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THE EMPIRICAL ANALYSIS OF GREEN HRM PRACTICES IN SMALL AND MEDIUM ENTERPRISES (SMES) IN SINDH: A CONTEXT OF COMPANY AND EMPLOYEE OUTCOMES

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Abstract
This study investigates Green HRM Practices in manufacturing SMEs in Sindh in the context of Company outcome (Environmental Sustainability) and Employee Outcome (Employees' Green Performance) with a mediating variable (Employee Green Behavior) within the framework of Ability-Motivation-Opportunity (AMO).This study adopted a quantitative research design using Cross-sectional survey questionnaires which were administered to HR managers/owners and employees from 100 manufacturing SMEs in Sindh to measure GHRM practices, employee green behavior, environmental sustainability, and employee green performance using convenience sampling.The present study applied Hierarchical Component Model (HCM) in the context of PLS-SEM involving on modeling its Higher Order construct (GHRM Practices) by its Lower Order Constructs (GHRM Practices), thereby reducing the number of path model relationship. The results revealed that GHRM exerted significant positive effects on Employee Green Behavior (EGB) (H1: $\beta = 0.568$, $p = 0.048$), employee green performance (H2: $\beta = 0.346$, $p = 0.023$) and environmental sustainability (H3: $\beta = 0.307$, $p = 0.024$). Furthermore, Employee Green Behavior significantly influenced Employee Green Performance (EGP) (H4: $\beta = 0.610$, $p < 0.001$) and Environmental Sustainability (ES) (H5: $\beta = 0.295$, $p = 0.024$). However, the indirect effects of GHRM on EGP (H6: $\beta = 0.347$ $p = 0.096$) and on ES (H7: $\beta = 0.167$ $p = 0.242$) were statistically insignificant, leading to rejection of mediation effect.

1. Introduction:

Climate change and escalating environmental challenges have emerged as critical global concerns, compelling governments and corporations to formulate policies aimed at mitigating environmental degradation (Miah, Szabó-Szentgróti, & Walter, 2024). Within this context, Green Human Resource Management (GHRM) has gained increasing attention as a strategic approach to integrate environmental sustainability into organizational practices (Aftab et al., 2023). GHRM represents a synergy between Environmental Management and Human Resource Management Practices (Sharma & Gupta, 2015) and has been recognized as an essential driver for aligning workforce behavior with environmental goals (Renwick et al., 2013). By embedding green principles of Environmental Management within HR Practices, business organizations (including SMEs) can foster environmentally conscious culture (Employee Green Behavior) and enhance their overall sustainability performance (Environmental Sustainability).

GHRM is commonly defined as "the systematic, planned alignment of typical human resource management practices with the organization's environmental goals" (Jabbour, 2013). The studies (Aftab et al., 2023 & Renwick et al., 2013) emphasized upon environmental sustainability as organization's environmental goal. Through this alignment, GHRM seeks to influence employees' attitudes and behaviors toward sustainability, thereby creating a workforce that actively contributes to environmental objectives (Miah, Szabó-Szentgróti, & Walter, 2024).

Practices such as green recruitment, eco-focused training, performance management systems with environmental metrics, and incentives for green initiatives are some of the key mechanisms through which this alignment is operationalized under Ability-Motivation- Opportunity (AMO) framework. From a theoretical perspective, the Ability-Motivation-Opportunity (AMO) framework has emerged as the dominant lens in contemporary GHRM research (Miah, Szabó-Szentgróti, & Walter, 2024).

Under AMO framework (Appelbaum et al., 2000), GHRM practices can be categorized into three key dimensions:

Ability – developing employees' environmental knowledge and skills through green recruitment, selection, and training;

Motivation – enhancing employees' willingness to act sustainably through green performance management, pay, and reward systems;

Opportunity – creating platforms for employee involvement in green decision-making and environmental sustainability initiatives.

Although this theoretical foundation (AMO) provides valuable insights into how GHRM practices can influence individual employee behavior and, ultimately, contribute to organizational sustainability outcomes in the context of developed countries; there remains a significant lack of empirical evidence concerning the impact of GHRM practices, especially in small and medium sized enterprises (SMEs) in developing countries.

Small Medium Enterprises (SMEs) in Pakistan: Significance and definition

The SMEs have significant contribution to GDP and employment in Pakistan. SMEs play a vital role in the development of a country and can contribute to improvement via widening employment base and reducing poverty, specifically for the developing countries like Pakistan (Shaikh, Shah, & Ashraf, 2017). developing countries.As per the estimates of Small & Medium Enterprise Development Authority (SMEDA), there are more than 5.2 million SMEs in Pakistan. SMEs contribute 40% in GDP of Pakistan and 25% in overall exports. After Agriculture sector, SME sector provides employment to highest percentage of working population in the country. SME sector contributes to 78% of non-agriculture sector employment (State Bank of Pakistan, 2024). SMEs, especially in manufacturing sector, are energy intensive resulting in greenhouse gas emissions along with their significant contribution to water contamination and resource wastages. However, GHRM can be used as a tool to reduce negative environmental impact by SMEs by managing their workforce in environmental aspects (Putra, Hardhika, & Susanti, 2020).

The most common variables used to define SMEs globally are the number of employees, assets and turnover. Given below (Table:1) is National SME definition to be adopted across Pakistan (SMEDA, 2021 & SBP, 2022)

Table: 1 (SME Definition)

Enterprise Category	Criteria (Annual Sales Turnover)	Criteria (No. of Employees)
Small Enterprise (SE)	Upto PKR 150 Million	Up to 50
Medium Enterprise (ME)	Above PKR 150 Million to PKR 800 Million	51 -250

As per the estimates of Small & Medium Enterprise Development Authority (SMEDA), there are more than 5.2 million SMEs in Pakistan. Number of SMEs in Sindh are 1.3 Million.

There are roughly 696,558 manufacturing SMEs in Pakistan, based on the Pakistan Bureau of Statistics' (PBS) Economic Census 2023. While, the rough estimate of Manufacturing SMEs in Sindh is 13% (90550).

This study aims at investigating Green HRM Practices in SMEs in Sindh in the context of Company outcome (Environmental Sustainability) and Employee Outcome (Employees' Green Performance) with a mediating variable (Employee Green Behavior).

2. Literature Review:

Green Human Resource Management (GHRM):

Green Human Resource Management (GHRM) is an integration of HRM practices and environmental management practices, where HRM functions should be carried out to develop the motivation, involvement, and skills of the workforce towards environmental sustainability practices (Renwick, Redman, & Maguire, 2013 & Fartade and Ghumre, 2020). Green HRM is extension in the field of Human Resource Management incorporating the practices leading environmental improvement as well as the output of the business (Khuwaja , Shaikh, Azhar, & Mahesar, 2024).

(Guiyao, Chen, Jiang, & Paillé, 2017) proposed and validated an instrument to measure GHRM.

Based on exploratory analysis, it was established that GHRM includes five dimensions:

Green Recruitment and Selection (GRS)
Green Training and Development (GTD)
Green Performance Management (GPM)
Green Pay and Rewards (GPR)
Green Employee Engagement (GEE)

Green Recruitment and Selection (GRS) focuses on identifying and attracting individuals who align with an organization's environmental values and objectives **(Guiyao, Chen, Jiang, & Paillé, 2017).** This includes emphasizing sustainability-related skills and experience in job descriptions, assessing candidates' environmental awareness during interviews, and considering environmental credentials in the selection process.

Green Training and Development (GTD) methods involve cutting down on waste, using resources more effectively, conserving energy, and preventing environmental degradation. They can be applied to foster environmental sustainability and advance staff green skills **(Moradeke et al., 2021 & Jabbour & Santos, 2008).**

Green Performance Management (GPM) refers to a system of evaluating activities of employees' performance in the process of environmental management **(Jabbour & Santos, 2008).** Performance management practices involve setting environmental performance goals, providing feedback on employees' green performance, and integrating environmental criteria into performance evaluations. This ensures that environmental objectives are aligned with individual performance expectations **(Martins et all., 2021).**

Green Pay and Rewards (GPR) is a system of financial and non-financial rewards, aiming at attracting, retaining, and motivating employees to contribute to environmental goals (Jabbour, Govindan, Teixeira, & Freitas, 2013).

Green Employee Engagement (GEE) practices involve employees in sustainability-related decision-making processes, encourage their input on environmental initiatives, and foster a culture of environmental responsibility and participation (Renwick, Redman, & Maguire, 2013).

Employees' Green Behavior (EGB): Mediating Variable

Norton, Zacher, & Ashkanasy (2014) defined **Employee Green Behavior (EGB)** as "scalable actions and behaviors that employees engage in which they contribute to or support environmental sustainability in the workplace." **Norton, Zacher, & Ashkanasy (2014)** conceptualized **Employee Green Behavior (EGB)** in workplace settings as comprising two distinct forms: Task-Related EGB and Voluntary EGB.

Environmental Sustainability (ES): Company Outcome

Jabbour et al. (2015) defined **Environmental Sustainability** is "the extent to which organizations develop and implement practices that reduce environmental impacts, promote eco-efficiency, and contribute to long-term ecological balance while maintaining competitiveness." **Jabbour et al. (2015)** conceptualized **Environmental Sustainability (ES)** into five core areas:

Pollution Prevention – actions that reduce waste, emissions, and environmental damage at the source.

Eco-Efficiency – improving resource use efficiency (energy, water, raw materials) to achieve more with less.

Waste Management – recycling, reusing, and proper disposal practices.

Environmental Management Practices – integration of environmental policies, standards, and certifications (e.g., ISO 14001).

Sustainable Product/Process Design – designing processes and products with environmental considerations in mind.

Employee Green Performance (EGP): Employee Outcome:

Arulrajah et al. (2016) defined **Employee Green Performance** as, "efficient use of input resources by employees when they perform their day to day job tasks, duties and responsibilities."

Research Gap:

Despite the growing body of literature on Green Human Resource management (GHRM), existing empirical evidence predominantly focuses on large corporations in developed economies. Limited scholarly attention has been directed toward understanding how GHRM practices translate into tangible environmental outcomes within Small and Medium-sized enterprises(SMEs), particularly in developing countries such as Pakistan.

Moreover, while prior studies acknowledge the importance of GHRM in fostering environmental sustainability, insufficient empirical evidence explains the mechanisms through which GHRM influences employee level outcome (employee green performance).

In the context of manufacturing SMEs in Sindh, the prevalence, depth, and effectiveness of GHRM implementation remain underexplored. There is lack of research integrating Ability-Motivation-Opportunity(AMO) framework to explain how specific GHRM practices translate into company and employee outcomes

Research Objectives:

Therefore, a contextualized and theory driven empirical investigation is needed to examine the role of GHRM practices in SMEs in Sindh. Manufacturing SMEs in Sindh operate

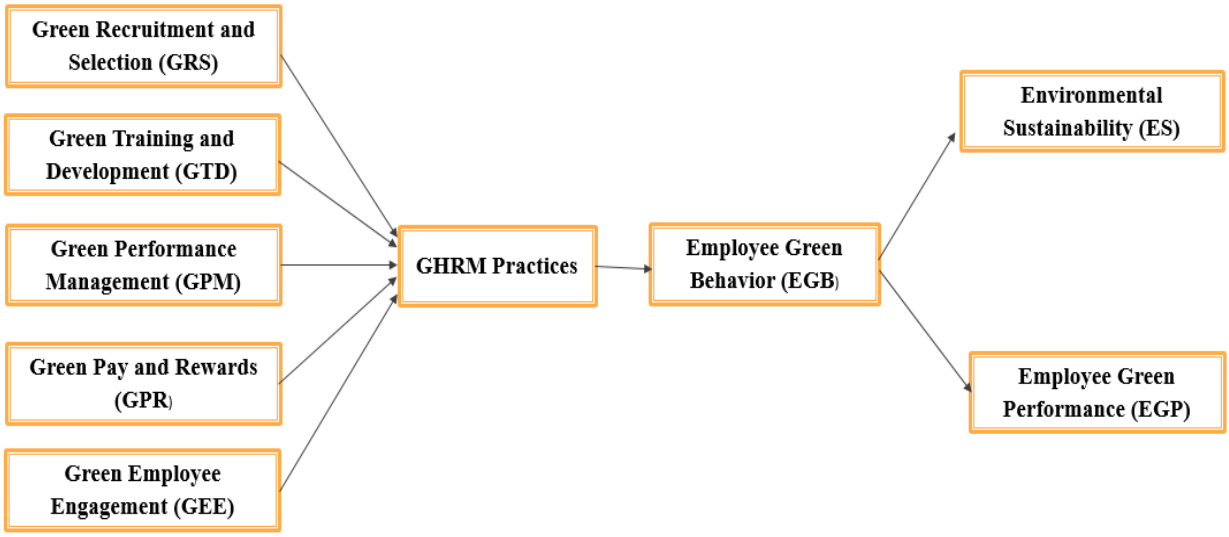
under resource constraints, informal management systems, and limited regulatory enforcement, which may influence both the adoption and effectiveness of GHRM practices. As a result, the prevalence and depth of GHRM implementation in this context remain unclear. Therefore, the central problem addressed in this study is: "To what extent do GHRM practices influence Employee Green Performance (Employee Outcome) and Environmental Sustainability (Organizational Outcome) and do EGB translate GHRM practices into these outcomes (EGP and ES)?"

Therefore, the objectives of this study (Figure 1) are as following:

Firstly, the objective of this study is to examine the direct effects of GHRM on Employee Green Behavior (EGB), Employee Green Performance (EGP) and Environmental Sustainability (ES) as a validation to AMO framework **(Appelbaum et al., 2000).** Prior studies show GHRM dimensions influence pro-environmental actions **(Boiral & Paillé, 2012; Jabbour, 2011).**

Secondly, this study aims to test the mechanism: Does Employee Green Behavior (EGB) mediate the relationships between GHRM practices and (a) Environmental Sustainability (ES), and (b) Employee Green Performance (EGP)**.** Mediation models are widely used to explain how HR practices translate into firm outcomes via employee green behavior **(Preacher, Zyphur, & Zhang, 2010; Renwick et al., 2013).**

Figure 1: Conceptual Model



Hypothesis Testing:

Direct Effect of GHRM Practices on Employee Green Behavior (Based on AbilityMotivation-Opportunity (AMO))

Hypothesis 1: GHRM Practices positively influence Employee Green Behavior (EGB) in SMEs in Sindh.

Direct Effect of GHRM Practices on Employee Green Performance (EGP)

Hypothesis 2: GHRM Practices positively influence Employee Green Performance (EGP) in SMEs in Sindh.

Direct Effect of GHRM Practices on Environmental Sustainability

Hypothesis 3: GHRM Practices positively influence Employee Green Performance (EGP) in SMEs in Sindh.

Direct Effect of Employees'Green Behavior on Employee Green Performance

Hypothesis 4: Employees' Green Behavior (EGB) positively influences Employee Green Performance (EGP).

Direct Effect of Employees'Green Behavior on Environmental Sustainability

Hypothesis 5: Employees' Green Behavior (EGB) positively influences Environmental Sustainability (ES).

Mediating Effect of Employee Green Behavior

Hypothesis 6: Employee Green Behavior (EGB) mediates a relationship between Green HRM (GHRM) and Employees Green Performance (EGP) of SMEs in Sindh.

Hypothesis 7: Employee Green Behavior (EGB) mediates a relationship between Green HRM (GHRM) and Environmental sustainability (ES) of SMEs in Sindh.

3. Research Methodology:

This study adopted a quantitative research design using **Cross-sectional survey** questionnaires which were administered to HR managers/owners and employees from 100 manufacturing SMEs in Sindh to measure GHRM practices, employee green behavior, environmental sustainability, and employee green performance using convenience sampling. The cross-sectional approach is suitable for identifying relationships at a single point in time **(Renwick et al., 2013; Pham et al., 2020)**.

The participants of the survey are (i) HR managers/owners for GHRM practices and Environmental Sustainability (ii) Employees of the SMEs for Employee Green Behavior, and Employee Green Performance. Table 2 gives the participants sample of the study.

Table 2: (Survey Participants)

Variables	GHRM (at Company Level) (Independent Variable)	Employee Green Behavior (Mediator)	Environmental Sustainability (Company outcome) (Dependent Variable)	Employee Green Performance (Employee outcome) (Dependent Variable)
Respondents	HR manager/owner	Employees	HR manger/owner	Employees
Respondent/SME	1	5	1	5
Total Responses(Based on 100 SMEs)	100	500 (5 x 100)	100	500

Measurement Scales: Likert Scales (widely accepted in HRM and organizational behavior research; they allow for parametric statistical analyses and structural equation modeling (SEM)). This study adopted the measurement scales based on the previous studies for the measurement of the constructs which are as following:

GHRM Practices: Adopted from **Guiyao, Chen, Jiang, & Paillé (2017)**

(5 Dimensions, 15 items and 5-Point Likert Scale)

Employee Green Behavior: Adopted from **Norton, Zacher, & Ashkanasy (2014)**

(2 Dimensions, 6 Items and 5-Point Likert Scale)

Environmental Sustainability: Adopted from **Jabbour et al. (2015)**

(1 Dimension, 5 Items and 5-Point Likert Scale)

Employee Green Performance: Adopted from **Arulrajah et al. (2016)**

(1 Dimension, 5 Items and 5-Point Likert Scale)

The participants are selected by using convenience sampling. The survey employed the manufacturing SMEs which included: Textile, Leather Goods, Apparel and Footware, Light Engineering (Cutlery sector, Steel Sector, Surgical Instruments), Pharmaceutical Sector, Ceramics, Marble and Granite, Plastics, Food and beverages, Chemical and Composites. The SMEs data were collected by using the directories of key associations:

Superhighway Association of Industry Karachi (S.I.T.E)

Korangi Association of Trade & Industry (KATI)
All Pakistan Textile Mills Association (APTMA)
Pakistan Tanners Association (PTA)
Hyderabad Chamber of Commerce & Industry
Karachi Chamber of Commerce And Industry
Sindh Small Industries Corporation (SSIC)

4. Data Analysis and Discussion

The present study applied **Hierarchical Component Model (HCM)** in the context of PLS-SEM involving on modeling its **Higher Order construct (GHRM Practices)** by its Lower Order Constructs (GHRM Practices), thereby reducing the number of path model relationship and achieving **model parsimony**.

Higher order constructs model also known as HCM help to overcome the **band width fidelity dilemma**, according to which there is a tradeoff between variety of information (bandwidth) and thoroughness of testing to obtain more certain information (fidelity).

Two Stage Disjoint (Reflective-Formative approach) was used to identify and measure the higher order construct using **SEM** through **Smart PLS 4.0**, following the guidelines of **Hair et al. (2019)**.

Two Stage Disjoint (Reflective-Formative approach)

Stage 1: (i) Measurement model validating (loadings, reliability, AVE) for all constructs including first-order constructs of GHRM. (ii) Latent Variable Score (LVS) of five lower order constructs of GHRM were obtained.

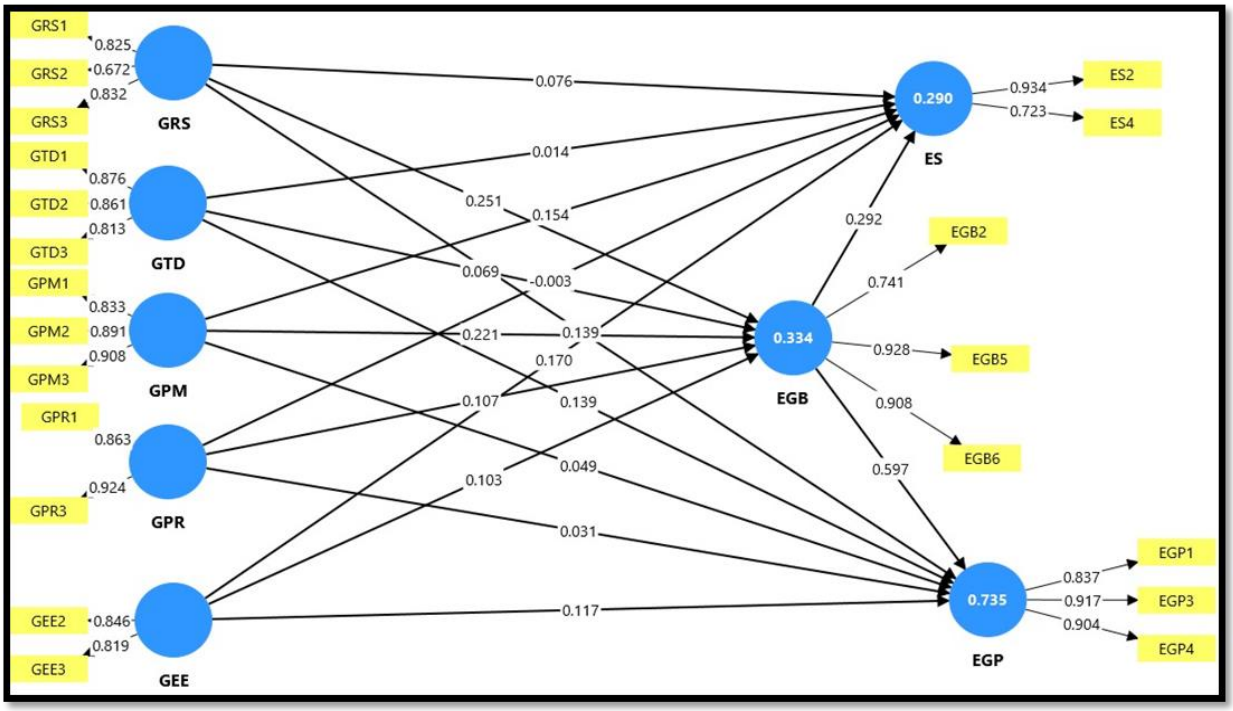
Stage 2: Structural Model Validation to test relation of GHRM Practices with Company outcome (Environmental Sustainability) and Employee outcome (Employee Green Performance) as mediated by Employee Green Behavior. The Latent Variable Score (LVS) of first order constructs of GHRM is used for Higher Order Construct (GHRM Practices) to test **direct, indirect effects and total effects** among the constructs.

GHRM Practices → EGB → EGP & ES

This approach is strongly recommended by **Hair et al. (2022)** and **Becker et al. (2012)**.

Measurement Model Assessment: Measurement Model is about **quality criteria**. How good are constructs. A preliminary examination of the measuring model needs to be undertaken to confirm the constructs' reliability and validity **(Hair, 2006).** At this stage, this study has not only examined the reliability and validity of constructs (Figure 2) : GHRM dimensions, EGB, ES and EGP but also used the **Latent Variable Scores (LVS)** of GRS, GTD, GPM,GPR and GEE for GHRM (higher order construct).

Figure 2: Measurement Model: (Stage 1)



Internal Consistency, Reliability and Convergent Validity (AVE):

Internal Consistency, Reliability and Validity are the fundamental aspects of survey based research. Reliability demonstrates how consistently items of the survey measure the same phenomenon. This which examines the GHRM practices impact on Environmental Sustainability(ES) and Employee Green Performance (EGP) with Employee Green Behavior (EGB) as a mediator. All constructs of the study demonstrate acceptable composite reliability and convergent validity (Table 3). Slightly low Cronbach values for ES & GEE indicate **manager responses are more varied**, which is common for Pakistani SMEs due to informal HR systems.

Table 3: Internal Consistency, Reliability and Convergent Validity (AVE)

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
EGB	0.827	0.873	0.897	0.745
EGP	0.864	0.876	0.917	0.786
ES	0.599	0.777	0.819	0.697
GEE	0.559	0.561	0.819	0.694
GPM	0.853	0.879	0.91	0.771
GPR	0.753	0.794	0.888	0.799
GRS	0.683	0.718	0.822	0.608
GTD	0.809	0.821	0.887	0.723

The above table 3 demonstrates that Composite Reliability scores for all constructs are well above the threshold, confirming a high degree of internal consistency. Taken together, the internal consistency and convergent validity coefficients suggest that the items selected for this survey instrument are statistically valid.

Discriminant Validity:

Discriminant Validity is crucial to investigate whether each latent construct in the study measured different from other constructs. The HTMT (Table 4) and Fornell-Larcker Criterion (Table 5) are used to compare inter-

construct correlations. Most HTMT values are acceptable (Table 4). However:

✓ **EGP ↔ EGB = 0.926 → Too high** → These may be conceptually overlapping

✓ **GPR ↔ GEE = 1.008 → Above threshold** → Suggests collinearity between rewards & engagement

✓ Employees may **perceive rewards and engagement as the same concept.**

Table 4: Discriminant Validity (HTMT)

	EGB	EGP	ES	GEE	GPM	GPR	GRS	GTD
EGB								
EGP	0.926							
ES	0.595	0.621						
GEE	0.516	0.657	0.651					
GPM	0.53	0.62	0.497	0.5				
GPR	0.485	0.564	0.411	1.008	0.448			
GRS	0.627	0.727	0.505	0.602	0.66	0.596		
GTD	0.521	0.673	0.44	0.523	0.873	0.427	0.761	

HTMT values must be < **0.85 (strict)** or < **0.90 (lenient)** to confirm constructs are distinct.

Fornell- Larcker Criterion (Table 5) also demonstrates that each construct has more variance with its related indicators. We can conclude that discriminant validity using Fornell- Larcker Criterion is also established.

Table 5: Discriminant Validity (Fornell-Larcker Criterion)

	EGB	EGP	ES	GEE	GPM	GPR	GRS	GTD
EGB	0.863							
EGP	0.802	0.887						
ES	0.468	0.479	0.835					
GEE	0.364	0.47	0.36	0.833				
GPM	0.468	0.548	0.396	0.347	0.878			
GPR	0.387	0.463	0.318	0.668	0.366	0.894		
GRS	0.481	0.584	0.359	0.352	0.491	0.43	0.78	
GTD	0.444	0.571	0.358	0.358	0.72	0.331	0.575	0.85

A construct should have **√AVE > correlations with other constructs**

Diagonal values (√AVE) are all **higher** than corresponding rows/columns:
Discriminant validity is mostly established

Variance Inflation Factor (VIF)

Variance Inflation Factor measures the collinearity among the indicators which measure the construct. The Table 6 demonstrates that all VIF values are **within acceptable range.** Therefore, no harmful multicollinearity is detected.

Table 6: VIF

	VIF
EGB2	1.533
EGB5	3.133
EGB6	2.622
EGP1	1.873
EGP3	2.701
EGP4	2.521
ES2	1.224
ES4	1.224
GEE2	1.177
GEE3	1.177

	VIF
GPM1	1.956
GPM2	2.115
GPM3	2.345
GPR1	1.573
GPR3	1.573
GRS1	1.315
GRS2	1.297
GRS3	1.533
GTD1	1.831
GTD2	1.937
GTD3	1.621

The Table 7 summarizes the measurement model of the study. It concludes the model used in the study is well supported by internal consistency, convergent validity, discriminant validity with no multicollinearity issue.

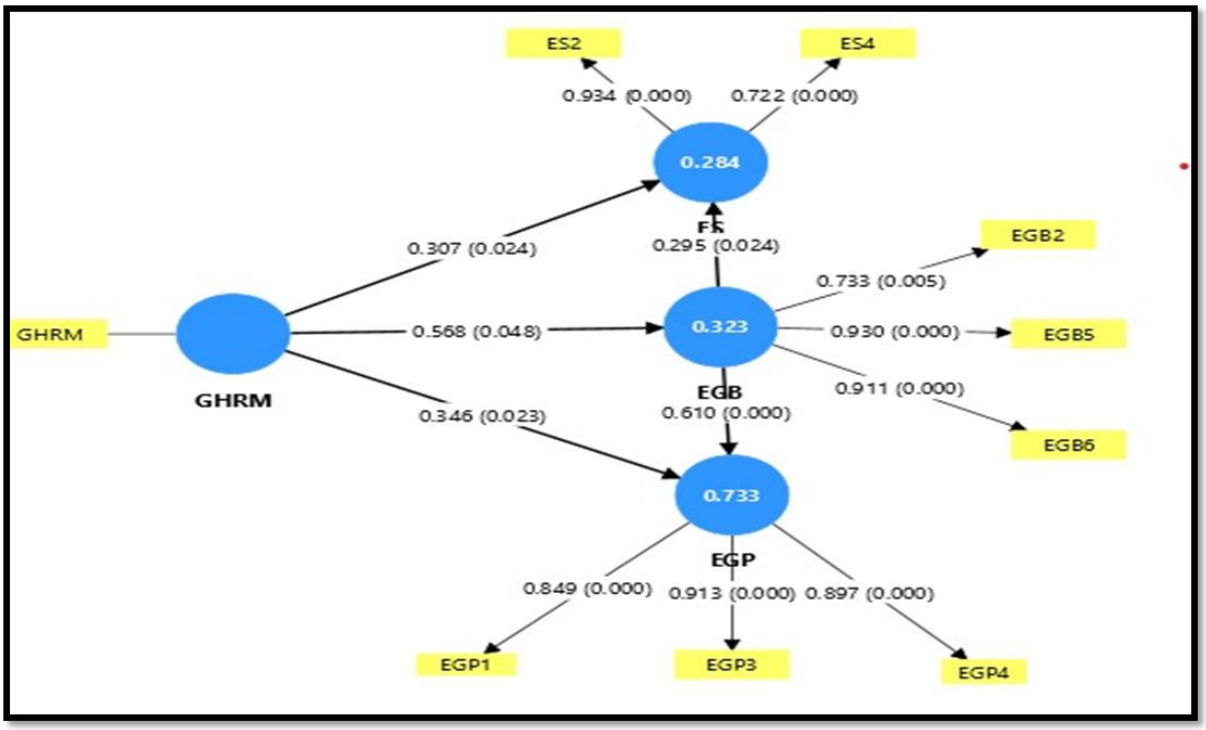
Table 7: Measurement Model Assessment (Conclusion)

Quality Criteria	Status	Evidence
Internal Consistency	**Supported**	**CR > 0.70**
Convergent Validity	**Supported**	**AVE > 0.50**
Discriminant Validity	**Supported**	**HTMT issue between EGP & EGB Discriminant validity is established under Fornell-Larcker Criterion**
Multicollinearity	**No issue**	**VIF < 3.3**

Structural Model Assessment:

Structural Model Validation has been used to test relation of GHRM Practices with Company outcome (Environmental Sustainability) and Employee outcome (Employee Green Performance) as mediated by Employee Green Behavior. The Latent Variable Score (LVS) of first order constructs of GHRM is used for Higher Order Construct (GHRM Practices) to test **direct, indirect effects and total effects** among the constructs. Figure 3 demonstrates the results of the structural model.

Figure 3: Structural Model: (Stage 2)



The bootstrapping results presented in Table 8, Table 9 and Table 10 show the path coefficients which are statistically significant ($p < 0.005$) which provides strong statistical support for all hypothesized support for all relationships in the structural model of the study.

Table 8: Path Coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EGB -> EGP	0.61	0.651	0.098	6.2	0.000
EGB -> ES	0.295	0.327	0.13	2.264	0.024
GHRM -> EGB	0.568	0.46	0.287	1.981	0.048
GHRM -> EGP	0.346	0.248	0.152	2.279	0.023
GHRM -> ES	0.307	0.27	0.135	2.264	0.024

Table 9: Specific Indirect Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
GHRM -> EGB -> EGP	0.347	0.304	0.208	1.667	0.096
GHRM -> EGB -> ES	0.167	0.168	0.143	1.171	0.242

Table 10 : Total Direct Effect

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
EGB -> EGP	0.61	0.651	0.098	6.2	0.000
EGB -> ES	0.295	0.327	0.13	2.264	0.024
GHRM -> EGB	0.568	0.46	0.287	1.981	0.048
GHRM -> EGP	0.693	0.552	0.276	2.509	0.012
GHRM -> ES	0.474	0.438	0.157	3.023	0.003

Following the confirmation of measurement model adequacy, the structural model was assessed. The results revealed that GHRM exerted significant positive effects on Employee Green Behavior (EGB) (H1: β = 0.568, p = 0.048), employee green performance (H2: β = 0.346, p = 0.023) and environmental sustainability (H3: β = 0.307, p = 0.024).

Furthermore, Employee Green Behavior significantly influenced Employee Green Performance (EGP) (H4: β = 0.610, p < 0.001) and Environmental Sustainability (ES) (H5: β = 0.295, p = 0.024).

However, as the table 9 demonstrates, the indirect effects of GHRM on EGP (H6: β = 0.347 p = 0.096) and on ES (H7: β = 0.167 p = 0.242) were statistically insignificant, leading to rejection of mediation effect.

Table 11: Summary

Hypothesis	Path	Coefficient	t -value	p-value	Result
H 1	GHRM -> EGB	0.568	1.981	0.048	Accepted
H 2	GHRM -> EGP	0.346	2.279	0.023	Accepted
H 3	GHRM -> ES	0.307	2.264	0.024	Accepted
H 4	EGB -> EGP	0.61	6.2	0.000	Accepted
H 5	EGB -> ES	0.295	2.264	0.024	Accepted
H 6	GHRM -> EGB -> EGP	0.347	1.667	0.096	Rejected
H 7	GHRM -> EGB -> ES	0.167	1.171	0.242	Rejected

Overall, the findings of the study, as summarized in Table 11, emphasize that effective GHRM independently derive environmental sustainability (company outcome) and employee performance (employee outcome) and do not automatically translate into sustainability outcomes through behavior alone. Direct organizational support, technological investments, and environmental compliance pressures may be necessary to convert intentions into measurable sustainability improvements.

5. Research Implications

The study provides significant theoretical and practical implications by bridging the gap between GHRM practices and the company and employee outcomes at SMEs level in Pakistan. As the study suggests that the effect GHRM practices can derive environmental sustainability and employee green performance.

While the quantitative findings established significant direct relationships between Green Human Resource Management (GHRM) practices and organizational outcomes, the mediating role of Employee Green Behavior (EGB) was found to be nonsignificant. This unexpected result necessitated further exploration through qualitative inquiry to better understand the underlying mechanisms and contextual factors influencing these relationships.

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