

ADVANCE SOCIAL SCIENCE ARCHIVE JOURNAL
Available Online: https://assajournal.com
Vol. 05 No. 01. Jan-March 2026.Page#.8581-8599
Print ISSN: 3006-2497 Online ISSN: 3006-2500
Platform & Workflow by: Open Journal Systems

The influence of green human resource management on pro-environmental behaviors: Mediating Role of Corporate Social Responsibility

Syed Kamran Abbas
Ph.D. Scholar Qurtuba University of Science & Information Technology DI Khan
kamran60abbas@gmail.com
Dr Raza Ullah shah
Assistant Professor Department of Management Sciences Qurtuba University of Science & Information Technology DI Khan
razaullah@qurtuba.edu.pk

Abstract

This study examines the influence of green human resource management (GHRM) practices on pro-environmental behaviors, focusing on the mediating role of corporate social responsibility (CSR) in the tourism and hospitality sector of Khyber Pakhtunkhwa (KP), Pakistan. The target population comprises owners and managers of hotels and restaurants who are involved in organizational decision-making, human resource management, and environmental initiatives. A quantitative research approach was adopted, and cross-sectional data were collected from 357 respondents through self-administered Likert-scale questionnaires using cluster sampling.

Data were analyzed exclusively using SmartPLS to test the proposed hypotheses through structural equation modeling (SEM). The findings reveal a significant positive relationship between GHRM practices and pro-environmental behaviors, while CSR significantly mediates this relationship. These results highlight the importance of integrating green HRM practices with CSR initiatives to promote environmentally responsible workplace behaviors. The study recommends that hotel and restaurant owners and managers implement green recruitment, environmental training, and sustainable HR policies alongside CSR initiatives to strengthen environmental sustainability in the hospitality sector.

Keywords: *Green human resource management, pro-environmental behaviors, corporate social responsibility, tourism and hospitality, Khyber Pakhtunkhwa, Pakistan.*

1. Introduction

Environmental sustainability has become a major concern for organizations worldwide due to increasing environmental degradation, climate change, resource depletion, pollution, and the excessive consumption of natural resources. These challenges have encouraged organizations to reconsider traditional business practices and adopt environmentally responsible approaches to their operations. The tourism and hospitality sector is particularly relevant to environmental sustainability

because its activities often involve substantial energy and water consumption, waste generation, food waste, and the use of natural and cultural resources. Hotels, restaurants, resorts, and other tourism-related businesses depend on environmental quality and attractive destinations to provide satisfactory visitor experiences. Consequently, environmentally responsible practices are important not only for reducing the environmental footprint of tourism and hospitality businesses but also for supporting the long-term sustainability of the sector (Al-Sabi et al.2024).

Green Human Resource Management (GHRM) has emerged as an organizational approach that integrates environmental sustainability into human resource management functions. GHRM involves incorporating environmental objectives into recruitment and selection, training and development, performance appraisal, compensation and rewards, and employee participation (Yu et al., 2020). Through these functions, organizations can attract employees who value environmental sustainability, provide the knowledge and skills required for environmentally responsible work, evaluate employees' environmental contributions, and recognize behaviors that support organizational environmental objectives (Roscoe et al., 2019).

The effectiveness of GHRM, however, depends not only on the implementation of formal human resource policies but also on employees' willingness to translate organizational environmental objectives into actual workplace behavior (Hameed et al,.2025). Pro-Environmental Behavior (PEB) refers to individual actions intended to protect the natural environment or minimize the negative environmental consequences of human activities (Kollmuss & Agyeman, 2002).

Within tourism and hospitality organizations, such behaviors may include switching off unnecessary lights and equipment, avoiding excessive water consumption, sorting and disposing of waste appropriately, reducing the use of disposable materials, and encouraging environmentally responsible practices among colleagues and guests. Because employees perform many of the daily operational activities that affect resource consumption and waste generation, their pro-environmental behavior can contribute to the environmental performance of tourism and hospitality businesses. Understanding how GHRM functions influence these behaviors is therefore important for developing effective organizational sustainability strategies (Lashari et al., 2022).

Previous research has highlighted the potential contribution of GHRM practices to employees' environmental awareness, participation, and workplace behavior. Green recruitment and selection can help organizations attract environmentally conscious employees, while green training and development can strengthen employees' environmental knowledge and practical skills(behavior (Hameed et al,.2025). Similarly, green performance appraisal and reward systems can communicate environmental expectations and encourage employees to incorporate sustainability into their work responsibilities (Anwar et al., 2020).

These functions can help organizations develop an environmentally responsible workforce and create a workplace culture in which sustainability becomes part of employees' routine activities. Nevertheless, examining GHRM functions alone may not provide a complete understanding of employee pro-environmental behavior, because organizational initiatives and leadership practices may also shape how employees respond to environmental expectations. Corporate Social Responsibility (CSR)

initiatives represent another important organizational approach to environmental and social sustainability (Liu et al.2023).

CSR refers to organizational efforts to operate responsibly toward stakeholders and society by considering the social, environmental, and economic consequences of business activities. In the tourism and hospitality sector, CSR initiatives may include reducing waste and pollution, conserving natural resources, supporting local communities, protecting cultural heritage, and promoting responsible tourism practices ((Lawrance et al., 2022). Such initiatives can communicate an organization's commitment to sustainability and reinforce the importance of environmentally responsible conduct among employees. When employees perceive their organization as genuinely committed to environmental and social responsibility, they may be more inclined to support its sustainability objectives through their own workplace behavior. Accordingly, CSR initiatives are relevant to understanding how organizational environmental commitments can complement GHRM functions in encouraging pro-environmental behavior.

Although GHRM, CSR, and green leadership have each attracted attention in sustainability research, further investigation is warranted into how these organizational approaches operate together in shaping employees' pro-environmental behavior within the tourism and hospitality sector in Pakistan. The sector provides a distinctive context in which employee behavior is closely connected to daily service delivery, guest satisfaction, resource utilization, and the environmental quality of tourism destinations. Moreover, organizational commitments to sustainability must be translated into consistent employee actions to produce meaningful environmental outcomes (Masih et al., 2024). Examining the relationships among GHRM functions, CSR initiatives, green transformational leadership, and employee pro-environmental behavior can therefore help clarify the organizational practices and leadership approaches that support environmental sustainability in this context. The specific research gap should be established through a critical review of existing empirical studies conducted in Pakistan and comparable tourism and hospitality settings (Shafariah et al.2023).

Despite the growing scholarly interest in Green Human Resource Management (GHRM) and Pro-Environmental Behavior (PEB), several important gaps remain in the existing literature concerning the mechanisms and contextual conditions through which GHRM practices influence employees' environmentally responsible behavior (Yan et al.2023). Although previous studies have examined the relationship between GHRM and PEB, the literature reviewed for the present study indicates that further investigation is required to understand how organizational practices, corporate social responsibility jointly contribute to environmental behavior (Shehri et al., 2022). Accordingly, the present study identifies empirical, contextual, population-related, and conceptual gaps, together with an insufficiently explored boundary-condition gap.

Consequently, Green Human Resource Management (GHRM) offers a potential approach to addressing this challenge by integrating environmental objectives into recruitment, training and development, performance appraisal, and reward systems. Such practices can improve employees' environmental knowledge and encourage resource conservation, waste reduction, and other environmentally responsible activities. Ansari et al. (2021) demonstrated that GHRM practices can influence employees' pro-environmental behaviors (PEB) through green commitment. Similarly, Rubel, Kee, and Rimi (2021)

examined the relationship between GHRM and pro-environmental behavior through green work climate perceptions, highlighting the importance of organizational conditions in explaining employee behavior. Chaudhary (2020) also found that GHRM practices can influence employees' task-related and voluntary green behaviors. However, further investigation is needed to understand the mechanisms through which GHRM influences PEB within Pakistan's tourism and hospitality sector.

1.2 Research Objectives

1. To examine the effect of Green Human Resource Management (GHRM) on Pro-Environmental Behaviors
2. To assess the mediating role of Corporate Social Responsibility on the relationship between Green Human Resource Management (GHRM) on Pro-Environmental Behaviors

1.3 Research Questions

1. What is the effect of Green Human Resource Management (GHRM) on Pro-Environmental Behavior.
2. What is the mediating role of Corporate Social Responsibility (CSR) in the relationship between Green Human Resource Management (GHRM) and Pro-Environmental Behavior (PEB)?

2.Literature Review

2.1 Green Human Resource Management

Green Human Resource Management (GHRM) involves the integration of environmental objectives into human resource management practices to develop employees' environmental awareness, encourage eco-friendly workplace behaviors, and promote organizational sustainability (Li & Li, 2025; Timo et al., 2023). It encompasses HR strategies designed to balance organizational objectives with employee well-being and societal interests while minimizing the adverse environmental impacts of business activities (Benevene & Buonomo, 2020). By embedding environmental responsibility into recruitment, training, performance evaluation, and employee engagement, GHRM can foster a workplace culture that supports sustainability and encourages employees to contribute to environmental initiatives. These practices may also strengthen employee commitment and retention by aligning organizational values with employees' expectations and recognizing their contributions to environmental goals. Furthermore, a strong commitment to green HR practices can enhance an organization's employer image and reputation, helping it attracts and retain employees who value environmental responsibility and long-term sustainability (Bell et al., 2021; Haji Hussein & Bou Zakhem, 2024).

Employer branding that emphasizes environmental responsibility can strengthen employees' knowledge, skills, competencies, and attitudes while promoting a supportive physical and psychological work environment. These organizational conditions can enhance employees' identification with organizational values and encourage their active involvement in achieving sustainability objectives (Gul et al., 2025; Setyaningrum & Muafi, 2023). When employees perceive that their organization values their contributions and demonstrates a genuine commitment to environmental sustainability, they may develop a stronger sense of belonging, greater organizational commitment, and a stronger intention to remain with the organization. These outcomes can contribute to employee retention and help organizations maintain a competitive advantage (Keyko et al., 2016).

The Resource-Based View (RBV) provides a theoretical explanation for these relationships by emphasizing the strategic value of employees' knowledge, skills, and capabilities as resources that can support organizational performance and sustainable competitive advantage when they are valuable and difficult to imitate (Malik et al., 2020). From this perspective, integrating Green Human Resource Management (GHRM) practices into organizational policies and leadership approaches can help develop and retain a workforce committed to environmental sustainability (Masih et al., 2024).

Specifically, sustainability-oriented recruitment, green onboarding, environmental training, and supportive leadership can cultivate employees' environmental awareness, strengthen their sense of responsibility, and encourage voluntary participation in organizational environmental initiatives. Such practices can foster green citizenship behavior, whereby employees voluntarily engage in environmentally responsible activities beyond their formal job duties (Ahmad et al., 2023). Ultimately, GHRM can enable organizations to transform employees' environmental knowledge, commitment, and behaviors into collective organizational capabilities that support environmental sustainability, improve organizational performance, and sustain competitive advantage.

2.2 Pro-Environmental Behaviors

Pro-environmental behaviors are behaviors of individuals which are aimed at promoting sustainability like conservation of energy, minimizing water consumption, waste management practices and recycling (Yang et al.2023). They include individual efforts to engage in environmental advocacy, safeguarding ecological wellbeing collectively to ensure a sustainable future (Mesmer-Magnus, 2012). Pro-environmental behaviors impact not only private but also public actions. Private actions can include limiting the use of air-conditioning and using reducing or recycling the waste, while public actions may include preferencing public transportation over private vehicles and taking part in awareness campaigns and protests against any environmental harm. These behaviors come from individual's intrinsic behavior and typically performed voluntarily, with objective of environmental sustainability (Steg & Vlek, 2009).

Scholars have conceptualized pro-environmental behavior with various labels, such as environmentally responsible behavior (Borden & Schettino, 1979), green behavior (Norton et al., 2015) and eco-friendly behavior (Mallet, 2012). In broad sense, PEB is how the activities of individuals are directed towards reducing negative impacts of human actions on quality of natural environment (Kim & Stepchenkova, 2020). The foundational objective of PEB is to mitigate any harms directed towards environmental degradation ion order to promote individuals, organizations and also societies (Sawitri et al., 2015). With increase in awareness of harms to environment due to human negligence, marked increase in employee engagement in workplace PEBs has been observed (Hameed et al., 2023; Saifulina, 2023).

In organizational realm, there is a strong link between PEB and environmental success of an organization. This success is attributed to the capacity of the organization to either meet, or exceed the expectations of stakeholders and society in respecting and tasking responsibility for the natural environment (Sunganthi, 2019). Environmental success can be quantified using indicators like prevention of pollution, reduction of waste and taking initiatives to recycle and reuse. It is important for organizations to integrate environmental training, particularly emphasizing environmental stewardship, into their HRM functions. This results in improvement of environmental outcomes along with ensuring long-term sustainability in performance (Atalla, 2025; Christina et al., 2025).

The success of PEB can be evaluated at three interrelated levels of analysis comprising of individual, organizational and societal level (Xu et al., 2021). At individual level, PEB is assessed on how attitudes, beliefs and values of people shape their willingness and intrinsic motivation to act sustainably (Palupi & Sawitri, 2018). At organizational level, the environmentally responsible behaviors of employees are integrated in practices and culture through HRM systems, green leadership and a reinforcement culture (Sabokro et al., 2021). From macro level of social elements, external motivators or deterrents are provided through cultural expectations, norms and values, regulations and laws to take environmental actions (Foster et al., 2022).

Although various structural factors such as infrastructure for recycling waste or availability of public transport can foster pro-environmental attitudes and conduct, yet the final decision resides with personal values, beliefs and perceived moral obligation of individuals (López & Cuervo-Arango, 2008).

Jackson et al. (2012) identified six distinct categories of employees' environmental behavior in the workplace through an extensive analysis of environmental practices across different industries and national contexts. These categories contributed to the development of the Green Five framework, which explains how individual values, perceptions, motivation, and personality traits influence employees' pro-environmental behavior (Jun et al., 2022). Drawing on the Big Five personality model proposed by McCrae and Costa (1999), this framework examines the relationship between individual personality characteristics and environmental responsibility. It suggests that certain personality traits can influence individuals' tendencies to engage consistently in pro-environmental behaviors both at work and in their everyday lives. Furthermore, the framework provides a behavioral taxonomy for understanding the different forms of green behavior exhibited by employees in organizational settings (Marrucci et al., 2024).

The five categories of this comprehensive taxonomy—conserving, avoiding harm, transforming, influencing others, and taking initiatives—illustrate how the interaction between individual personality traits, situational opportunities, and motivational factors can give rise to distinct forms of pro-environmental behavior. For instance, conserving resources and avoiding environmental harm may be associated with conscientiousness and self-discipline, whereas transforming existing practices and influencing others may be linked to extraversion, prosocial motivation, and openness to experience (Katz et al., 2022).

2.3 Corporate Social Responsibility

Corporate Social Responsibility or CSR is the commitment of an organization to operate in an ethical way as well as seek sustainability by balancing its environmental, economic and societal imperatives (Carroll & Brown, 2018; Marzuki et al., 2023). It is characterized by the responsibility and obligation of contributing to the environmental sustainability in positive way, which includes responsible resource management, environmental protection, ethical business conduct and welfare of employees (Sarvaiya et al., 2018). CSR enhances the stakeholder trust and an organizations reputation and corporate legitimacy when embedded strategically in business operations, while contributing to competitive edge of an organization (Martinez-Conesa et al., 2017; Zada et al., 2019).

Research has noted that better stakeholder relationships with improved employee loyalty and increased financial outcomes are gained through active participation and engagement in CSR by organizations

(Malik et al., 2020; Rodriguez-Fernandez, 2016). CSR is grounded in the Stakeholder Theory (Freeman, 1994) and highlights the importance of harmonizing diverse stakeholder interests to achieve enhance organizational performance. Meanwhile, to realize CSR-driven sustainability, the critical role of her practices and employee participation is also underscored by Ability-Motivation-Opportunity (AMO) framework (Yoon & Chung, 2018). The CSR function are not considered just as philanthropic tools but are rather a strategic resource for an organization that integrated social equity, environmental citizenship and ethical management practices within GHRM framework (Amrutha & Geetha, 2020; Islam et al., 2021).

CSR has grown into being evolved as a multidimensional construct with its dimensions: social dimension, ethical dimension, economic dimension and environmental dimension. The interpretation of CSR along with its dimension varies across cultural and institutional contexts (Herrera & de las Hera-Rosas, 2020). Although the context can be varied, the main aim of CSR remains consistent. It aims to align the corporate behavior with societal and environmental well-being (Carroll, 1991). Taking this into account, CSR has gained much attention in its link with HR, as CSR principles can be successfully translated into employee-based practices through internal functions of HRM which may include green recruitment and knowledge and performance management (Wagner, 2013; Amrutha & Geetha, 2020). Organizations show higher affective commitment with increased employee job satisfaction and their pro-environmental behaviors when they start to truly perceive and honest CSR engagement by their organizations (De Roeck & Farooq, 2018; Raineri & Paillé, 2016).

In summary, organizational sustainability goals can be successfully connected with employee green behaviors through the ethical and motivational foundations provided by CSR. This, as a result, highlight the critical strategic role of GHRM in nurturing the environmentally responsible culture within an organization (Ansari et al., 2021).

2.4 Mediating Role of CSR between GHRM and PEB

As the climate change and environmental challenges become one of the core challenges of sustainability, it compels organizations to integrate CSR in their human resource as well as whole operational strategies and functions (García-Sánchez et al., 2021). CSR, working as a mediating mechanism, helps to explain and elaborate the translation of Green Human Resource Management (GHRM) practices among employees into their Pro-Environmental behavior (Anwar et al., 2020; Rauf et al., 2019). HR initiatives like green recruitment, environmental knowledge building via training and sustainability-based performance appraisal are aligned with CSR to help employees internalize the environmental values. They start to see their roles as meaningful in social and environmental context which leads to their strong ecological engagement (Roscoe et al., 2019; Kim et al., 2019).

CSR helps employees to understand the environmental commitments of their organizations and treat them as ethical and moral responsibility signals (Matten & Moon, 2004). Organizations can foster a culture with sense of organizational pride and moral identification embedded in it, by communicating clear CSR agendas. This encourages the employees to show pro-environmental conduct in return (Ahmed et al., 2020; Farooq et al., 2017). Studies support the deduction that CSR initiatives have significantly positive impact on green work behaviors of employees and also their environmental citizenship, which

further strengthens the association between GHRM and PEB (Raineri & Paillé, 2016; Chowdhury et al., 2017).

When viewed from perspective of Resource-Based View (RBV) theory, CSR is the intangible strategic capability of an organization which strengthens its internal resource base (Surroca et al., 2010). From this perspective, CSR works as a contextual mediator which helps to amplify and increase strategic value of human resources within organization that are shaped by GHRM practices (Abbas, 2020; Yasin et al., 2023; Ziyadeh et al., 2024). The strategic integration of CSR in institutional practices creates a supportive and positive climate to legitimize, support and further strengthen GHRM initiatives (Bakhsh Magsi et al., 2018). It enables employees to align and adapt their environmental efforts with organization's broad ethical mission and social goals (Zibarras & Coan, 2015). The conversion efficiency and change management of GHRM into development of pro-environmental behaviors is enhanced due to this alignment because employees start to see the environmental sustainability mission of their organization as credible as well as value-driven (Zada e al., 2019; Islam et al., 2023). Integration of CSR in organization as resource-enhancing mechanism reinforces the synergy and interaction among the human, social and reputational resources of organizations. Thereby, the overall capacity of organizations is increased and is enabled to generate a sustained competitive advantage within the context of environmental performance (Li et al., 2023; Saeidi, et al., 2015).

Hence, the ethical framework of GHRM is strengthened due to CSR and functions as a motivational as well as psychological bridge that links between individual behavioral outcomes and sustainability strategies of organizations (Kim et al., 2019). CSR plays a vital role in transforming green practices into lasting pro-environmental behaviors by reinforcing and fostering environmental awareness, feeling of responsibility and relatability with corporate values for employees.

2.5 Conceptual Framework:



3.1 Research Methodology

Research methodology refers to the systematic framework of methods and procedures used to address research questions and test hypotheses (Creswell & Creswell, 2017; Kothari, 2014). It provides the rationale for selecting appropriate research designs, data collection methods, and analytical techniques (Saunders et al., 2019). This study examines the relationships among Green Human Resource Management (GHRM), Pro-Environmental Behavior (PEB), and the other variables included in the research model.

The study adopts a positivist research philosophy, which emphasizes objective measurement, empirical observation, and hypothesis testing (Bryman, 2016). This philosophy is appropriate because the study aims to examine relationships among research variables using quantitative data and statistical analysis. Furthermore, a deductive research approach is employed, whereby hypotheses are developed from existing theories and literature and subsequently tested using empirical evidence (Saunders et al., 2019).

A quantitative, cross-sectional research design was adopted to investigate the proposed relationships within the hospitality industry of Khyber Pakhtunkhwa (KP), Pakistan. A cross-sectional design involves collecting data at a single point in time and is suitable for examining associations among variables (Saunders et al., 2019). Primary data will be collected through a structured questionnaire administered to eligible hotel and restaurant owners and managers. The collected data will be analyzed using appropriate statistical techniques to evaluate the proposed hypotheses and relationships among the study variables.

The target population comprises owners and managers of hotels and restaurants operating in the tourism and hospitality industry of KP, Pakistan. These respondents are relevant because they may influence the adoption of GHRM practices and the promotion of pro-environmental behavior within their organizations. The study covers selected locations, including Swat Valley, Peshawar, Kohat, Malakand Division, Haripur, and the Naran and Kaghan valleys. These locations provide a diverse setting for examining environmental sustainability practices in hospitality establishments. The findings will primarily relate to participating establishments in these selected areas.

Therefore, the calculated sample size is 357 respondents, assuming that the population size of 3,600 is accurate. The adequacy of this sample for the planned statistical analysis should also be assessed in relation to the research model and selected analytical technique.

Sampling involves selecting a subset of a population to obtain data relevant to the research objectives (Sekaran & Bougie, 2016). Given the geographical distribution of hospitality establishments across KP, geographical cluster sampling may be appropriate. However, the classification of the sampling technique depends on the actual selection procedures. If geographical clusters and respondents are selected through defined probability procedures, the method may be described as multistage cluster sampling. Conversely, if locations are selected purposively and respondents are approached based on accessibility, purposive or convenience sampling would be more accurate. Therefore, the final description of the sampling technique should reflect the actual procedures used to select locations, establishments, and respondents.

4. Results and Discussions

4.1 Descriptive Statistics

The descriptive statistics calculates means, standard deviations, skewness and kurtosis. Table 1 presents the descriptive statistics of all variables in the model. GHRM, which measures the degree of employee perception about the pro-environment human resource management practices, has Mean = 3.150, SD = 1.057. On average, employees show a moderate level of satisfaction with these practices while there is low level of variability in their responses.

Table 1: Descriptive Statistics

	Mean	Std. Deviation	Skewness	Kurtosis
GHRM	3.150	1.057	-0.321	-1.177
CSR	3.403	0.948	-0.639	-0.542
PEB	3.213	0.985	-0.318	-1.093

Table 1 presents the descriptive statistics for GHRM, CSR, and PEB. CSR has the highest mean (M = 3.403, SD = 0.948), followed by PEB (M = 3.213, SD = 0.985) and GHRM (M = 3.150, SD = 1.057). The standard deviations indicate moderate variability in responses. All variables exhibit slightly negative skewness and negative kurtosis, with values within the acceptable range of ±2. These results suggest that the data do not show substantial departures from normality and are suitable for further statistical analysis, subject to the assumptions of the selected methods.

4.2 Confirmatory Factor Analysis

Composite reliability, as per guidelines of Fornell & Larcker (1981), was used to evaluate the goodness-of-fit of the measurement model, while convergent and discrimination validity was assessed (Hsu & Lin, 2008; Lim, 2015). When applied to this study's measurement model, the constructs of the model achieved values that ranged from 0.835 to 0.953. These values exceed the recommended threshold of a value greater than 0.70, as set by Nunnally (1994) (See Table 2). The Cronbach's alpha for all constructs was calculated to be above 0.70 which also aligns with the standards (Hair et al., 2021).

Table 2: Factor Loadings, CR, AVE and Sqr. AVE

	ItCSRs	Factor Loadings	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)	VIF
GHRM	GHRM1	0.801	0.885	0.887	0.913	0.635	2.015
	GHRM2	0.801					1.989
	GHRM3	0.820					2.064
	GHRM4	0.797					1.969
	GHRM5	0.772					1.828
	GHRM6	0.791					1.912
CSR	CSR1	0.752	0.831	0.835	0.881	0.596	1.622

	CSR2	0.794					1.751
	CSR3	0.782					1.711
	CSR4	0.805					1.758
	CSR5	0.725					1.503
	PEBEH1	0.779					2.418
	PEBEH2	0.774					2.311
	PEBEH3	0.776					2.369
	PEBEH4	0.772					2.327
	PEBEH5	0.762					2.295
	PEBEH6	0.761					2.240
	PEBEH7	0.772					2.355
PEB	PEBEH8	0.748	0.954	0.954	0.959	0.592	2.170
	PEBEH9	0.768					2.272
	PEBEH10	0.763					2.323
	PEBEH11	0.782					2.443
	PEBEH12	0.759					2.291
	PEBEH13	0.771					2.362
	PEBEH14	0.789					2.461
	PEBEH15	0.764					2.312
	PEBEH16	0.766					2.354

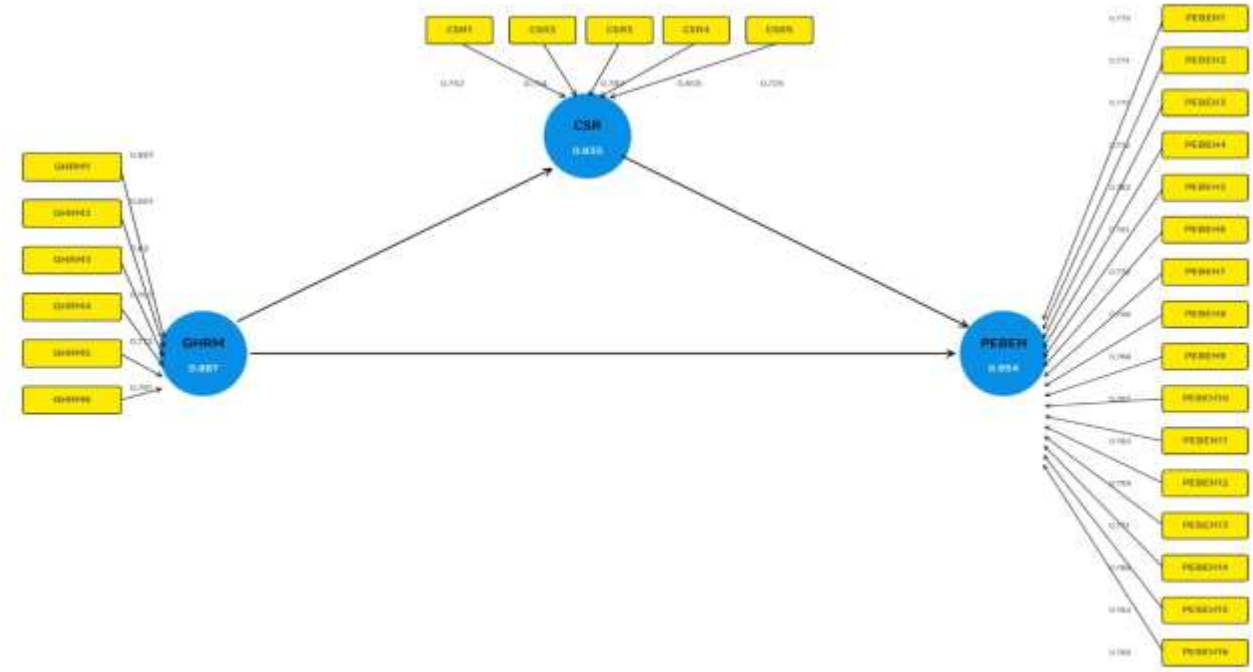


Figure 1: MeasureCSRent Model

Table 2 presents the measurement model results for GHRM, CSR, and PEB. All factor loadings range from 0.725 to 0.820, exceeding the recommended threshold of 0.70. Cronbach's alpha and composite reliability values range from 0.831 to 0.954 and 0.881 to 0.959, respectively, indicating satisfactory internal consistency. The AVE values range from 0.592 to 0.635, exceeding the minimum threshold of 0.50 and confirming convergent validity. Furthermore, all VIF values are below 3, suggesting no serious multicollinearity concerns. Overall, the results support the reliability and convergent validity of the measurement model.

4.3 Correlation Analysis

The relationships between five different variables in the study's model, is examined using the correlation analysis table. There variables include GHRM, CSR, and Pro-environmental behaviors (referred as PEDEH in the analysis). The strength and association between various variables in a given model can be assessed using correlation coefficient of variables.

Table3: Correlation analysis

	GHRM	CSR	PEB
GHRM	**0.797**		
CSR	0.447	**0.772**	
GTL	0.432	0.375	
GSE	0.303	0.211	
PEB	0.655	0.463	**0.769**

With r=0.447, a significant positive correlation was noted between GHRM and CSR, while r=0.375 between GTL and CSR also show the same. There is also a significant positive relationship between GHRM and GTL with r=0.432. It is also noted that GHRM and GSE have a positive correlation with r=0.303 but a weaker positive relationship with CSR having r=0.211. PEB also shows a strong positive correlation with many variables, i.e., with GHRM (r=0.6555), GSE (r=0.534) and also GTL(r=0.523). The findings from correlation analysis indicate many interrelated dynamic existing among these variables. It also highlights the critical role of alignment between GHRM, CSR and leadership within organizations with the positive pro-enlivenment behaviors.

4.4 Structural Analysis and Hypothesis Testing

4.4.1 Multivariate Analysis Overview

Multivariate analysis was conducted on the research model to assess the relationship among the variables using Structured Equation Modeling (SEM). Multiple regression analysis was conducted to test the hypothesis where mediation and moderation techniques were applied to examine the proposed relationships found in the model. SmartPLS was sued to conduct these analyses, as it is suitable to test mediation and moderation effects in complex models, robustly. The insights can be drawn from its result which can help to analyze the dynamics between IV, DV, moderating and mediating variables. The findings, including statistical significance and practical implications, are discussed in the subsequent sections.

4.4.2 Impact of GHRM on PEB

At the first stage we examined the direct effect of Green HRM on PEB (figure 2). The results obtained through structural equation modelling (SEM) are reported in table 7.

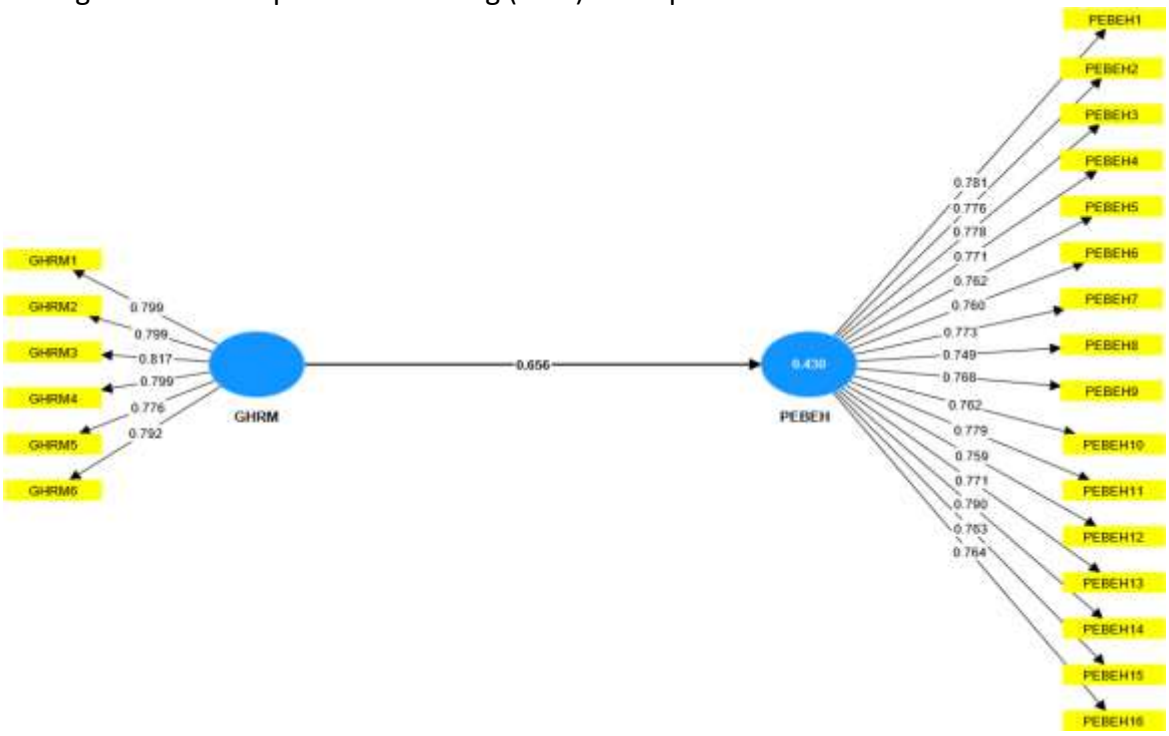


Figure 2: Direct effect of GHRM on PEB

Table 4: Direct effect of GHRM on PEB

	B	STDEV	T-Stat	P-val	f-square	R-Square	Hypothesis
GHRM -> PEB	0.656	0.029	22.301	0.000	0.755	**0.430**	**0.430**

The findings revealed that GHRM has significant positive (β = 0.656, $p < 0.001$; $f^2 = 0.755$) impact on PEB. The co-efficient of determination (R-square) of this model was 0.430. This shows that GHRM explain 43% variation in PEB.

4.5.3 Effect of GHRM on Mediators – CSR

At the second stage we examined the direct effect of green HRM on mediators CSR The results obtained through structural equation modelling (SEM) are reported in table 4.

Table 5: Impact of GHRM on CSR & TRFLDR

	B	STDEV	T-Stat	P-val	f-square	R-Square	Hypothesis
GHRM -> CSR	0.448	0.045	10.004	0.000	0.251	**0.201**	
GHRM -> CSR	0.434	0.041	10.517	0.000	0.232	**0.188**	

The findings revealed that GHRM has a significant positive impact on CSR (β = 0.448, $p < 0.001$; $f^2 = 0.251$). The coefficient of determination (R^2) for this model was 0.201, indicating that GHRM explains 20.1% of the variance in CSR.Similarly, GHRM has a significant positive relationship with CSR(β = 0.434, $p < 0.001$; $f^2 = 0.232$). The coefficient of determination (R^2) for this model was 0.188, indicating that GHRM explains 18.8% of the variance in CSR.

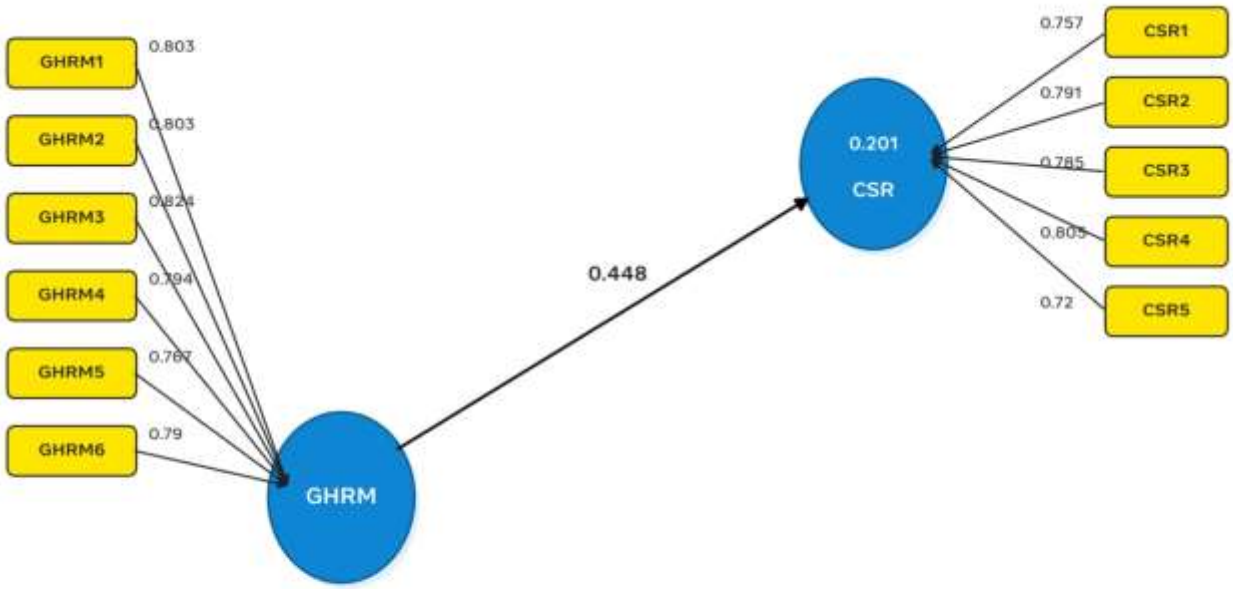


Figure 3: Impact of GHRM on CSR

5- Discussion, Conclusion, Recommendations

5.1 Discussions

The present study focuses on examining the influence of Green Human Resource Management (GHRM) on employees' Pro-Environmental Behaviors (PEB) and investigating the mediating role of Corporate Social Responsibility (CSR) in this relationship. Both research objectives were successfully achieved, providing valuable insights into how environmentally responsible human resource practices encourage employees to adopt sustainable behaviors within organizations. The findings are also consistent with previous research and recent empirical evidence, which highlights the importance of integrating environmental and social responsibility into organizational policies and practices.

(1) To examine the effect of Green Human Resource Management (GHRM) on Pro-Environmental Behaviors.

The first research objective was successfully achieved, as the findings demonstrate that Green Human Resource Management positively influences employees' Pro-Environmental Behaviors. This suggests that practices such as green recruitment and selection, green training and development, green performance appraisal, and green rewards encourage employees to adopt environmentally responsible activities, including reducing waste, conserving energy, and supporting environmental sustainability.

These findings are consistent with Zafar and Suseno (2024), who found that GHRM practices significantly contribute to employees' voluntary pro-environmental behaviors in Pakistan's textile

industry. Similarly, a recent study by Umair et al. (2025) highlights the importance of GHRM in promoting employees' environmental passion and pro-environmental behaviors. Therefore, the first objective is supported by both the present study and previous empirical literature.

(2) To assess the mediating role of Corporate Social Responsibility (CSR) in the relationship between Green Human Resource Management (GHRM) and Pro-Environmental Behaviors.

The second research objective was also successfully achieved, as the findings establish the mediating role of Corporate Social Responsibility in the relationship between GHRM and employees' Pro-Environmental Behaviors. This indicates that GHRM practices not only directly encourage environmentally responsible employee behavior but also strengthen employees' perceptions of organizational commitment to social and environmental responsibilities. Through CSR initiatives, organizations communicate their commitment to sustainability, ethical practices, and environmental protection, motivating employees to demonstrate greater pro-environmental behavior.

These findings are consistent with Nguyen et al. (2024), who confirmed that CSR mediates the relationship between GHRM and employees' green behavioral intentions. Similarly, Sabokro et al. (2021) highlighted the importance of CSR in promoting employees' green behavior. More recently, Hameed et al. (2025), using data from manufacturing firms in Pakistan, also established the importance of CSR-related environmental mechanisms in the relationship between GHRM and organizational sustainability. Thus, the second objective is successfully accomplished and reinforces the argument that CSR serves as an important mechanism through which GHRM contributes to environmentally responsible employee behavior.

5.2 Recommendations

The findings of this study provide several practical recommendations for promoting Green Human Resource Management (GHRM) and pro-environmental behavior (PEB) in Pakistan's tourism and hospitality sector. Effective implementation requires coordinated efforts from government authorities, hotel management, employees, educational institutions, and industry stakeholders.

The Government of Pakistan should develop policies encouraging hotels to integrate environmental sustainability into recruitment, training, performance appraisal, and reward systems. Financial incentives, such as grants and preferential financing for energy-efficient technologies, renewable energy, and waste-management systems, should be considered. The government should also promote green certification and sustainability reporting to encourage measurable environmental improvements and organizational accountability.

The Government of Khyber Pakhtunkhwa should introduce targeted initiatives to promote sustainable tourism, particularly in environmentally sensitive destinations. Provincial authorities should provide technical assistance and affordable training to hotels and guesthouses on water conservation, energy efficiency, waste management, and environmental protection. Collaboration with local communities, tourism authorities, and educational institutions should be encouraged to develop responsible tourism practices and strengthen green hospitality skills.

Hotel owners and management should integrate GHRM into all major HR functions, including recruitment, employee orientation, training, performance evaluation, and rewards. Environmental targets should be established for energy consumption, water use, waste reduction, and employee

participation in sustainability initiatives. Human resource managers should provide practical environmental training and incorporate relevant indicators into employee performance appraisals. Regular monitoring would help identify shortcomings and improve environmental performance.

Hotel managers should also promote transformational leadership by communicating clear environmental objectives, demonstrating sustainable practices, and encouraging employees to suggest green initiatives. Green self-efficacy can be strengthened through practical workshops, experiential learning, feedback, and recognition of employees who contribute to environmental improvements. Establishing employee-led green teams would further encourage participation and shared responsibility.

Hospitality businesses should align their Corporate Social Responsibility (CSR) initiatives with GHRM practices by involving employees in waste reduction, environmental awareness, community conservation, and sustainable tourism projects. Hotels should evaluate these initiatives using measurable outcomes rather than relying solely on participation or promotional activities. Industry associations and local communities can support these efforts through partnerships addressing environmental challenges across tourism destinations.

Universities, hospitality institutes, and professional associations should incorporate GHRM, sustainable tourism, and environmental leadership into academic curricula and professional training. Collaboration between researchers and hospitality businesses should be encouraged to evaluate the effectiveness of green HR practices and develop evidence-based solutions suited to Pakistan's hospitality sector.

Finally, hotels and relevant authorities should establish monitoring mechanisms to evaluate progress through indicators such as employee training participation, energy and water consumption per guest-night, waste reduction, and achievement of environmental targets. Regular evaluation would help stakeholders identify effective practices and improve sustainability initiatives over time.

5.3 Conclusion

This study examined the relationship between Green Human Resource Management (GHRM) and employees' pro-environmental behavior (PEB) in the tourism and hospitality sector of Khyber Pakhtunkhwa, Pakistan, while considering the roles of Corporate Social Responsibility (CSR), transformational leadership, and green self-efficacy. The findings highlight the importance of GHRM in encouraging environmentally responsible employee behavior through practices such as green recruitment, environmental training, performance appraisal, and reward systems. The study emphasizes that sustainability in hospitality organizations requires more than the adoption of environmental policies; it also depends on integrating environmental objectives into human resource practices, organizational values, and everyday employee activities.

The study further highlights the roles of CSR and transformational leadership as mechanisms through which organizational environmental commitments may be translated into employee behavior, while green self-efficacy may strengthen the relationship between GHRM and PEB. These findings contribute to the application of the Resource-Based View (RBV) by emphasizing the importance of green human capital and complementary organizational resources in developing environmental capabilities. By examining these relationships within the context of Khyber Pakhtunkhwa, the study provides context-specific evidence concerning the integration of organizational practices, leadership, and individual

psychological factors in promoting environmental sustainability. The findings also suggest that hotel management can support these objectives through employee development, sustainability-oriented leadership, community engagement, and systematic monitoring of environmental performance.

Despite these contributions, the study's geographical scope, sampling characteristics, and cross-sectional design limit the generalizability and causal interpretation of its findings. Future research should examine other regions and hospitality settings in Pakistan, employ longitudinal research designs, and incorporate multiple data sources to strengthen the validity of the findings. Further studies could also investigate additional organizational and contextual factors influencing the relationship between GHRM and employee environmental behavior. Overall, this study provides a foundation for understanding how GHRM, CSR, transformational leadership, and green self-efficacy can contribute to environmentally responsible practices in the hospitality sector. Effective collaboration among government authorities, hotel management, employees, and academic institutions can help translate these insights into practical initiatives that support the long-term sustainability of Pakistan's tourism and hospitality industry.

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