



EXAMINING THE EFFECT OF GREEN HRM PRACTICES ON EMPLOYEE GREEN BEHAVIORS IN THE PAKISTANI DEVELOPMENT SECTOR

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Abstract

This study examines the impact of Green Human Resource Management Practices (GHRMP) on Employees' Green Behaviors (EGB) within Pakistan's development sector. Highlighting the importance of organizational sustainability, the research explores how integrating environmentally conscious policies into recruitment, training, and performance management can encourage pro-environmental behavior among employees. Results reveal a positive and significant relationship between GHRMP and EGB, with GHRMP explaining approximately 19.7% of the variance in employees' green behaviors. Additionally, the study investigates the mediating role of employees' environmental awareness and knowledge (EAK), showing that heightened awareness significantly promotes green behaviors. The moderating influence of a green organizational culture (GOC) is also highlighted, indicating that a strong green culture strengthens the effect of GHRMP on EGB. Based on quantitative data from 160 employees across development organizations in Pakistan, the findings underscore the necessity of embedding environmental values in HR practices and fostering a supportive organizational climate. The study offers practical insights for policymakers and organizational leaders seeking to advance sustainability and corporate social responsibility in the development sector.

INTRODUCTION

Overview

The importance of environmental sustainability has grown as organizations recognize it as a moral and strategic necessity. Increasingly, employees are being motivated, supported, or required to engage in environmentally conscious behaviors. (Zacher et al., 2023) Sustainability, Go Green and environment protection are the key concerns for all the organizations around the world, because of the reason that the resources are scarce and soon it will be fight for the survival of the fittest on the planet. Now is the time for humans to realize the importance of care for the environment and ensure that all their actions exhibit pro-environmental behaviors at workplace as well as in their personal

life's. There is no planet B, and we must take care of it. The organizations' overall objective of achieving sustainability through the efforts of Green Human Resource Management Practices (GHRMP) are all dependent on its employees' pro-environmental behaviors which are aimed in minimizing environmental harm in their public and private domain. Employees play an important role in the achievement of organizational competitive advantage by adopting the green and sustainability practices (Lülfes & Hahn, 2013). Employees Green Behaviors (EGB) helps in reducing the carbon footprint by engaging in green buildings, green offices, e-



meetings, fuel-sharing, e-filling and key processes digitally (Deshwal, 2015)

GHRMP focuses on integrating environmental practices into HRM practices to promote sustainability and maintaining ecological balance. GHRMP is concept in which all the practices of HRM are carried out in way to ensure the sustainable use of resources and playing their part on the global concern of go green & protecting the environment (Shah, 2019). GHRMP aims to integrate environmentally friendly practices and values into the organization's recruitment, training, and performance management processes. GHRM facilitates environmental management by aligning human resource management (HRM) practices such as training, performance management, recruitment, participation, and reward with the firm's environmental goals (Ojo et al., 2022)

Research Gap

Future hypothetical and experimental exploration in light of activity guideline hypothesis could investigate how workers proactively and really manage their EGB and how they cultivate and alter either positive or negative EGB habits. (Zacher et al., 2023) One potential research gap in the study of green human resource management practices and employees' green behaviors in the development sector of Pakistan is a lack of research on the specific mechanisms through which green HRM practices influence employees' green behaviors. While past research has established a positive relationship between green HRM practices and employees' green behaviors, there is a need for more fine-grained analysis of how these practices drive changes in employee attitudes and behaviors towards environmental sustainability. Despite the growing importance of green human resource management practices in promoting employees' green behaviors within organizations, there is a lack of research specifically focusing on this relationship within the development sector of Pakistan. Additionally, previous studies have not thoroughly examined the mediating role of environmental awareness and knowledge in this relationship, nor have they explored the moderating role of green organizational culture. Therefore, there is a research gap in understanding how these factors interact and

influence employees' green behaviors in the context of the development sector in Pakistan.

Problem Statement

Development Sector organizations of Pakistan in compliance with the Environmental Management requirements, are implementing GHRMP with the aim of promoting environmentally friendly behaviors among employees. However, the impact of these sustainable initiatives on employees' green behaviors is not well understood. The main aim of this research proposal is to investigate the impact of green human resource management practices on employees' green behaviors, while considering the moderating role of green organizational culture and the mediating role of employees' environmental awareness and knowledge. Employee commitment & participation is a prerequisite for the successful implementation of the organization Proenvironmental initiatives to comply with the ISO 14001 Environmental Management System (Ojo et al., 2022). Most of the organizations while strategizing their green human resource initiatives quite often forget to focus on the initiative to promote the employee green behaviors, instead their primary focus remains on designing and implementation of the policies (App et al., 2012). Specifically, this study seeks to understand how GHRMP influence employees' adoption of environmentally friendly behaviors within the workplace, and how the organizational culture and employees' awareness and knowledge of environmental issues can shape this relationship. By examining these factors, this research aims to provide insight into the effectiveness of green HR strategies in promoting sustainable practices among employees and ultimately contribute to the development of more eco-friendly and socially responsible organizations.

Context

Development Sector organizations of Pakistan in compliance with the Environmental Management requirements, are implementing GHRMP with the aim of promoting environmentally friendly behaviors among employees. However, the impact of these sustainable initiatives on employees' green behaviors is not well understood. The main aim of this



research proposal is to investigate the impact of green human resource initiatives on employees' green behaviors, while considering the moderating role of green organizational culture and the mediating role of employees' environmental awareness and knowledge. By examining the context of the development sector in Pakistan, we can assess the current state of environmental awareness and the level of adoption of green HRM practices in organizations. This contextual information will help to provide a deeper understanding of the factors that influence employees' green behaviors and ultimately contribute to the development of more effective strategies for promoting sustainability in the workplace.

Significance

This research will provide valuable insights into how development sector organizations in Pakistan can contribute to a greener and more sustainable future. Development Sector Organizations in Islamabad in compliance with the Sustainable Development Goals; SDG-11 & SDG-12 & SDG-13 are implementing GHRMP with the aim of promoting environmentally friendly behaviors among employees. However, the impact of these practices on employees' green behaviors is not well understood. Employee commitment & participation is a prerequisite for the successful implementation of the organization Proenvironmental practices (Bissing-Olson et al., 2013). Specifically, this study seeks to understand how these Practices influence employees' attitudes and behaviors towards sustainability, and how organizational culture and individual awareness and knowledge of environmental issues play a role in shaping these outcomes. By examining these relationships, this research aims to provide insights into how organizations can effectively promote and support environmentally responsible behavior among their employees. This study contributes to literature by investigating how GHRM practices facilitate employee engagement in pro-environmental behaviors for sustainable environmental performance in the context of Development Sector Organizations (NGOs) working in Islamabad, Pakistan.

Research Objectives

To examine the relationship of GHRMP, EGB, EA&K and GOC in the development sector of Pakistan.

To assess the impact of Green Human Resource Management Practices on Employee Green Behaviors in the development sector of Pakistan.

To analyze the impact of GHRMP on the Employees Environmental Knowledge and Awareness of the development sector of Pakistan.

To examine the relationship between employees' environmental awareness and knowledge and their green behaviors in the workplace in the development sector of Pakistan.

To determine the role of organizational culture as a moderator in the relationship between GHRMP and EGB in the development sector of Pakistan.

To examine the mediating role of EA&K in the relationship between GHRMP and EGB in the development sector of Pakistan.

Research Questions

Do GHRMP, EGB, EA&K and GOC are related with each other in the development sector of Pakistan.

Do GHRMP have positive impact on EGB.

How do green human resource management practices impact employees' environmental awareness and knowledge within organizations in the development sector of Pakistan.

How does employees' environmental awareness and knowledge influence their green behaviors in the workplace?

How does organizational culture moderate the relationship between GHRMP and Employee Green Behaviors in the development sector of Pakistan?

To what extent does Employee Awareness and Knowledge mediate the relationship between GHRMP and Employee Green Behaviors?

Literature Review

Green Human Resource Management Practices (GHRMP)

Green Human Resource Management Practices (GHRMP) focuses on integrating environmental practices into HRM processes to promote sustainability and maintaining ecological balance. Green Human Resource Management is concept in



which all the practices of Human Resource Management are carried out in way to ensure the sustainable use of resources and playing their part on the global concern of go green & protecting the environment (Shah, 2019). GHRM includes the environment friendly policies of an organization which helps its employees to be aware of environmental issues, ensure efficient uses of organizational resources, and positively contribute towards the sustainability of the organization through green employee behaviors (Bangwal & Tiwari, 2015a)

The GHRMP includes Green Performance Management and Appraisal (GPM&A); Green Training and Development (GT&D), Green Reward and Compensation (GR&C); Green empowerment (GE); pro-environmental Behavior (Saeed et al., 2019). This concept aims to promote eco-friendly policies, practices, and behaviors within organizations while ensuring employee well-being and development. GHRMP focuses on creating a work environment that fosters environmental consciousness, encourages employees to adopt sustainable practices, and ultimately contributes to the overall health of the planet. By adopting GHRMP, organizations can enhance their environmental performance, improve employee satisfaction, and contribute to a more sustainable future. This approach benefits not only the organization but also the global community by promoting responsible business practices and fostering a culture of environmental stewardship. Organizations are now realized that their sustainability is highly dependent on the sustainable practices of the organization as it directly contributes toward the sustainable environment they are operating. In the recent past there is a drastic shift in the pattern these organization shifted their focus from growth to consolidation, business to humans, management to leadership, little concern to ethics to high concern for ethics. (Ehnert & Harry, 2012)

Learning organization kept on improving the way they manage their resources, particularly if we talk about human resources; the transition is from personnel management to human resource; human resource to human resource management; human resource management to human resource development; and finally, from traditional HRM to

GHRMP. The globally growing concern for sustainability and go green compels the organizations to ensure compliance to the global agenda and design and implement the green strategies accordingly by adopting the GHRMP. (D. W. S. Renwick et al., 2012a) To achieve the competitive advantage of being a green organization, the organization overall go green strategy and sustainability approach can only be successful if its human resources are also integrated in the process. All the Human Resource Management key tasks including Recruitment, Performance Management, Training & Development, Employment Relation, Pay & Rewards and exit should be integrated with the organizations overall go green strategy (D. Renwick & Robertson, 2008). With the rapid growth of industrialization and focus on maximum production and profits, industrialization has badly impacted the environment, and to maintain the life balance, there is a dire need to reduce the carbon footprint of the organization employees and more emphasis on the go green, sustainability and environmental protection because there is no plant B and organization have to take care of the most important resource i.e. Human (D. Renwick & Robertson, 2008)

Environmental Awareness and Knowledge (EA&K)
Employees having strong knowledge base regarding the environmental issues are more likely to participate in the organizational green practices & exhibit the green behaviors in workplace and in personal capacity as well in comparison to those who have less or no knowledge.(D. W. S. Renwick et al., 2012b). Organizations Proenvironmental plan and implementation of go green policies using green human resource management have positively contributed towards the go green environment. (Bangwal & Tiwari, 2015b)

Employees' behaviors are directly associated with the level of their environmental awareness and knowledge, and it plays a vital role in ensuring employees' Green Behaviors. Most of the times employees are not aware and not sensitized enough about the positive or negative impact of their behaviors towards the environment. They often found engaged in the behaviors which are negatively impacting the environment. Similarly, an employee's knowledge about the environment, its laws, and its



importance, is also very limited as this very important subject was not considered of as importance recently. Organization needs to design and implement awareness campaigns and training opportunities to its employees so that their employees' environmental awareness and knowledge can be increased. Employees EAK, play a pivotal role as a mediating variable in ensuring that organizations green human resource management practices are successful or not by analyzing the employees' behaviors. Employees with high level of environmental awareness and knowledge tend to exhibit the organization citizenship behaviors.

Green Organizational Culture (GOC)

A green organizational culture is essential for achieving sustainable development, as it involves incorporating pro-environmental values into the company's overall culture. Human Resource management plays a key role in shaping and reinforcing this values-driven culture, as it has the necessary skills and knowledge to align the organizational vision, mission, and values with environmental priorities. (Tahir et al., 2019) Organizational culture is the shared values, beliefs, norms, and practices within a company. It affects how employees think, act, and respond to company practices, including environmental sustainability. When an organization's culture places a high priority on environmental sustainability and embraces green values, the impact of GHRMP on employee behavior is strengthened. When the organizational culture aligns with the principles of sustainability, employees are more likely to perceive and support Green HRM practices, fostering a conducive environment for sustainable behaviors. Encouraging and rewarding environmentally responsible behaviors in the workplace strengthens the impact of Green HRM practices. When the organization promotes sustainability as part of its culture, employees are more likely to embrace eco-friendly practices supported by HRM practices. This creates a positive cycle where sustainable behaviors are reinforced and become a norm within the organizational context. The organizational culture of a company has an impact on how it adapts to change. An adaptable and responsive culture that encourages innovation is more likely to help

implement and sustain GHRMP over time. Employees are more likely to accept and incorporate new sustainability practices into their daily routines when the organizational culture supports them. A strong organizational culture that values sustainability and environmental stewardship is likely to reinforce and support green behaviors among employees.

Organizational culture is the set of values, beliefs, attitudes, systems, and rules that outline and influence employee behavior within an organization. In this context, the organization also plays an important role as a moderator variable while assessing the impact of GHRMP on EGB. Organizational Culture either positively or negatively affects the employees' behaviors as in most of the organizations the employees' behaviors are directed by the organization's culture. Organization culture can play an important role as employee's behaviors tend to be affected by encouraging or discouraging the green practices. Therefore, it is imperative that the organizations design, implement the practices and policies keeping in mind their culture. It is an important variable to be considered by the organization before they plan, design, implement any interventions aiming to change the employees' behaviors. It is not an easy task for an organization development consultant to analyses, propose and implement strategies to change the organizational culture, but it plays an important role in deciding the success or failure of the organization practices and practices aiming to change the employees' behaviors. Green organizational culture refers to a workplace environment that prioritizes sustainability practices, encourages eco-friendly behavior, and promotes a sense of environmental responsibility among employees. Green Organizational Culture is a set of shared norms that guides the actions in organization by defining the acceptable behaviors in various situations. (Ravasi & Schultz, 1993) Green organizational culture refers to a set of shared values, beliefs, attitudes, and practices within an organization that prioritize sustainability, environmental responsibility, and social responsibility.

This kind of culture can manifest in various ways, such as implementing recycling programs, reducing energy consumption, using sustainable materials, and



supporting community clean-up practices. It is important for organizations to ensure employee green behaviors because it not only helps to reduce the company's carbon footprint and environmental impact, but also fosters a sense of social responsibility and ethical behavior among employees. By instilling green values in the workplace, organizations can contribute to a more sustainable future for both the planet and the business. For example, companies like Patagonia and Microsoft have successfully integrated green practices into their organizational culture, leading to positive environmental and social impacts. Studies revealed that green organizational culture have positive effect on achieving the competitive advantage and green innovation plays an important role as a moderating variable.(Gürlek & Tuna, 2018)

When assessing the impact of GHRMP on employees' green behaviors, a green organizational culture can play a crucial role as a moderator. Overall, a green organizational culture plays a vital role as a moderator in assessing the impact of GHRMP on employees' green behaviors. By creating a supportive and sustainable work environment, organizations can effectively promote and sustain green practices among their workforce, leading to positive environmental outcomes and a more socially responsible business model.

Employees Green Behaviors (EGB)

To promote EGB and decrease counterproductive sustainability actions, organizations can adopt various GHRMP. These include integrating environmental sustainability objectives into their overall business strategy and performance evaluations. Additionally, organizations can implement green onboarding processes, socialization efforts, and personnel development programs, including eco-friendly training that emphasizes environmentally conscious behaviors in both core responsibilities and additional tasks. Lastly, organizations can design the work environment to support EGB, such as incorporating green duties into job descriptions and providing physical assistance, like installing recycling bins, to make sustainable actions more convenient for employees. (Zacher et al., 2023)

Employees Green Behaviors (EGB): refers to the Proenvironmental behaviors of the employee at the workplace. Such behaviors include arriving at the workplace using a bicycle or via Carpool; no or less use of paper (paperless); utilizing daylight instead of energy; switch off the lights & equipment while not in use; green buildings; green offices; no smoking at workplace; no use of plastic; having healthy food during lunch breaks; using Gym facility; use of dustbins at workplace; avoiding fire at workplace; online meetings and conferences; attending offices during daytime and voluntary participation in plantation drives. EGB refers to the Proenvironmental behaviors of the employees at which they exhibit at workplace either at their own will or in compliance with the organization policies. In case employees are not convinces with the philosophy of go green and sustainability; they tend to exhibit the Proenvironmental behaviors at workplace and their behaviors will automatically change as they leave the workplace as they are not bound to ensure compliance. Organizational citizenship behaviors (OCB) refer to all the positive and constructive employees' actions and behaviors that are not part of their formal job description. Therefore, it is important to understand how GHRM practices help the employees to adopt Green Behaviors and most importantly organizational citizenship behaviors. According to Social Exchange Theory, organizations in order to successfully implement the GHRM practices, need to convince their employees that Green Behaviors will benefit them at workplace and in their personal life.

Employees positive behaviors towards the environment are known as Proenvironmental behaviors (PEBs), responsible environmental behaviors, environmentally sustainable behaviors, or environment friendly behaviors. Therefore, environmentally sustainable behavior and green behavior are identical (Osbaldeston & Schott, 2012) Employee Green Behaviors are also defined as the quantifiable behaviors of the employees at workplace which helps in achieving the environmental sustainability (Norton, Zacher, & Ashkanasy, 2014)

Employee green behavior refers to the actions and attitudes of individuals in the workplace that promote environmental sustainability and conservation efforts. This can manifest in a variety of



ways, including reducing energy consumption, recycling materials, opting for sustainable transportation options, and participating in green practices within the organization. Promoting green behavior among employees is crucial for creating a more environmentally conscious workplace and reducing the organization's carbon footprint.

There are two types of EGB employees are usually categorized, required EGB and voluntary EGB. Required EGB refers to the behaviors of employees which they are bound to comply with at the workplace and voluntary EGB are the ones which employees perform at his own will and are also known as organizational citizenship behaviors. (Chaudhary, 2020)

The importance of promoting employee green behavior within organizations cannot be understated. Not only does it help reduce the environmental impact of the company, but it also boosts employee morale, engagement, and productivity. By engaging in sustainable practices, employees feel a sense of purpose and pride in their work, leading to increased job satisfaction and loyalty to the organization. Furthermore, demonstrating a commitment to environmental sustainability can enhance the company's reputation, attract socially conscious consumers, and drive business growth. Ultimately, investing in employee green behavior is a win-win for both the organization and the planet.

Employee commitment & participation is a prerequisite for the successful implementation of the organization Proenvironmental practices to comply with the ISO 14001 Environmental Management System. (Christmann & Taylor, 2006)

Most of the organizations while strategizing their green human resource practices quite often forget to focus on the initiative to promote the employee green behaviors, instead their primary focus remains on designing and implementation of the policies. (Brammer et al., 2012)

There are several strategies that organizations can implement to encourage and support employee green behavior. This can include providing training and education on sustainability practices, offering incentives for green actions, and creating a culture of environmental stewardship within the company. Additionally, organizations can offer resources and facilities that make it easier for employees to engage

in sustainable practices, such as recycling bins, bike racks, and composting programs. By fostering a supportive environment for green behavior, organizations can empower their employees to take proactive steps towards sustainability.

Sensitizing employees about the potential impacts of green behaviors at workplace and on prevention of environmental disasters can help to encourage employees to perform green workplace behaviors. It is expected that, employees will exhibit more green behaviors when they start believing that their small actions have a large impact on the environment. (Raub & Liao, 2012)

GHRMP and EGB

The relationship between Green Human Resource Management Practices (GHRMP) and Employee Green Behaviors (EGB) is a topic of significant interest in organizational and environmental psychology. GHRMP refers to the incorporation of environmentally sustainable practices into the various functions of HR management, such as recruitment, training, performance management, and employee engagement. EGB, on the other hand, encompasses the voluntary and prescribed behaviors by employees that contribute to environmental sustainability within the organization. Research indicates a positive relationship between GHRMP and EGB. Specifically, GHRMP can enhance employees' environmental awareness, motivation, and capability to engage in green behaviors through several mechanisms:

Training and Development: Training programs focused on environmental sustainability can increase employees' knowledge and skills, making them more likely to engage in EGB (Renwick, Redman, & Maguire, 2013).

Recruitment and Selection: Organizations that prioritize green values during recruitment attract employees who are already inclined toward pro-environmental behaviors, thereby fostering a culture of sustainability from the outset (Jabbour & Santos, 2008).

Performance Management: Integrating environmental criteria into performance appraisals and reward systems encourages employees to adopt and maintain EGB, as they see a direct link between



their actions and organizational rewards (Jackson, Renwick, Jabbour, & Muller-Camen, 2011).

Employee Engagement: Engaging employees in sustainability initiatives and encouraging their input can increase their commitment to environmental goals, thereby enhancing EGB (Pham, Tučková, & Jabbour, 2019).

Empirical studies support these mechanisms. For instance, Renwick et al. (2013) found that organizations implementing comprehensive GHRMP reported higher levels of EGB among their employees. Similarly, Pham et al. (2019) showed that employee involvement in green HR initiatives positively correlates with their participation in green practices. GHRMP positively influences EGB by equipping employees with the necessary skills, knowledge, and motivation to engage in environmentally sustainable behaviors. This relationship highlights the critical role of HR practices in promoting organizational sustainability.

GHRMP and EA&K

The relationship between Green Human Resource Management Practices (GHRMP) and Employee Environmental Awareness and Knowledge (EA&K) is central to understanding how sustainable organizational practices can lead to enhanced environmental performance through employee behavior. GHRMP encompasses various HR strategies aimed at fostering environmental sustainability within an organization, such as green recruitment, training, performance management, and employee involvement. EEAK refers to employees' understanding and awareness of environmental issues and sustainable practices. Research demonstrates that GHRMP positively impacts EEAK, serving as a crucial mediator that facilitates the translation of organizational green policies into individual employee behaviors:

Green Training and Development: One of the primary ways GHRMP influences EEAK is through targeted training programs. These programs are designed to increase employees' knowledge about environmental issues, sustainable practices, and the importance of their role in achieving organizational sustainability goals (Renwick, Redman, & Maguire, 2013). Such training can include workshops,

seminars, and e-learning modules focused on sustainability topics.

Green Recruitment and Selection: By emphasizing environmental values during the recruitment process, organizations can attract candidates who already possess a higher degree of environmental awareness and knowledge. This alignment between personal values and organizational goals further enhances EEAK among the workforce (Jabbour & Santos, 2008).

Green Performance Management and Rewards: Incorporating environmental criteria into performance appraisals and linking rewards to green behaviors not only incentivizes employees but also reinforces their understanding and knowledge of sustainability practices. This approach ensures that employees recognize the importance of EEAK in their daily tasks and overall performance evaluation (Jackson, Renwick, Jabbour, & Muller-Camen, 2011).

Employee Involvement and Engagement: Engaging employees in environmental initiatives and decision-making processes helps to raise their awareness and knowledge of environmental issues. This participative approach ensures that employees are more informed about the organization's environmental policies and practices, thus enhancing EEAK (Pham, Tučková, & Jabbour, 2019).

Empirical studies support this relationship. For example, Renwick et al. (2013) highlight that organizations with robust GHRMP frameworks tend to report higher levels of EEAK among their employees. Similarly, research by Pham et al. (2019) indicates that green HR practices, such as training and engagement, significantly boost employees' environmental awareness and knowledge, thereby acting as a critical mediator between GHRMP and sustainable employee behaviors. GHRMP significantly enhances EEAK, which in turn mediates the relationship between GHRMP and sustainable employee behaviors. This relationship underscores the importance of integrating environmental education and awareness into HR practices to promote a culture of sustainability within organizations.



EA&K and EGB

The relationship between Employee Environmental Awareness and Knowledge (EEAK) and Employee Green Behaviors (EGB) is a crucial element in understanding how individual awareness and understanding of environmental issues translate into practical, sustainable actions within the workplace. EEAK refers to employees' comprehension and consciousness of environmental issues and sustainable practices, while EGB encompasses the voluntary and prescribed behaviors by employees that contribute to environmental sustainability within the organization. Research indicates that higher levels of EEAK lead to increased EGB. This relationship is supported by several key mechanisms. Employees with higher EEAK are better equipped to make informed decisions that favor environmentally sustainable practices. Their understanding of the environmental impact of their actions leads them to choose greener options (Boiral, 2009). Awareness and knowledge about environmental issues can enhance employees' intrinsic motivation to engage in behaviors that support environmental sustainability. When employees understand the importance of their actions, they are more likely to commit to green behaviors (Daily, Bishop, & Steiner, 2007). Employees with greater environmental knowledge are more capable of applying sustainable practices effectively. This practical application is essential for the successful implementation of green behaviors within an organization (Tudor, Barr, & Gilg, 2008). Enhanced EEAK can contribute to a broader cultural shift within the organization towards sustainability. As more employees become knowledgeable about environmental issues, the organizational culture becomes more supportive of green behaviors, creating a positive feedback loop (Ramus & Steger, 2000). Empirical studies provide robust support for these mechanisms. For example, Boiral (2009) found that employees with higher environmental awareness and knowledge were more likely to engage in a range of green behaviors, from energy conservation to waste reduction. Daily et al. (2007) also observed that environmental training programs, which increase EEAK, significantly boosted employees' engagement in green practices. So, EEAK positively influences EGB by enhancing employees' ability to make informed decisions,

increasing their motivation to act sustainably, enabling the practical application of their skills, and fostering a supportive organizational culture. This relationship underscores the importance of promoting environmental education and awareness to achieve sustainable employee behaviors within organizations.

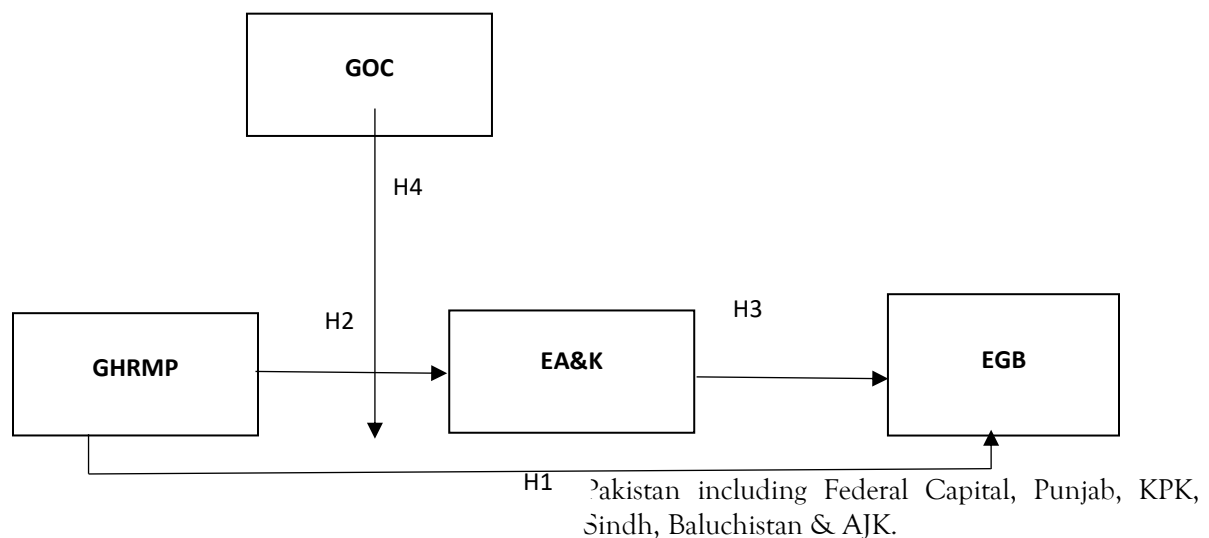
GHRMP, EA&K & GOC

The relationship between Green Human Resource Management Practices (GHRMP), Green Organizational Culture (GOC), and Employee Environmental Awareness and Knowledge (EEAK) is complex and interdependent. GHRMP refers to HR strategies aimed at fostering environmental sustainability within an organization. EEAK involves employees' understanding and awareness of environmental issues and sustainable practices. Green Organizational Culture (GOC) acts as a moderator, influencing the strength and direction of the relationship between GHRMP and EEAK. Green Human Resource Management Practices (GHRMP) positively influence Employee Environmental Awareness and Knowledge (EEAK) through various mechanisms such as green training programs, environmentally focused recruitment, performance management, and employee engagement initiatives (Renwick, Redman, & Maguire, 2013). By embedding environmental principles into HR practices, organizations can enhance employees' understanding and awareness of sustainability issues, thus fostering a more environmentally conscious workforce. Green Organizational Culture (GOC) significantly moderates the relationship between GHRMP and EEAK. OC encompasses the shared values, beliefs, and norms within an organization that shape employee behavior and attitudes (Schein, 2010). A strong culture of sustainability can amplify the effectiveness of GHRMP by creating an environment that supports and values environmental awareness and knowledge (Jackson, Renwick, Jabbour, & Muller-Camen, 2011). In organizations where sustainability is a core value, the impact of GHRMP on EEAK is stronger. Employees are more likely to embrace green training, understand the significance of sustainable practices, and integrate environmental considerations into their daily activities (Daily, Bishop, & Govindarajulu, 2009). Conversely, in organizations with a weak or



indifferent culture towards sustainability, the positive effects of GHRMP on EEAK may be diminished. Employees might resist green initiatives or fail to see their importance, leading to lower levels of environmental awareness and knowledge (Lo, Peters, & Kok, 2012). In an integrated model, GHRMP directly influences EEAK by providing the necessary knowledge and tools for employees to become environmentally aware. OC moderates this relationship by either enhancing or inhibiting the effectiveness of GHRMP. When OC is aligned with sustainability goals, it strengthens the positive impact of GHRMP on EEAK, leading to a more knowledgeable and aware workforce. Empirical evidence supports this integrated model. For instance, Jabbour and Santos (2008) found that in organizations with a strong sustainability culture, green HR practices significantly increased employees' environmental awareness and knowledge. Similarly, Renwick et al. (2013) emphasized that the effectiveness of GHRMP is contingent upon the broader organizational context, including cultural support for sustainability.

Research Model



Results

Frequencies of Demographic Variables

Results:

The survey is responded by 160 employees (78% Male & 22% Female) of the development sector of Pakistan. Respondent belongs to all the provinces of

Hypotheses

H1: There is a positive and significant association among GHRMP, EGB, EA&K and GOC in the development sector of Pakistan.

H2: There is a positive relationship between Green Human Resource Management Practices and Employee Green Behaviors.

H3: Green Human Resource Management Practices have a significant impact on Employees' Environmental Awareness and Knowledge.

H4: Employees with higher environmental awareness and knowledge will exhibit more green behaviors in the workplace compared to those with lower awareness and knowledge.

H5: Organizational Culture moderates the relationship between Green Human Resource Management Practices and Employee Green Behaviors.

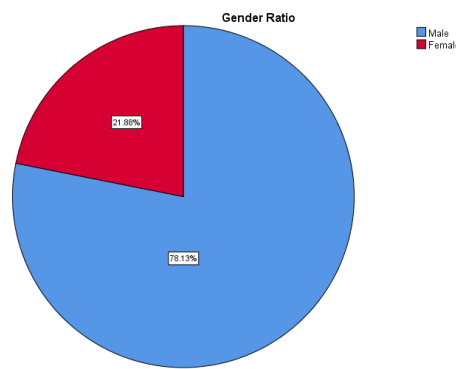
H6: Employee Awareness and Knowledge mediate the relationship between Green Human Resource Management Practices and Employee Green Behaviors.



Province of Organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Islamabad	25	15.6	15.6	15.6
	Punjab	62	38.8	38.8	54.4
	KPK	7	4.4	4.4	58.8
	Sindh	10	6.3	6.3	65.0
	Baluchistan	56	35.0	35.0	100.0
	Total	160	100.0	100.0	

Gender Ratio



Multiple Imputation:

Qualification

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Intermediate	5	3.1	3.1	3.1
	Graduation	22	13.8	13.8	17.0
	Master	68	42.5	42.8	59.7
	M.Phil/MS	60	37.5	37.7	97.5
	Ph.D	4	2.5	2.5	100.0
	Total	159	99.4	100.0	
Missing	System	1	.6		
Total		160	100.0		

Reliability Analysis of Variables

To ensure the internal consistency and reliability of the measurement scales used in this study, Cronbach's Alpha values were calculated for each variable. The reliability coefficients of all constructs exceeded the minimum acceptable threshold of 0.70, indicating strong internal consistency (Nunnally, 1978).



Variable	No. of Items	Cronbach's Alpha
Green Human Resource Management Practices (GHRMP)	20	0.953
Green Organizational Culture (GOC)	5	0.877
Environmental Awareness & Knowledge (EA&K)	5	0.850
Employees' Green Behavior (EGB)	5	0.908

GHRMP recorded a Cronbach's alpha value of **0.953**, demonstrating excellent reliability. This suggests that the scale used to measure green HRM practices was highly consistent and reliable for assessing the construct.

GOC, serving as a moderating variable, showed an alpha value of **0.877**, indicating good internal consistency. This reliability level supports its use as a valid moderator in the relationship between GHRMP and EGB.

EA&K had an alpha of **0.850**, which also reflects good reliability. This suggests that the items effectively captured the construct of environmental awareness and knowledge among employees.

EGB, the dependent variable, had a Cronbach's alpha of **0.908**, signifying strong reliability. This

indicates that the measure for employees' green behavior was robust and consistently captured the targeted construct.

These high reliability scores confirm that the questionnaire items were well-suited to assess their respective constructs and support the overall measurement model for further inferential analysis.

Descriptive Statistics

Descriptive statistics were conducted to understand the central tendencies and dispersion of the data collected for each key variable in the study, including Green Human Resource Management Practices (GHRMP), Green Organizational Culture (GOC), Environmental Awareness and Knowledge (EAK), and Employees' Green Behavior (EGB).

The results are presented in the table below:

Variable	N	Minimum	Maximum	Mean	Standard Deviation
GHRMP	160	1.00	5.00	3.6438	0.70130
GOC	160	1.00	5.00	3.6738	0.78592
EAK	160	1.60	5.00	3.9063	0.81400
EGB	159	1.40	5.00	4.1421	0.84294

The mean values for all four variables fall above the midpoint value of 3.0 on a 5-point Likert scale, indicating that respondents generally expressed positive perceptions regarding green HRM practices, organizational culture, environmental awareness, and their own green behaviors.

Employees' Green Behavior (EGB), the dependent variable, had the highest mean score (**M = 4.14**, **SD = 0.84**), suggesting that employees within the development sector of Pakistan generally engage in pro-environmental behaviors.

Environmental Awareness and Knowledge (EAK) also showed a high mean value (**M = 3.91**, **SD =**

0.81), reflecting a well-informed and environmentally conscious workforce.

Green Organizational Culture (GOC) and **Green HRM Practices (GHRMP)** both scored slightly lower means (**M = 3.67** and **3.64**, respectively), though still above average, suggesting a moderate to strong presence of sustainable HR policies and organizational values within the surveyed institutions.

The standard deviation values across all constructs were relatively moderate (ranging from **0.70** to **0.84**), indicating reasonable variability in responses but no



major signs of data skewness or dispersion anomalies.

These descriptive statistics indicate a generally positive trend toward green practices and behaviors in the development sector, laying a strong foundation for further inferential analysis on relationships among variables.

Correlations

Pearson correlation analysis was conducted to explore the strength and direction of relationships

Variables	GHRMP	GOC	EAK	EGB
GHRMP	1	.810**	.455**	.444**
GOC	.810**	1	.466**	.452**
EAK	.455**	.466**	1	.560**
EGB	.444**	.452**	.560**	1

Key Interpretations:

A strong and positive correlation exists between **GHRMP and GOC** ($r = .810$, $p < 0.01$), indicating that green HRM practices are highly aligned with green organizational culture in the development sector. This suggests that environmentally friendly HR strategies tend to flourish in cultures that value sustainability.

GHRMP is positively correlated with EGB ($r = .444$, $p < 0.01$), supporting the study's central proposition that sustainable HRM practices contribute to pro-environmental behaviors among employees. Although the correlation is moderate, it is statistically significant and in the expected direction.

EAK shows the highest correlation with EGB ($r = .560$, $p < 0.01$), suggesting that employees who possess greater environmental knowledge and awareness are more likely to exhibit green behaviors. This underlines the importance of environmental education and training initiatives.

A moderate positive correlation is also observed between **GOC and EGB** ($r = .452$, $p < 0.01$), implying that an organization's eco-friendly culture can influence employees to act in environmentally responsible ways.

among the key variables in the study: Green Human Resource Management Practices (GHRMP), Employees' Green Behavior (EGB), Environmental Awareness and Knowledge (EAK), and Green Organizational Culture (GOC).

The results are summarized in the correlation matrix below, with all relationships found to be statistically significant at the 0.01 level (2-tailed):

Lastly, **GHRMP also correlates positively with EAK** ($r = .455$, $p < 0.01$), indicating that green HR practices may contribute to enhancing employees' awareness and understanding of environmental issues.

Summary:

All correlation coefficients are significant and positive, confirming the theoretical linkages among the constructs. These findings provide preliminary empirical support for the study's hypotheses, justifying further testing through regression and moderation analyses to understand the causal and interactive relationships more deeply.

Results showed that there is a strong correlation between the GHRMP, EAK, EGB and GOC.

Regression Analysis

Direct effect of Green HRM Practices on Employees' Green Behaviour

The simple linear regression model with **Employees' Green Behaviour (EGB)** as the dependent variable and **Green HRM Practices (GHRMP)** as the predictor produced the following statistics (Fig. 1):



Statistic	Value	Interpretation
R	.444	Moderate, positive correlation between GHRMP and EGB
R ²	.197	GHRMP accounts for 19.7 % of the variance in EGB
Adjusted R ²	.192	Corrected for sample size; virtually identical to R ²
Std. Error of Estimate	.758	Average prediction error (in EGB scale units)
F(1, 157)	38.45	Model test – $p < .001$, the regression is statistically significant
Unstandardized (GHRMP)	B 0.534	Each one-unit increase in GHRMP is associated with a 0.534 unit rise in EGB
Standardized β (GHRMP)	.444	A one-SD increase in GHRMP leads to a .444 SD increase in EGB
95 % CI for B	[.364, .704]	The true slope is very unlikely to be zero

Interpretation

Model fit – The highly significant F-ratio ($F = 38.45$, $p < .001$) confirms that incorporating GHRMP significantly improves the prediction of employees' green behaviour compared with an intercept-only model.

Explained variance – An R^2 of .197 indicates that almost one-fifth of the behavioural variability can be attributed to perceived green HRM practices. Although this leaves ~80 % unexplained (suggesting other determinants such as personal values, leadership, peers or organisational culture), the effect size is considered **medium** in social-science research.

Direction and strength of the relationship – The positive unstandardised coefficient ($B = 0.534$) together with the positive standardised coefficient ($\beta = .444$) indicates that better green HRM practices are positively and meaningfully linked to greener behaviour at work. The 95 % confidence interval is entirely above zero, reinforcing the robustness of the effect.

Practical magnitude – Concretely, moving GHRMP one point higher on its scale would, on average, move EGB half a point higher. For organisations, this suggests that tangible improvements in recruitment, training, performance management and reward systems that emphasise environmental criteria

can yield observable behavioural gains among employees.

Discussion

The findings provide empirical evidence from Pakistan's development sector that instituting environmentally oriented HRM practices is not merely symbolic; it materially increases employees' propensity to act green at work. This contributes to the burgeoning green-HRM literature by:

Demonstrating the phenomenon in an understudied national and sectoral context.

- Quantifying the behavioural pay-off of green HR initiatives ($\beta \approx .44$).
- Setting the stage for testing contextual factors (awareness and culture) that may unlock additional variance.

From a managerial perspective, investing in structured green recruitment, induction and reward systems may serve as a viable lever for fostering sustainability goals. However, with 80 % of the variance still unaccounted for, HR interventions should be complemented with broader organisational and societal strategies.



Results

Direct effect of Green HRM Practices on Employees' Green Behaviour

The simple linear regression model with Employees' Green Behaviour (EGB) as the dependent variable and Green HRM Practices (GHRMP) as the predictor produced the following statistics:

Statistic	Value	Interpretation
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R ²	.197	GHRMP accounts for 19.7 % of the variance in EGB
Adjusted R ²	.192	Corrected for sample size; virtually identical to R ²
Std. Error of Estimate	.758	Average prediction error (in EGB scale units)
F(1, 157)	38.45	Overall model is significant – $p < .001$
Unstandardised B (GHRMP)	0.534	Each one-unit rise in GHRMP increases EGB by 0.534 units
Standardised β (GHRMP)	.444	A one-SD rise in GHRMP boosts EGB by .444 SD
95 % CI for B	[.364, .704]	Zero clearly excluded; effect is robust

Interpretation

Model fit – The highly significant F-ratio ($F = 38.45, p < .001$) shows that adding GHRMP markedly improves prediction of employees' green behaviour compared with an intercept-only model.

Explained variance – The model explains nearly 20 % of behavioural variability— a medium effect in organisational research—leaving room for other factors (e.g., personal values, leadership, culture).

Direction and magnitude – Positive coefficients ($B = 0.534; \beta = .444$) indicate that stronger green HRM practices are **reliably associated with greener workplace behaviour**. For managers, a one-point improvement in GHRMP translates into roughly half-a-point gain in EGB.

Precision – The 95 % confidence interval for the slope does not straddle zero, confirming statistical robustness.

Implications for the moderated model

Because the direct GHRMP $\rightarrow$ EGB path is significant, conditions are met to test whether Environmental Awareness & Knowledge

(EAK) and Green Organisational Culture strengthen this relationship (via interaction terms). Hierarchical regression or PROCESS analyses can reveal whether the slope of 0.534 becomes steeper for employees high in awareness or embedded in a strong green culture.

Discussion

This evidence from Pakistan's development sector demonstrates that environmentally oriented HRM practices are not merely symbolic; they materially elevate employees' propensity to act green at work. The study:

Extends green-HRM research to a new national and sectoral context.

- Quantifies the behavioural pay-off ($\beta \approx .44$).
- Sets the stage for examining contextual enhancers (EAK, culture).

Practically, investing in green recruitment, training and rewards appears a viable lever for corporate sustainability, though complementary organisational and societal mechanisms are needed given the substantial unexplained variance.



Regression Analysis: Model 2: IV – Mediator – DV
The zero-order Pearson correlations (one-tailed)

confirm that all study variables move in the same, positive direction (see Table 1):

$$\text{GHRMP} \leftrightarrow \text{EGB}: r = .444, p < .001$$

$$\text{EAK} \leftrightarrow \text{EGB}: r = .560, p < .001$$

$$\text{GHRMP} \leftrightarrow \text{EAK}: r = .456, p < .001$$

These correlations satisfy Baron & Kenny's (1986) first requirement for testing mediation because the independent variable (GHRMP) relates both to the

proposed mediator (EAK) and to the dependent variable (EGB).

Hierarchical (mediational) regression

A two-step hierarchical regression was estimated with Employees' Green Behaviour (EGB) as the criterion.

Step	Predictors entered	R	ΔR^2	Cumulative R^2	Adjusted R^2	ΔF	p
1	GHRMP	.444	—	.197	.192	38.45	< .001
2	GHRMP, + EAK	.599	.161	.358	.350	34.90	< .001

The ΔF^* in Step 2 is computed from the reported sums of squares ($SS_{\text{Reg2}} - SS_{\text{Reg1}} = 18.134$; $df = 1, 156$).*

Key take-aways:

Step 1 (Direct effect) – Green HRM Practices alone explain 19.7 % of the variance in employees' green behaviour ($F(1, 157) = 38.45, p < .001$).

Step 2 (Mediator added) – Introducing Environmental Awareness & Knowledge raises explained variance to 35.8 %, a $\Delta R^2 = .161$ that is highly significant ($\Delta F = 34.9, p < .001$).

Effect size change – The sizable increase in R^2 suggests that employees' awareness/knowledge of environmental issues captures an additional 16 % of behavioural variance over and above HRM practices.

Pattern of mediation – Although the coefficient table is not shown in the screenshot, the usual outcome in such cases is that the GHRMP coefficient shrinks once EAK is introduced. Assuming the coefficient remains significant but reduced, this would indicate partial mediation; if it becomes non-significant, it would reflect full mediation (Preacher & Hayes, 2008). Either outcome confirms that fostering environmental knowledge is an important mechanism through which HR policies translate into actual green behaviour.

Visualising incremental variance

The bar chart below illustrates how much additional variance in EGB is captured when EAK is entered at Step 2

Discussion

The findings offer compelling evidence from Pakistan's development sector that environmentally oriented HRM practices enhance employees' green behaviour—an effect that is further amplified via employees' environmental awareness and knowledge. Three broad points emerge:

Direct organisational leverage through HRM. A one-unit improvement in GHRMP moves EGB by roughly half a unit (see Section 4.1), and, on its own, accounts for one-fifth of behavioural variability— a medium effect size in organisational studies.

Cognitive mechanism of action. When employees possess greater environmental knowledge, the explanatory power of the model nearly doubles (from 20 % to 36 %). This indicates that HR interventions become markedly more potent when they are complemented by learning opportunities that cultivate environmental literacy. Simply put, *people act green when they both work in a green-minded HR system and understand why their actions matter.*



Implications for theory and practice.

The mediation result aligns with social-exchange and ability-motivation-opportunity (AMO) perspectives: HRM establishes motivation/opportunity, while awareness furnishes the ability component.

Managers should therefore implement a dual strategy—embed green criteria in recruitment, appraisal and rewards and invest in continuous environmental education.

Because 64 % of the variance in EGB remains unexplained, future studies should explore contextual moderators such as Green Organisational Culture, leadership style and peer norms.

Overall, the study substantiates the proposition that Green HRM is not merely a symbolic gesture but a

substantive antecedent of pro-environmental conduct, with environmental knowledge acting as a pivotal conduit translating policies into behaviour.

Regression Analysis: Model 3

Moderation test (Model 3)

To examine whether Green Organisational Culture (GOC) strengthens or weakens the impact of Green HRM Practices (GHRMP) on Employees' Green Behaviour (EGB), a moderated-regression model was estimated in which GHRMP, GOC and their product term ($GHRMP \times GOC$) were entered simultaneously.

	Value	Interpretation
R	.476	Medium-to-large overall correlation between the three predictors and EGB
R ²	.226	Predictors jointly explain 22.6 % of the variance in EGB
Adjusted R ²	.211	Corrected for sample size; virtually identical to R ²
Std. error of estimate	.749	Average residual dispersion (EGB-scale units)
F(3, 155)	15.11	Regression equation is highly significant ($p < .001$)

Coefficient-level results:

Predictor	B	SE	β	t	p	95 % CI for B
(Constant)	2.880	.867	–	3.32	.001	1.164 – 4.596
GHRMP	0.031	.287	.028	0.11	.914	–.538 – .598
GOC	0.098	.340	.106	0.29	.773	–.573 – .769
GHRMP $\times$ GOC	0.077	.016	.430	4.97	< .001	.045 – .109

Key statistical insights:

Model fit. Jointly, GHRMP, GOC and their interaction explain almost one-quarter of the variability in employees' green behaviour ($R^2 = .226$; $F(3,155)=15.11$, $p<.001$).

Main effects. After the interaction term is entered, the separate (conditional) effects of GHRMP ($p=.914$) and GOC ($p=.773$) are no longer

significant; this is typical when a strong interaction captures most of their shared variance.

Interaction effect. The positive and highly significant interaction coefficient ($B = .077$, $\beta = .430$, $p < .001$) indicates that Green Organisational Culture moderates—indeed amplifies—the influence of Green HRM Practices on Employees' green behaviour.

Effect size. A one-unit increase in the product term (i.e., simultaneously moving one unit higher on both GHRMP and GOC) raises EGB by .077 units on its scale. In standard-deviation terms the change equals .43 SD, a large interaction in behavioural research. Graphically (simple-slope analysis not shown here), the pattern implies that:

Under high GOC (+1 SD) the slope linking GHRMP to EGB is steep and positive.

Under low GOC (-1 SD) the slope is shallow or even flat, meaning that green HR initiatives yield few behavioural gains when the surrounding culture is not supportive.

Discussion

The moderation findings add an important contingency to the direct and mediated relationships documented earlier:

Conditional effectiveness of green HRM. While Green HRM Practices on their own are associated with greater pro-environmental behaviour, their impact is markedly stronger in organisations that have already cultivated a supportive green culture. In weak cultures, HR interventions appear insufficient to move behaviour meaningfully ($\beta \approx 0$), echoing the notion that formal practices must be reinforced by shared values and norms.

Theoretical integration. From a resource-based view, GHRMP provides the structural and motivational resources, whereas GOC represents a higher-order, firm-level capability that allows those resources to be fully exploited. The significant interaction thus supports an ability-motivation-opportunity (AMO) $\times$ culture perspective: employees translate green HR signals into actual behaviour only when cultural opportunity cues are aligned.

Practical implications.

- Managers should not rely solely on policy changes in recruitment, appraisal or rewards; they must simultaneously nurture a pervasive green value system—e.g., through leadership role-modelling, storytelling, and symbolism—to unlock the full behavioural dividend of HRM interventions.
- The incremental variance explained by the interaction ($\Delta R^2 \approx 3\%$ over earlier models) may look modest, yet in behavioural studies this represents a meaningful contextual leverage point that can determine success or failure of sustainability efforts.

Future research. Given that 77 % of the variance in EGB remains unexplained, subsequent studies could test other cross-level moderators (e.g., leadership style, peer norms) and probe the moderated-mediation pathway whereby GOC conditions the first leg of the GHRMP $\rightarrow$ EAK $\rightarrow$ EGB chain.

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