009). In recent years, this concept has expanded to include environmental performance, underscoring its growing significance in corporate sustainability strategies. EP refers to an organization's efforts to manage resources efficiently, reduce waste, and control emissions, ultimately minimizing its environmental footprint (De Giovanni & Vinzi, 2012). Green Human Resource Management (Green HRM) specifically assesses the extent to which environmental sustainability has embedded within organizational HR practices.

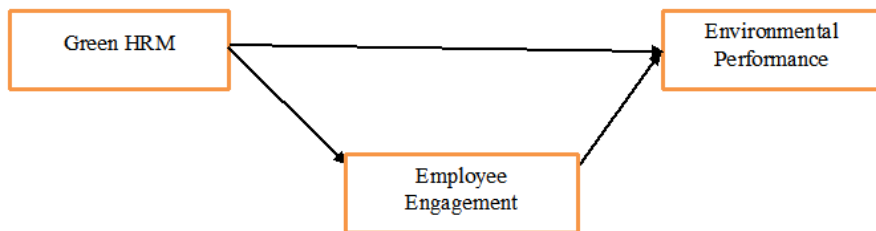
In a broader sense, performance pertains to an organization's ability to achieve its goals and objectives efficiently and effectively (Venkatraman & Ramanujam, 1986). Traditionally, performance has measured using financial indicators such as profitability, return on investment, and market share. However, the shift toward sustainability has introduced ecological and socioeconomic performance metrics into the assessment framework. EP involves actions that mitigate negative environmental impacts by conserving energy, reducing waste, and sustainably managing natural resources (Brammer & Millington, 2008). Heightened regulatory pressures drive the increasing

integration of EP into the broader concept of organizational performance, and the recognition of long-term sustainability benefits (Montabon et al., 2007). As environmental concerns have become integral to corporate reputation, companies now recognize that their EP can influence their financial success. Evidence suggests that improved EP enhances relationships with stakeholders, strengthens competitive advantage, and reduces operational costs (Hart, 1995).

In the context of Green HRM, organizations aim to improve EP by aligning HR practices with environmentally sustainable objectives. This includes implementing green recruitment policies, providing eco-training and adopting environmentally friendly methods during HR processes such as recruitment, training, and performance appraisal (Tanveer et al., 2024). The effectiveness of Green HRM practices in enhancing EP is often contingent on factors such as EE and organizational culture. EE plays a mediating role in the relationship between Green HRM practices and EP (Robertson & Barling, 2013). Engaged employees are more likely to embrace the organization’s environmental goals and actively contribute to sustainability initiatives, leading to improved environmental outcomes. By fostering a sense of ownership and commitment to the organization’s environmental objectives, EE enhances the measurable results of Green HRM practices. The article titled "From Green HRM to Environmental Performance: How EE Mediates the Relationship" emphasizes the critical role of employee involvement in promoting environmentally sustainable behaviours within organizations. Based on this discussion, the study hypothesizes are:

- H1.** *Green Human Resource Management Practice has a positive impact on Environmental Performance*
- H2.** *EE positively influences Environmental Performance.*
- H3.** *EE mediates the relationship between GHRM practices and EP.*

### Research Framework



### Research Methodology

#### Participants and Procedure

The survey targeted permanent employees of Sami Pharmaceutical, based in Karachi, Pakistan. This pharmaceutical company has selected for its significant achievements and strong reputation in implementing green environmental initiatives and Green HRM practices. The focus on a hazardous materials-handling company motivated by its steadfast commitment to environmental sustainability. A formal letter detailing the research objectives, along with a request for official permission sent to the company’s

management to encourage employee participation. Upon receiving approval from the researcher's institution, respondents have granted access to the survey via individual email addresses. Throughout the research process, the organization and its employees have assured of full anonymity, with no personal data disclosed at any stage, ensuring confidentiality during and after the study.

### **Sampling and Data Collection**

The researchers in this study employed purposive sampling, a type of non-probability sampling. A common misconception is that individuals in the population have an equal chance of selection. This is incorrect, as purposive sampling has not based on population randomization or probability, but rather on the researcher's subjective criteria. Selection in purposive sampling is entirely at the discretion of the researcher, without any relationship to randomization or chance. Types of non-probability sampling include convenience, judgmental, snowball, quota, and purposive sampling. Non-probability sampling is often preferred due to its cost-effectiveness and time efficiency, especially when probability sampling is not feasible. Pharmaceutical companies, being highly confidential due to their involvement in human health, require strict data protection. Given the nature of the study and the confidentiality required, non-probability sampling has deemed the most appropriate method. The researchers selected the Google survey form as the most suitable tool for sampling for two primary reasons: first, participants have selected at random, and second, it allowed for easy and inexpensive data collection (Crossman, 2012; Nikolopoulou, 2022).

A set of twelve carefully developed (adopted and adapted) questionnaire items distributed to 200 individuals, of which 150 agreed to participate in the online survey via the Google survey form. The survey conducted in English, and respondents were required to be well educated and proficient in the language. The survey began on July 10, 2024, and by August 5, 2024, the researchers received 130 fully completed questionnaires. Several reminders sent during this period to encourage quick and efficient responses. After initial evaluation, 10 responses were excluded due to being incomplete or indicating a lack of engagement. The final dataset consisted of 120 valid responses, with 60% of the total participants actively responding. A response rate of at least 30% is recommended for surveys (Livingston & Wislar, 2012), while Kimball and Loya (2017) suggest that a minimum of 35% is acceptable for organizational research. Sekaran (2003) also states that 30 to 500 samples are adequate for many non-probability techniques.

The analysis began by considering demographic factors, followed by a quantitative data analysis using Smart PLS-4 software to examine the hypothesized relationships. The researchers endorsed the use of Smart PLS due to its ability to test complex models with multiple constructs and indicators, which is crucial for mediation analysis (Hair et al., 2017). This technique is especially advantageous during early stages of research involving small populations where data may not meet normality criteria, and it aims to produce relevant path coefficients (Henseler et al., 2015). Additionally, Smart PLS significantly reduces the time needed for estimating both measurement and structural models. Furthermore, it allows for deeper exploration of the relationships between Green HRM practices, EE, and EP (Sarstedt et al., 2021). Based on these considerations, the authors concluded that Smart PLS was the most appropriate tool for evaluating both the direct and indirect impacts of the constructs under investigation.

### Measures of the Study

The constructs in this study were assessed using a 5-point Likert scale, with responses ranging from ‘strongly disagree’ (1), ‘disagree’ (2), ‘neutral’ (3), ‘agree’ (4), to ‘strongly agree’ (5). The evaluation of Green HRM practices were carried out using indicators such as recruitment, training and development, performance appraisal, and the promotion of environmentally friendly practices, as outlined by (Brand et al., 2024). EE measured through items that addressed both motivational and participatory aspects of involvement in green initiatives and educative activities (Jiatong et al., 2022). Furthermore, the study involved participants to examine organizational citizenship behaviours among professionals engaging in green management practices, the identification of additional constructs for assessment, and the modification of current measures where necessary.

The measures carefully selected to align with the study’s primary objective of understanding how EE influences the impact of Green HRM practices on environmental performance. These items were adapted to fit the specific context of the constructs being measured, thereby enhancing the reliability and validity of the research instruments. This approach enabled both the conceptualization and empirical testing of the relationships among the variables, expanding the understanding of how EE in Green HRM practices contributes to improve EP within organizations. Through this methodology, the study offers a deeper insight into the mechanisms by which Green HRM and EE intersect to drive sustainable outcomes.

## Data Analysis and Results

### Measurement Model

SmartPLS-4 software utilized to evaluate both the measurement and structural models in this study. The analysis revealed that respondents' gender, designation, and marital status positively influenced their perceptions of green innovation and environmental performance. Consequently, the study incorporated these demographic factors into the analysis, making necessary adjustments to the design of all variables to ensure their alignment with the study's objectives. Table 1 presents the detailed demographic profile of the respondents in this study, reflecting these influential characteristics.

**Table 1:** Respondents’ Demographic Profile

Demography	Description	Number of Respondents	%
Sex	M	95	79.16
	F	25	20.83
Marital Status	Married	78	65
	Unmarried	42	35
Designation	Managerial	82	68.33
	Non Managerial	38	31.66

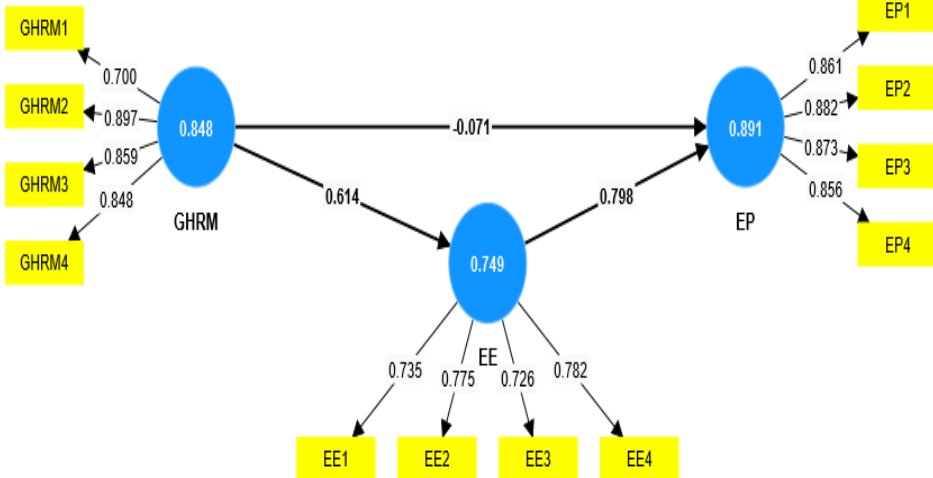
In this study, SmartPLS-4 employed to assess the reliability of the measurements by analysing Cronbach's Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE) (Moreira et al., 2016). Table 2 provides a detailed summary of all research constructs, showing that all Cronbach’s Alpha values exceeded the benchmark



of 0.7 (Sarstedt et al., 2021). This followed by the calculation of Composite Reliability and Average Variance Extracted to further evaluate the reliability and validity of the constructs, specifically in terms of their convergent validity (Sarstedt et al., 2021). The results indicated that all factor loadings for the study constructs were above the minimum threshold value of 0.70, and the Average Variance Extracted (AVE) for each construct exceeded 0.50, demonstrating satisfactory convergent validity (Henseler et al., 2015). This comprehensive evaluation confirms the robustness and reliability of the measurement instruments used in the study.

**Table 2:** Construct Reliability and Validity-Overview

	Cronbach's Alpha	Composite Reliability (rho_a)	Composite Reliability (rho_c)	Average Variance Extracted (AVE)
EE	0.749	0.751	0.841	0.57
EP	0.891	0.893	0.924	0.753
GHRM	0.848	0.879	0.897	0.688



**Figure 1:** Structural Equation Model (SEM) Path Diagram

**Table 3:** Discriminant Validity HTMT matrix

	EE	EP	GHRM
EE			
EP	0.918		
GHRM	0.738	0.467	

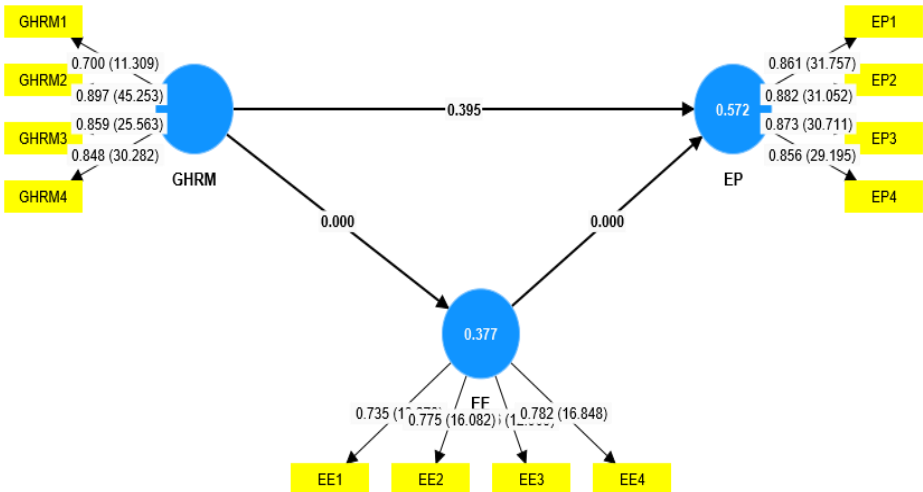
Fornell and Larcker (1981) define discriminant validity as the degree to which a construct assessed is distinct from other measures of its variables. To evaluate discriminant validity, Sarstedt et al. (2021) employed a method that involves comparing the square root of the Average Variance Extracted (AVE) with the correlations between latent constructs. Discriminant validity is established when AVE values are above 0.50 (Sarstedt et al., 2021). Furthermore, the presence of discriminant validity confirmed if the



square root of AVE exceeds the correlation with other constructs. Figure 1 illustrates the PLS algorithm used in the analysis, while Table 3 provides the specific values for discriminant validity.

**Assessment of Structural Model**

The structural model evaluated to explore the relationships between GHRM, EE and EP. The results, detailed in Table 4 and Figure 2, reveal a strong and statistically significant relationship between EE and EP ( $\beta = 0.798, p < 0.001$ ), supporting the hypothesis that EE positively influences EP as predicted in Hypothesis 2 (H2). This finding indicates that higher levels of EE are associated with improved EP outcomes, addressing Research Question 2 (RQ2).



**Figure 2: Structural Model (bootstrapping)**

**Table 4: Path Coefficient**

Construct	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
EE -> EP	0.798	0.801	0.052	15.486	0
GHRM -> EE	0.614	0.621	0.061	10.062	0
GHRM -> EP	-0.071	-0.074	0.084	0.851	0.395

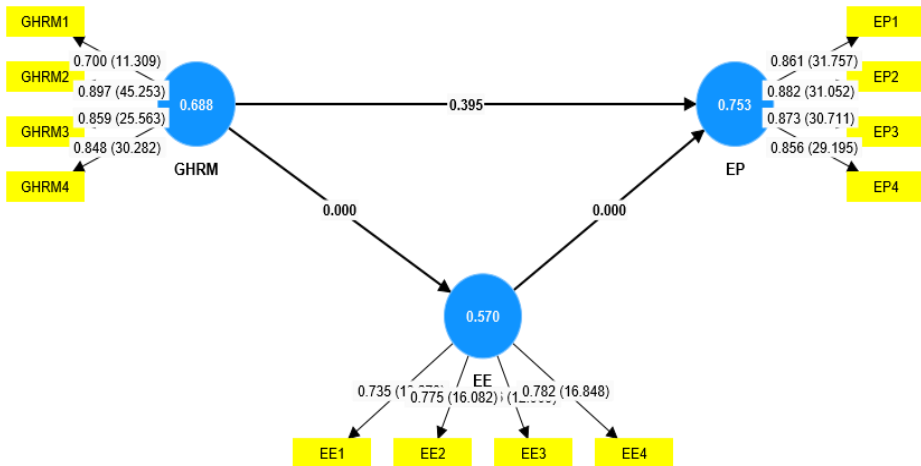
Additionally, GHRM positively affects EE ( $\beta = 0.614, p < 0.001$ ), confirming that green HRM practices can enhance EE. This result supports the COR theory by validating Hypothesis 1 (H1) and addressing Research Question 1 (RQ1). However, the direct path from GHRM to EP is not significant ( $\beta = -0.071, p = 0.395$ ), suggesting that GHRM does not have a direct influence on environmental performance. Instead, the effect of GHRM on EP appears to be indirect and mediated by EE. Therefore, the mediation effect of EE between GHRM and EP, as addressed in Research Question 3 (RQ3), supported by these

findings, affirming Hypothesis 3. These results underscore the critical role of EE in converting GHRM practices into tangible improvements in environmental performance. The research enhances the understanding of how internal HRM practices have leveraged to achieve broader environmental goals.

**Assessment of R<sup>2</sup>**

The R-square values for the constructs of EE and EP provide insights into the model's explanatory power. The R-square value for EE is 0.377 (Table 5 & Figure 3), indicating that 37.7% of the variability in EE can be explained by GHRM practices. This suggests a moderate level of explanatory power, implying that other factors besides GHRM may significantly affect EE. For EP, the R-square value is 0.572, meaning that 57.2% of the variability in EP can be explained by both GHRM and EE combined. This demonstrates strong explanatory power, indicating that the model effectively captures the components influencing EP within an organization.

Adjusted R-square values are slightly lower than their unadjusted counter-parts due to the inclusion of predictors in the models. Specifically, the adjusted R-square for EE is 0.371, compared to the unadjusted value of 0.377, while for EP; the adjusted R-square is 0.565, compared to the unadjusted value of 0.572. These adjusted values account for the number of predictors and confirm that the model remains robust even when additional variables are considered. The minimal difference between the R-square and adjusted R-square values suggests that there is no significant issue with overfitting, thereby increasing confidence in the validity of these measures.



**Figure 3: Bootstrapping Results with Path Coefficients and t-Statistics**

**Table 5: Assessment of R-squared Value**

	<b>R-square</b>	<b>R-square adjusted</b>
EE	0.377	0.371
EP	0.572	0.565

## Discussion of the Results

This research reveals that while GHRM policies enhance EE, which in turn positively influences environmental performance, no direct significant relationship between GHRM and EP was established. This underscores the crucial role of employee commitment in achieving better EP outcomes resulting from GHRM initiatives. Distinct from previous studies, this research investigates how EE mediates the relationship between GHRM and environmental performance, an area that has not extensively explored. Prior research by Robertson and Barling (2013) and Kim et al. (2017) has examined the role of EE in environmental projects but has not specifically addressed this within the context of Green HRM practices. This study extends earlier research by providing empirical evidence that EE serves as a mediator, thus addressing a gap in the literature regarding equity, appraisal, and the factors that drive positive environmental change in organizations with Green HRM practices.

The study aligns with other research emphasizing the importance of EE in achieving organizational sustainability goals (Chaudhary, 2019a; Schaufeli et al., 2002). It demonstrated a direct relationship between Green HRM practices and EE, which contributes to improved environmental performance. However, the absence of a direct significant association between Green HRM and EP highlights the role of engaged employees in achieving environmental goals resulting from Green HRM practices. This research is innovative in its focus on EE, as an intervening factor between Green HRM and Environmental Performance, a perspective not previously explored. While earlier studies like those by Robertson and Barling (2013) and Kim et al. (2017) highlighted the importance of EE in ecologically oriented activities, they did not investigate this within the Green HRM context. This study builds on these findings by providing new insights into the mediating role of EE, thereby filling a knowledge gap and enhancing the understanding of how Green HRM practices can improve environmental performance.

The findings are consistent with the literature that emphasizes the role of EE in achieving organizational sustainability goals (Chaudhary, 2019a; Schaufeli et al., 2002). Specifically, this study found a significant relationship between Green HRM practices and EE, supporting Renwick et al. (2013), who argued that Green HRM strategies, such as green hiring and training, foster an eco-conscious culture and enhance engagement levels. Notably, the lack of a direct influence between Green HRM and EP suggests that organizations implementing Green HRM without fostering EE may fall short of achieving their environmental objectives. This supports Mishra et al. (2014) theoretical argument that the relationship between Green HRM and organizational performance has mediated by factors such as employee commitment.

The study demonstrates that EE acts as a crucial mediator between Green HRM practices and environmental performance. GHRM practices significantly affect EE ( $\beta = 0.614$ ,  $p < 0.001$ ), supporting the hypothesis that GHRM promotes engagement. However, the direct relationship between GHRM and EP was non-significant ( $\beta = -0.071$ ,  $p = 0.395$ ), indicating that GHRM alone may not directly lead to improved environmental outcomes. Instead, EE plays a vital role in achieving GHRM objectives within the context of sustainability.

This research contributes novel empirical evidence on the mediating role of EE in the relationship between GHRM and environmental performance. Despite numerous studies exploring the direct impacts of GHRM on environmental performance, this study is

unique in addressing the mediating role of EE, arguing that it is not only a result of Green HRM but also a key component in achieving environmental targets. These findings align with existing literature, such as [Robertson and Barling \(2013\)](#), [Jabbour and Santos \(2008a\)](#), which emphasize the critical role of EE in supporting organizational sustainability efforts.

### **Conclusion of the Study**

The study titled "From Green HRM to Environmental Performance: How EE Mediates the Relationship" reveals that implementing GHRM practices significantly enhances EE, which in turn positively affects environmental performance. Notably, the research highlights that the level of EE, rather than the direct effect of GHRM on environmental performance, plays a crucial role. This finding underscores that environmentally friendly HRM practices alone cannot ensure sustainable development without active employee participation. This study primarily validates the mediating role of EE within organizations, a perspective often overlooked in previous research that typically focused solely on the direct impacts of GHRM on environmental performance. The results align with existing literature, which emphasizes the importance of engaged employees in advancing an organization's sustainability efforts. In summary, fostering EE is essential for translating GHRM practices into tangible EP improvements. Future research should explore additional mediators and mechanisms across diverse organizational settings to further understand and enhance this relationship.

### **Theoretical Implication**

This study makes a significant contribution to theoretical literature by exploring the role of EE as a mediating factor in the relationship between GHRM practices and EP. The findings reveal that there is no direct correlation between GHRM practices and ecological outcomes. Instead, the level of EE significantly influences the effectiveness of GHRM. This insight enhances our understanding of organizational behaviour and sustainability practices, emphasizing that successful GHRM initiatives are contingent upon active employee participation. Additionally, this research underscores the importance of examining mediating factors that influence the relationship between GHRM and environmental performance. A notable aspect of this study is its application of the COR model to environmental performance. This approach broadens the scope beyond merely resource conservation, offering a more generalized framework for understanding the dynamics of organizational sustainability.

### **Practical Implication**

This study has highlighted the critical need for organizations to cultivate a robust culture of employee involvement and engagement alongside the implementation of GHRM practices to achieve desired environmental outcomes. It is crucial for managers to recognize that GHRM initiatives alone are insufficient; active EE is essential to realize their potential. To this end, organizations should develop comprehensive training programs, encourage active participation in green initiatives, and implement reward systems that align with environmental objectives. By fostering such an environment,

organizations can significantly enhance the sustainability of their initiatives, leading to improved EP and a stronger organizational commitment to sustainability.

### Limitations and Future Research Directions

This study offers valuable insights into the interrelationships among GHRM practices, EE and environmental performance. However, several limitations suggest areas for further research. First, the study's focus on a specific industry (Sami Pharmaceuticals) and region (Karachi, Pakistan) introduces a context bias, which may limit the generalizability of the findings to other industries or geographical locations. Second, the cross-sectional design of the research precludes the analysis of temporal relationships; therefore, adopting a longitudinal approach could provide a deeper understanding of how GHRM practices evolve and affect EP over time. Further research should explore additional mediators or moderators, such as organizational culture and leadership style, to gain a more comprehensive understanding of the factors that enhance the effectiveness of GHRM practices. Expanding research to include a broader range of sectors and regions could also enhance the applicability and relevance of the findings.

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