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Linking Green Hrm Practices To Environmental Performance: a Moderation-Mediation Analysis Of Ethical Leadership And Green Intellectual Capital

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Abstract

In this contemporary world, where environmental concerns loom enormous, organizations play a vital role in shaping sustainable practices. This study sought to untangle the complex web of relationships between green human resource management practices, green intellectual capital, ethical leadership, and environmental performance. Data were collected from 215 HR professionals using a self-administered questionnaires, and analyzed using SPSS and SEM. The findings highlight the importance of green HRM practices in improving environmental performance by promoting the development and use of green intellectual capital pertaining to knowledge and skills related to sustainability. Furthermore, ethical leadership acts as a moderator and is crucial to enhancing the positive effects of green human resource management practices on green intellectual capital. This study deepens the understanding of how these factors work together in the hotel industry and advances knowledge about sustainability. It helps the hotel industry improve its sustainability efforts, stay competitive, keep its employees engaged, and meet its social responsibilities. The outcomes of this

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research contribute to the theory of supply-value fit. In the context of supply-value fit theory, green HR practices serve as an organizational "supply" of environmental policies and principles.

Keywords: Green HRM Practices, Green Intellectual Capital, Ethical Leadership, Environmental Performance.

Introduction

In recent times, there has been a growing focus on the concept of sustainability in the corporate world (Gull, Parveen, Umar, & Ali, 2024), and undergone a transformative shift towards sustainability and environmental responsibility (Kumari, 2024). The transformative shift has given rise to the concept of green human resource management, where organizations integrate environmentally friendly practices into their HR strategies particularly in the hotel industry (Faeni & Development, 2024; Tanveer, Yusliza, Fawehinmi, & Insights, 2024), where the impact on the environment is significant due to the high consumption of energy and the generation of waste (Borges et al., 2023).Consequently, many hotels are adopting practices known as green human resource management (Kholijah, 2024; Sobaih, Gharbi, Zaiem, Aliane, & Psychology, 2024). These practices aim to reduce the environmental footprint of hotels and improve their sustainability performance. Green HRM is largely based on the integration of development, environmental consideration, and human resource management, which includes training, development, recruitment, performance appraisal and compensation (Gürlek & Tuna, 2018). Recruitment, performance appraisal, and performance management systems encourage employees to minimize their environmental impact (Pham, Chiappetta Jabbour, Vo-Thanh, Huynh, & Santos, 2023). The effectiveness of adopting green HRM practices to improve environmental performance can be influenced by various constructs, including ethical leadership and green intellectual capital (Islam, Khan, Ahmed, & Mahmood, 2021a).

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Ethical leadership refers to the ethical values and behaviors shown by leaders in an organization, which can impact how employees view and engage in sustainability efforts (Malik et al., 2020). It involves leading by example and promoting ethical conduct among employees, potentially influencing the adoption and effectiveness of green HRM practices (Tu, Li, & Zuo, 2023). Ethical leadership is based on promoting and encouraging ethical behaviors and activities in the organization, which consequently affects how well green HRM practices are put into action (Sofyan, Susanto, & Journal, 2024). Therefore, ethical leadership can moderate the relationship between green HRM practices and environmental performance in the hotel industry.

Green intellectual capital encompasses an organization's knowledge, information, competence, skills, technologies, and intellectual property rights related to environmental sustainability and may play a pivotal role in translating green HRM practices into enhanced environmental performance (Mahmood & Nasir, 2023a). It is also related to environmental sustainability, as well as the organization's environmental values and culture (Haldorai, Kim, & Garcia, 2022a). It acts as a bridge between green HRM initiatives and actual environmental results by increasing employees' environmental awareness, fostering innovation, and ensuring effective implementation of green strategies (Sachdeva, Taneja, & Gupta, 2024). The green intellectual capital, the knowledge and expertise related to sustainability and environmental practices has emerged as a critical asset (Cavicchi & Vagnoni, 2017).

Thus, organizations need to implement green HRM practices, green intellectual capital, and environmental performance to get better insights into the organization and its activities. It requires continuous investment in developing green intellectual capital and refining HRM practices for ongoing environmental progress. Over time, the realm of environmental management and human resource management practices has garnered considerable interest from both researchers

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and practitioners (Tu et al., 2023). The prior literature largely emphasizes the importance of sustainability and green practices for the next generation (Kumar, 2017). In the hotel industry, implementing green HRM practices is vital for enhancing environmental performance. Hotels consume significant resources like energy, water, and materials while also generating substantial waste and emissions (Faeni & Development, 2024; Tanveer, Yusliza, Fawehinmi, et al., 2024). By adopting green HRM practices, hotels can reduce their environmental impact, build a positive reputation, and attract environmentally conscious guests (Islam et al., 2021a).

The significance of adopting environmentally friendly HR practices in the hotel industry is not well understood by stakeholders and HR managers (Sobaih et al., 2024; Tanveer, Yusliza, Fawehinmi, et al., 2024). It is crucial to create an environment that encourages actions like recycling and using eco-friendly products to enhance the industry's overall environmental performance (Sachdeva et al., 2024; Wei, Wang, Jiang, & Feng, 2024). Even though there is growing awareness of environmental concerns, the hotel industry still faces significant environmental challenges (Westman, Luederitz, Kundurpi, Mercado, & Burch, 2023). The strategies and policies related to green play a vital role in reducing the industry's environmental impact (Tanveer, Yusliza, & Fawehinmi, 2024). However, there needs to be more research on how these green HRM practices can effectively address environmental issues in hotels (Sobaih et al., 2024; Westman et al., 2023). Overall, understanding the relationship between green HRM practices, ethical leadership, green intellectual capital, and environmental performance is essential in the hotel industry (Ogiemwonyi, Alam, & Alotaibi, 2023). In the hotel industry, addressing environmental sustainability and enhancing competitiveness involves ethical leadership, sustainability training, and resource efficiency, recruitment focused on sustainability commitment, talent management, employee engagement, and green initiatives. Moreover, these practices align with sustainability goals,

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reduce costs, and improve competitiveness (Hameed, Khan, Islam, Sheikh, & Naeem, 2020).

In light of the highlighted research gaps, this research has the following objectives.

- To examine the relationship between green HR practices and green intellectual capital.
- To study the relationship between green intellectual capital and environmental performance.
- To determine the role of green HRM practices on the environmental performance of organizations.
- To study the mediating role of green intellectual capital in the relationship between green HRM practices and environmental performance.
- To examine the moderating role of ethical leadership in the relationship between green HRM practices and green intellectual capital.

Literature Review

Supply value fit theory is a type of psychological framework that describes when an employee's values align (implementation of green HR practices) with the resources available in their organization results in environmental performance. When employees are more motivated and perform better if there is alignment (fit) between what they value (value) and what the organization provides (supply) (Islam, Khan, Ahmed, & Mahmood, 2021b). When these practices are aligned with employees' environmental values, the resulting "fit" leads to greater commitment and alignment in monitoring environmental performance.

Green HRM Practices and Green Intellectual Capital

Incorporating HRM practices can facilitate the effective development and execution of environmental management initiatives and green human resource management (GHRM), which signifies the increasing convergence of environmentally conscious principles with HRM (Renwick, Redman, & Maguire, 2013). Green HRM practices exemplify a form of HRM-linked environmental

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management, concentrating on how HRM practices can mitigate pollution by regulating the operational processes within organizations (Islam et al., 2021a).

According to Mishra, Sarkar, Kiranmai, and Development (2014), Green HRM practices refer to an organizational orientation towards environmental protection and encompass a variety of HRM practices. These practices collectively focus on the ecological impacts of organizations resulting from their economic activities and ecosystem sustainability. Unlike traditional HRM practices, which prioritize internal stakeholders and profit maximization, Green HRM practices are beneficial for external stakeholders (Kumari, 2024; Tanveer, Yusliza, & Fawehinmi, 2024). These practices ensure that employees are not only dedicated to their work for profitability but also actively engage in pursuing environmentally responsible practices (Sachdeva et al., 2024). Adhering to these principles can help a company build a positive reputation and contribute to the well-being of future generations (Sofyan et al., 2024). Because their survival depends on maintaining a competitive edge by being sustainable, corporate organizations must act in an environmentally friendly manner to become green and competitive in today's business environments (Yong, Yusliza, Ramayah, & Fawehinmi, 2019b). The current study has concentrated on a few Green HRM practices out of the many available, including compensation, green performance management, green reward management, and green performance evaluation.

Kianto, Sáenz, and Aramburu (2017) elaborated that intellectual capital is a valuable organizational asset that can be enhanced through HRM practices involving knowledge and competencies. Moreover, intellectual capital is perceived as a tangible, non-financial resource that leverages organizational expertise, knowledge, and experience to gain a competitive edge and improve performance(Omar, Yusoff, & Zaman, 2017). The association of intellectual capital and environmentally-oriented initiatives, known as "green intellectual capital" (GIC), enhances the organization's worth by encompassing intangible assets such

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as knowledge, skills, and collaborations, both at the individual and organizational levels. Yong, Yusliza, Ramayah, and Fawehinmi (2019a) and (Jirawuttinunt, 2018) emphasize the critical connection between green HR practices and various aspects of green intellectual capital. In line with the research conducted by (Ma, Chen, & Ruangkanjanases, 2021), employees who undergo green training demonstrate improved skills, knowledge, commitment, and attitudes toward environmental management and also highlights that providing green training to employees contributes to the development of green human capital, an essential component of green intellectual capital.

Based on these research findings, enhancing green intellectual capital to gain a competitive advantage can be facilitated through the enhancement of green HR practices (Jirawuttinunt, 2018).

Thus, it is hypothesized on the above argument that:

H1: Green HR practices have a positive relationship with green intellectual capital.

Green Intellectual Capital and Environmental Performance

Green intellectual capital is defined as a collection of knowledge, abilities, skills, experience, attitude, wisdom, creativity, and commitments of workers (Omar et al., 2017). It has value to the business, meets customers' high environmental expectations, and aids in meeting strict international environmental criteria (Haldorai et al., 2022a). By gaining new skills, employees would increase their human capital and become more productive and effective. Employee performance helps the sustainability of the firm (Sachdeva et al., 2024).

Green intellectual capital enables organizations to successfully carry out their green agenda (Mahmood & Nasir, 2023b) and extents its scope into three attributes namely; green human capital, green relational capital and green structural capital (Allameh, 2018). Green intellectual capital has several well-known assets, such as its corporate culture, capabilities, incentives program, information and knowledge management system, and trademarks (Huang & Kung,

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2011). An organization consists of a series of sets of human, physical, and organizational resources according to the resource-based view theory (Barney, 1991). These resources provide a competitive advantage and sustainable performance when used effectively (Haldorai, Kim, & Garcia, 2022b; Mahmood & Nasir, 2023b). Among these tangible and intangible resources, human resources and intellectual capital were the most vital for organizational survival and gaining competitive advantage in the market to gain sustainable environmental performance (Malik et al., 2020). Therefore, it is postulated that:

H2: Green intellectual capital is positively related to environmental performance.

Green HRM Practices and Environmental Performance

Several studies have been carried out on many green HRM practices and strategies that businesses may use to lessen their environmental effect. Among these procedures of green recruitment and selection, eco-friendly training and development, sustainable performance management, and environmentally conscious compensation and rewards are frequently alluded to (Jackson, Renwick, Jabbour, & Muller-Camen, 2011; Renwick et al., 2013). The results of Green HRM practices have been the subject of an increasingly large body of study, and according to several researchers (Charbel José Chiappetta Jabbour, Santos, Fonseca, & Nagano, 2013; Paillé, Chen, Boiral, & Jin, 2014), green HRM practices can result in better environmental performance and less resource usage. Other research has demonstrated that implementing green human resource management practices may enhance employee outcomes, including job satisfaction, organizational commitment, and retention (Tandon, Dhir, Madan, Srivastava, & Nicolau, 2023).

The literature on green HRM practices has also drawn attention to some of the difficulties that businesses have putting green HRM practices into practice (Sofyan et al., 2024). These difficulties include the fact that many employees need to be made aware of and uninformed about environmental concerns, their reluctance to change, and the difficulty of quantifying the results of using Green

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HRM practices (Renwick et al., 2013; Sharma & Gupta, 2015). While the hotel industry in Pakistan has yet to embrace environmentally friendly HR practices extensively, extant literature has begun to delve into this sector (Umrani et al., 2020). A study was undertaken to gain deeper insights into the impact of green HRM practices on environmental performance.

Moreover, it is suggested that green HRM practices are vital in promoting environmental performance (Gilal, Ashraf, Gilal, Gilal, & Channa, 2019). Green HRM practices hold particular significance within the Pakistani hotel industry, and implementing environmentally friendly HRM practices may enhance the environmental performance of hotels (M. Ahmed et al., 2021). Therefore, we postulate that:

H3: Green HRM practices have a significant and positive relation with environmental performance.

Mediating Role of Green Intellectual Capital

The management of human resources can serve as a valuable tool for promoting eco-friendly and sustainable practices, particularly when extant studies on green human resource management emphasize environmental sustainability as a top priority (Roscoe, Subramanian, Jabbour, & Chong, 2019). According to Chahal and Bakshi (2014), a person's intellectual capital is shaped by their intellectual flexibility, competence, and attitude. Competence encompasses knowledge and education, while attitude refers to an employee's behavioral aspects at work. Solving problems with creativity and expertise requires intellectual flexibility from employees (Al-Jinini, Dahiyat, & Bontis, 2019). Consequently, businesses worldwide are adopting environmental initiatives (Ercantan & Eyupoglu, 2022), prompting researchers in the field of human resource management to explore how it can contribute to environmentally responsible business practices. The adoption of green HR practices encourages sustainable business practices (H. Ahmed, Nasir, & Ahmad, 2022).

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Numerous components of green intellectual capital (GIC) have been the subject of extensive research, including green networks, green values, green innovation, and green knowledge and skills (Xu & Liu, 2020). For example, "green knowledge" pertains to understanding environmental issues, laws, and standards, while "green skills" involve the ability to develop and implement sustainable practices. Substantial evidence supports the hypothesis that Green HRM practices have a significant and positive relationship with environmental performance (Hansen & Klewitz, 2012). Moreover, green intellectual capital mediates the relationship between green HR practices and a sustainable environment in the hotel industry (Mahmood & Nasir, 2023b) and is well predictable. Based on previous studies, this research proposes the hypothesis as follows:

H4: Green Intellectual Capital mediates the relationship between Green HRM practices and environmental performance.

Moderating Role of Ethical Leadership

Leaders have the opportunity to inspire their followers to reflect on their values (Gull, Parveen, Umar, et al., 2024). Moreover, what is morally right and values such as giving back, compassion, honesty, fairness, and justice are just a few examples of the various principles that fall within the broad realm of ethical leadership. The ability of a leader to affect the performance of a work unit also depends on how well that leader balances conflicting goals (Mahsud, Yukl, & Prussia, 2010; Quinn & Cameron, 1988). Ethical leadership is a conscious choice and involves not only acting ethically but also setting an example for others to follow (Malik et al., 2020). It is the demonstration of these values through one's actions. When it comes to work unit performance, ethical leadership can sometimes have positive impacts (Tu et al., 2023), and occasionally, even if only briefly, unethical leadership can have good ones (Yukl, 2011). The body of research on ethical leadership suggests that ethical leaders are aware of their social responsibilities and that moral behavior, legal behavior, concern for others, and

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self-awareness are all positively correlated with ethical leadership (De Jong & Den Hartog, 2007).

According to researchers (Brown, Treviño, & Harrison, 2005; Den Hartog & De Hoogh, 2009; Kalshoven, Den Hartog, & De Hoogh, 2011), ethical leadership has a favorable relationship with other constructs and organizations increase their knowledge and develop better understanding among employees to implement sustainable human resource practices (Hassan, Gull, Farasat, & Asif, 2023; Charbel Jose Chiappetta Jabbour & Santos, 2008), and to gain competitive advantage, the role of green intellectual capital is vital (Chen, 2008). Green human capital, green structural capital, and green relational capital are three forms of green intellectual capital, and all influence organizational competitive advantage (Shoaib, Zámečník, Abbas, Javed, & Rehman, 2021).

Empirical studies have investigated the influence of various leadership styles on employees' innovative performance and discovered the phenomenon through which leadership employs its effect on employees (Ullah, Mirza, & Jamil, 2021). Furthermore, ethical leadership and intellectual capital have become a valued attribute of the corporate world (Özer, Ergun, & Yilmaz, 2015). Innovative ideas about products, services, procedures, or practices dominate today's world (Tierney & Farmer, 2011). Where intellectual capital is the awareness, ability, and talent of employees (De Hoogh & Den Hartog, 2008). Therefore, there is a link between ethical leadership and intellectual capital, where ethical leadership develops the intellectual capital of an organization, making profits while maintaining competitive advantage (Tu et al., 2023).

Although studies on green human resource management are gaining intense attention, the different areas of focus remain quite unfocussed and demand extreme attention from researchers and scholars (Naqvi et al., 2024; Tu et al., 2023). Therefore, it is important to examine green human resource management,

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green intellectual capital, and ethical leadership's role in promoting environmental performance. Hence, we proposed that:

H5: Ethical leadership moderates a relationship between green HRM practices and green intellectual capital.

Conceptual framework

The framework shows an association between green HRM practices, green intellectual capital, and environmental performance. Additionally, it exhibits the moderating role of ethical leadership in this association.

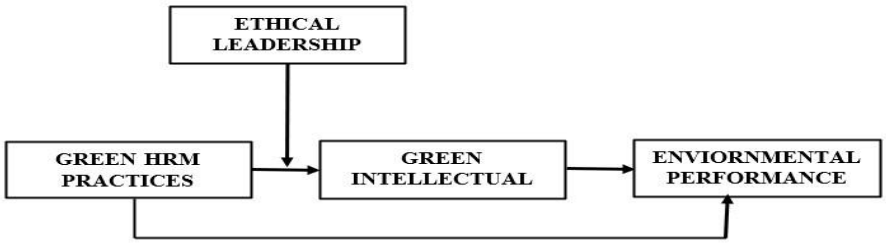

Figure 1: Conceptual Framework

Methodology

The research philosophy is grounded in the perspective of how data is collected, analyzed, and utilized in the study (Al-Ababneh, 2020). Similarly, this study adopts a positivist approach, which emphasizes the objective investigation and description of reality as prior researchers follow the same approach (Akbar, Gull, Farast, & Anwer, 2024). Moreover, the study employs a deductive approach (Iftikhar, Gull, Hassan, Farasat, & Anwer, 2023). Deductive research is a methodical scientific approach in which researchers confirm the validity of pre-existing theories or assess hypotheses.

Research Method

The study chose to employ a quantitative research approach to gather data from the study participants. A quantitative research method is defined as a systematic procedure for collecting and analyzing numerical data (Apuke, 2017). It is utilized

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to identify patterns and averages, make predictions, assess relationships between variables, and extrapolate findings to a broader population (Shabbir, Gull, &Hassan, 2023).

Research Strategy

A "questionnaire survey" has been adopted as the research strategy. A survey refers to a questionnaire deliberately designed to be completed by a respondent independently, without the intervention or potential bias of an interviewer (De Leeuw, Hox, & Dillman, 2012). Further, the questionnaire was filled out through a self-administered questionnaire and Google Docs to help (Gull, Parveen, & Sridadi, 2024). Conducting a Google Docs survey involves creating and distributing a questionnaire using Google Forms. The time horizon chosen for this study is a cross-sectional research design.

Population and Sample

The target population is distinctly characterized by individuals who form the bedrock of the hospitality industry—the diligent employees contributing their expertise and efforts to hotels that have proactively embraced green human resource management practices. This geographical focus is pivotal, as it allows for a context-specific investigation of how these sustainable green HRM practices are implemented and their impact assessed. In the pursuit of a well-rounded and in-depth understanding of the multifaceted research variables, a purposive sampling technique was thoughtfully implemented. Purposive sampling has been opted as a deliberate choice in sampling, which is intended to ensure that the study's findings encapsulate the rich diversity found within the hotel industry's workforce.

To further underscore the rigor of this study, the sample size determination was grounded in the meticulous application of statistical power analysis. This principled methodology serves as a safeguard, guaranteeing that the study possesses the requisite statistical robustness to identify and scrutinize significant

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effects, intricate relationships, and subtle nuances within the research variables. By adhering to these rigorous principles in both sampling and sample size determination, the study endeavors to provide insights that are not only meaningful but also statistically sound, contributing to the broader understanding of Green HRM practices in the hotel industry.

Sample Size

The study centered its data collection efforts on a group of 215 respondents situated in Pakistan, which signifies that the study's sample size was precisely 215 individuals. Sample size, as defined by(Marshall, Cardon, Poddar, & Fontenot, 2013), pertains to the number of participants or observations incorporated into a given research endeavor. The selection of this sample size was a deliberate choice rooted in several key considerations.

Firstly, the research was characterized as "indicative," indicating that its primary focus was investigative rather than attempting to establish strong causal relationships. In such cases, a moderate sample size can often yield valuable insights without the need for an exceptionally large sample. Therefore, 215 respondents were deemed sufficient to meet the research's objectives and the level of depth required. A sample size of 215 is appropriate for this context, striking a balance between obtaining meaningful insights and managing the resources and logistics associated with data collection and analysis.

Validity and Reliability

Several strategies were employed to ensure the validity and reliability of the findings. Firstly, the survey questionnaire was pre-tested with a small sample of participants to assess its clarity, comprehensibility, and validity.

The questionnaire has implemented a 5-point Likert scale to gather data from the participants' responses. Utilizing a 5-point Likert scale is regarded as a straightforward approach for comprehending and utilizing questionnaires and eliciting respondents' opinions (Rahi, 2017). Similarly, this scale is known for its

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efficiency, requiring less time and effort for completion compared to scales with a greater number of response points.

All questions in the questionnaire were adopted from different sources (See table 1), all of which are highly reliable and valid.

Table 1: Details of Constructs and Source

Constructs	No of items	Source
Green HRM practices	18	Yan & Hu (2021)
Environmental performance	10	Rodríguez & Cruz (2012)
Ethical leadership	12	Yukl et al. (2013)
Green intellectual capital	18	Huang & Kung (2011)

Analysis of Findings

Sample Details

The sample data was collected from the hospitality industry from 142 employees and 73 managers and categorized as 51.20% male and 48.8% female. 76.7% of the sample was in the age group of 20-30 years, whereas only 2.3% were above the age of 50 years. Approximately 69.3% of the sample had bachelor's degrees, and 11.2% of them had MS/M.Phil. Degree. Similarly, most respondents had experience in the range of 1-10 years (64.2%), and most of the respondents had a salary in the range of 71,000-100,000 (34.9%). The remaining details of the sample are presented in Table 2 of this study.

Table 2: Details of Sample

Characteristics	Items	Responses	Percentages
Gender	Male	110	51.2
	Female	105	48.8
Position	Employees	142	66.0
	Managers	73	34.0

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Age in (years)	20-30	165	76.7
	31-40	34	15.8
	41-50	11	5.1
	Above 50	5	2.3
Education	Bachelors	149	69.3
	Master	42	19.5
	MS/M.Phil.	24	11.2
Experience	Less than 1 year	54	25.1
	1-10	138	64.2
	11-20	17	7.9
	More than 20	6	2.8
Salary (PKR)	Less than 40,000	53	24.7
	40,000-70,000	59	27.4
	71,000-100,000	75	34.9
	More than 100,000	28	13.0

The questionnaire was distributed, and a letter was attached with every questionnaire, ensuring the privacy and confidentiality of the respondents through Google Docs and self-administered (Gull, Rashid, Hassan, & Rehman, 2023b; Hassan, Ansari, & Rehman, 2023).

The Variance inflation factor (VIF) tests adherence to the guidelines of (Podsakoff, MacKenzie, & Podsakoff, 2012) and as per the prior research study of (Gull, Parveen, & Sridadi, 2024) to confirm that there is no issue of common method biases. The full collinearity VIF test was calculated (See table 3) and reported that all values are within the acceptable criteria of less than five, as suggested by (Hair, Risher, Sarstedt, & Ringle, 2019).

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Table 3: VIF Values

Items of variables	VIF
EL1	2.699
EL10	3.576
EL11	2.888
EL12	3.107
EL2	3.175
EL3	3.012
EL4	2.767
EL5	3.100
EL6	3.241
EL7	3.433
EL8	3.682
EL9	3.696
EP1	1.792
EP10	1.373
EP2	1.855
EP3	1.565
EP4	1.775
EP5	1.734
EP6	1.544
GHR1	1.971
GHR10	1.646
GHR11	1.902
GHR12	1.773
GHR15	1.618
GHR18	1.589
GHR2	2.282

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GHR7	1.470
GIC1	2.086
GIC13	1.740
GIC14	1.845
GIC2	2.145
GIC3	1.891
GIC4	2.018
GIC5	2.107
GIC6	2.048
GIC7	2.311
GIC8	1.964
GIC9	1.668

After the evaluation of sample details and confirmation of the non-existence of CMB issues, the next step is the results of the measurement and structural model with the assistance of SEM-PLS.

Results of the Measurement Model

The measurement model is presented in Figure 1. Reliability is presenting the consistency and stability of the measurements of the study variables (Heale & Twycross, 2015). In this study, the construct validity and reliability have been assessed with values of Average variance Extracted (AVE), rho-A, Alpha, and composite reliability (CR) (See Table 4). The Alpha was used to calculate the reliability of the variables of the study (J. F Hair et al., 2006). The reliability of the variables of the study ranges from 0.838 to 0.958. The values of Cronbach's Alpha of all variables of the study are above 0.7, demonstrating that the internal consistency of the variables is strong and that the collected data is reliable enough to proceed for further analysis (Ursachi, Horodnic, & Zait, 2015). All the variables of the study predict values of AVE more than the minimum standard of 0.50 ranging from 0.503-0.685. The current study's results specify that the values of CR

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are in the range of 0.878-0.963, thus meeting the threshold criteria. All the values of rho-A lie in the range of 0.839-0.963, showing that all the values are within the threshold values. All values of AVE, rho-A, Alpha, and CR ensure the convergent validity and reliability of the constructs of the current study (Fornell & Larcker, 1981).

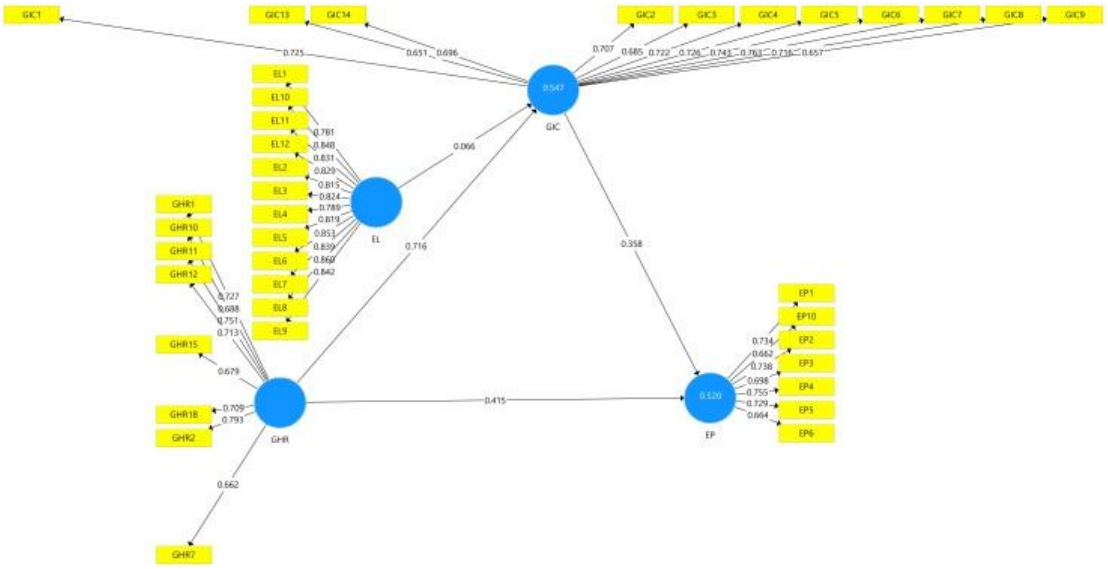

Figure 1 Measurement Model

Table 4 Results for Reliability and Validity

Variables of study	Values of AVE	rho_A	Values of Alpha	Values of CR
EL	0.685	0.963	0.958	0.963
EP	0.507	0.839	0.838	0.878
GHR	0.513	0.864	0.864	0.894
GIC	0.503	0.901	0.901	0.917

The next step is to measure discriminant validity (DV), which is assessed using the criteria of Fornell and Larcker and cross-loadings. In the Fornell and Larcker matrix, all items of the current study had values between 0.197 and 0.828.

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Table 4(a): Results for Fornell-Larcker Values

Variables of study	EL	EP	GHR	GIC
EL	0.828			
EP	0.197	0.712		
GHR	0.316	0.679	0.716	
GIC	0.292	0.664	0.737	0.709

The cross-loadings of the items reveal a higher level when related to the corresponding constructs than when compared to the link with other variables. On the basis of the findings (See Table 4a and 4b), the EP of the current study's variables meets the prescribed criteria (Fornell & Larcker, 1981; Hair, Gabriel, & Patel, 2014). The same criteria have been used by the prior study of (Gull, Ahmed, Hassan, Nazir, & Nasir, 2023) to measure the outcome construct (EP).

Table 4(b): Results for Cross Loadings Values

Variables of study	EL	EP	GHR	GIC
EL1	**0.781**	0.096	0.233	0.213
EL10	**0.848**	0.190	0.293	0.230
EL11	**0.831**	0.228	0.322	0.283
EL12	**0.829**	0.151	0.291	0.240
EL2	**0.815**	0.069	0.197	0.177
EL3	**0.824**	0.115	0.202	0.234
EL4	**0.789**	0.095	0.143	0.196
EL5	**0.819**	0.165	0.267	0.212
EL6	**0.853**	0.191	0.290	0.243
EL7	**0.839**	0.213	0.305	0.287
EL8	**0.860**	0.188	0.307	0.284
EL9	**0.842**	0.185	0.227	0.252
EP1	0.171	**0.734**	0.546	0.460
EP10	0.192	**0.662**	0.527	0.495

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EP2	0.073	**0.738**	0.484	0.472
EP3	0.122	**0.698**	0.437	0.520
EP4	0.179	**0.755**	0.488	0.525
EP5	0.101	**0.729**	0.469	0.418
EP6	0.133	**0.664**	0.419	0.405
GHR1	0.231	0.413	**0.727**	0.576
GHR10	0.220	0.469	**0.688**	0.459
GHR11	0.238	0.487	**0.751**	0.501
GHR12	0.261	0.501	**0.713**	0.524
GHR15	0.284	0.441	**0.679**	0.544
GHR18	0.162	0.581	**0.709**	0.514
GHR2	0.265	0.476	**0.793**	0.578
GHR7	0.153	0.509	**0.662**	0.518
GIC1	0.216	0.499	0.547	**0.725**
GIC13	0.213	0.461	0.470	**0.651**
GIC14	0.183	0.488	0.513	**0.696**
GIC2	0.121	0.438	0.514	**0.707**
GIC3	0.256	0.435	0.504	**0.685**
GIC4	0.186	0.460	0.484	**0.722**
GIC5	0.141	0.445	0.528	**0.726**
GIC6	0.221	0.490	0.551	**0.743**
GIC7	0.243	0.478	0.543	**0.763**
GIC8	0.231	0.499	0.549	**0.716**
GIC9	0.252	0.477	0.533	**0.657**

Results for Structural Model

The researcher has employed structural equation modeling-partial least square (SEM-PLS) to determine the direct mediation, and moderation (See Table 6)

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relationships of this study as per the prior practice of (Gull, Parveen, Umar, et al., 2024). The structural model is presented in Figure 2.

Direct Relationships	Mean	SD.	T Value	P Values	Confidence Interval (2.5%)	Confidence Interval (97.5%)

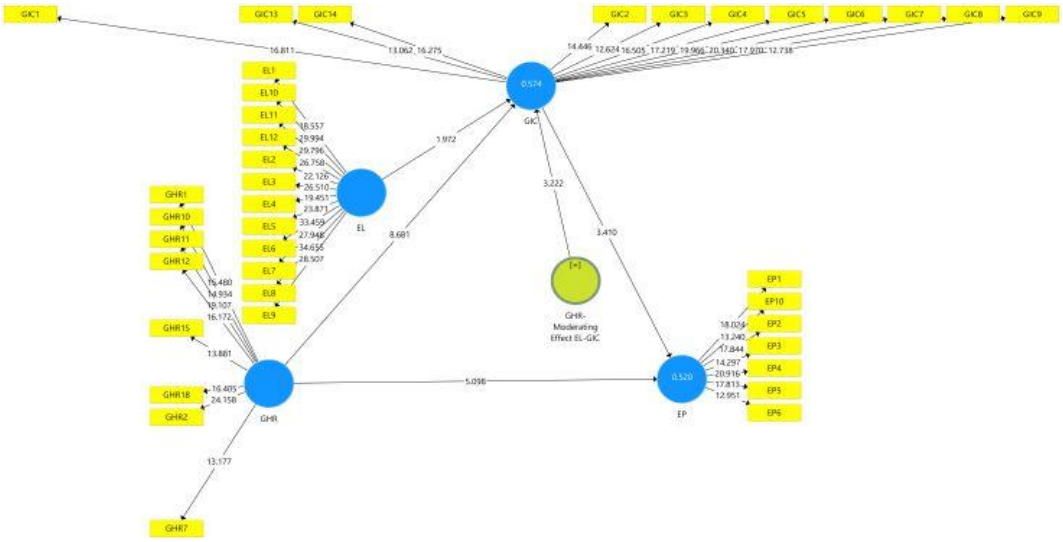

Figure 2: Structural Model

Direct Relationships Analysis

Table 5 presents that Hypothesis 1 (GHR -> GIC), Hypothesis 2 (GIC -> EP), and Hypothesis 3 (GHR -> EP) are supported and also elaborates the values for mean and standard deviations (SD) of the first three hypotheses. The Green HR Practices have a positive and significant relation with Green Intellectual Capital (Hypothesis 1), depicting the T value as 8.681, p value as 0.000, and confidence interval of 0.442 at 2.5% - 0.700 at 97.5%. Green intellectual capital has a positive and significant relation with Environmental Performance (Hypothesis 2), depicting the T value as 3.410, p value as 0.001, and confidence interval as 0.143 at 2.5% - 0.554 at 97.5%. Green HRM practices have a significant and positive relation with environmental performance (Hypothesis 3), depicting the T value as 5.098, p-value as 0.000, and the confidence interval as 0.259 at 2.5% - 0.577 at 97.5%.

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GHR -> GIC	0.571	0.067	8.681	0.000	0.442	0.700
GIC -> EP	0.357	0.105	3.410	0.001	0.143	0.554
GHR -> EP	0.419	0.081	5.098	0.000	0.259	0.577

Table 5: Results for Direct Relationships

All three direct hypotheses are supported as T values are above the recommended value of 1.96, p values are less than the recommended value of less than 0.05, and the confidence interval did not contain '0' values, thus meeting the criteria as specified by (Hair Jr, Howard, & Nitzl, 2020).

Mediation and Moderation Analysis

Table 6 presented that Hypothesis 4 (GHR -> GIC -> EP) and Hypothesis 5 (GHR-Moderating Effect EL -> EP) are also supported. The Green Intellectual Capital mediates the relationship between Green HRM practices and Environmental Performance (Hypothesis 4) by depicting the T value as 3.088, p-value as 0.002, and confidence interval of 0.080 at 2.5% - 0.341 at 97.5%. Ethical leadership moderates a relationship between Green HRM practices and Green Intellectual Capital (Hypothesis 5), depicting the T value as 2.371, the p-value as 0.018, and the confidence interval as 0.135 at 2.5% - 0.023 at 97.5%.

Table 6: Results for Mediation and Moderation Relationships

Indirect Relationships	Mean	SD.	T Values	P Values	Confidence Interval (2.5%)	Confidence Interval (97.5%)
GHR -> GIC -> EP	0.204	0.067	3.088	0.002	0.080	0.341
GHR-Moderating Effect EL -> EP	0.072	0.029	2.371	0.018	0.135	0.023

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The mediating and moderating hypotheses of this study are supported as T values are above the recommended value of 1.96, p values are less than the recommended value of less than 0.05, and the confidence interval did not contain '0' values, thus meeting the criteria as specified by (Hair et al., 2019; Preacher & Hayes, 2004). Table 7 presents the results of all the current study's hypotheses.

Table 7 Summary of Hypotheses

Hypotheses	Paths	Decision
H1	GHR -> GIC	Supported
H2	GIC -> EP	Supported
H3	GHR -> EP	Supported
H4	GHR -> GIC -> EP	Supported
H5	GHR-Moderating Effect EL -> EP	Supported

Discussion and Conclusion

The existing study was conducted to comprehensively investigate the intricate relationships among green Human Resource Management (GHRM) practices, green intellectual capital (GIC), ethical leadership (EL), and environmental performance (EP) within the context of the hotel industry in Lahore, Pakistan. By addressing the following research objectives and questions, this research endeavors to enhance our understanding of sustainable practices and ethical leadership in contemporary organizational settings. The research endeavors to uncover specific strategies that organizations operating in the hotel industry can adopt to enhance their environmental performance through the increased adoption of green HRM policies, the utilization of green intellectual capital, and the promotion of ethical leadership. By addressing these research objectives and questions, this study contributes to the growing body of knowledge on sustainable management practices, ethical leadership, and their interplay in the pursuit of environmental performance within the dynamic hotel industry context in Lahore, Pakistan. The findings of this research not only enrich academic discourse but also offer valuable

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insights and guidance for organizations committed to sustainability and ethical leadership in an ever-evolving global landscape.

The first hypothesis (H1) proposed that GHRM practices directly affect the development of green intellectual capital. The results confirm this hypothesis, indicating that organizations implementing GHRM practices are more likely to enhance their green intellectual capital. This finding underscores the role of HRM practices in fostering knowledge, skills, and abilities related to environmentally sustainable practices among employees, thereby contributing to the accumulation of green intellectual capital.

The second hypothesis (H2) explored the direct relationship between green intellectual capital and environmental performance. The results provide support for this hypothesis. This suggests that an increase in green intellectual capital within organizations positively affects their environmental performance. Organizations that invest in the development and utilization of green intellectual capital are more likely to excel in implementing sustainable practices, resulting in improved environmental performance. Moreover, the third hypothesis (H3), which examined the direct relationship between GHRM practices and environmental performance, also garnered support with a significant path. This finding implies that GHRM practices exert a direct positive influence on environmental performance in the hotel industry. It suggests that organizations embracing GHRM practices are more likely to exhibit improved environmental performance. Hypothesis fourth (H4) posited that green HRM practices have an impact on environmental performance, with green intellectual capital acting as a mediator. The results support this hypothesis, as evidenced by a statistically significant path from green HRM practices to GIC and then to EP. The fifth hypothesis (H5) introduced ethical leadership as a moderator in the relationship between GHRM practices and green intellectual capital (GIC). The findings reveal that this interaction indeed has a significant effect on GIC support for H5. Ethical

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leadership plays a crucial role in influencing how GHRM practices translate into the development of green intellectual capital. When ethical leadership is strong, it enhances the impact of GHRM practices on the acquisition and utilization of green intellectual capital. The findings of this study offer valuable insights into the interplay of factors contributing to environmental performance in the hotel industry. Firstly, the study affirms the importance of green HRM practices in promoting environmental sustainability. Organizations that implement these practices not only witness direct improvements in environmental performance but also cultivate green intellectual capital, which further bolsters their eco-friendly initiatives.

Additionally, ethical leadership emerges as a critical factor in this context. Ethical leaders not only set the tone for ethical behavior within the organization but also amplify the positive effects of GHRM practices on green intellectual capital (Chahal & Bakshi, 2014). This underscores the need for leadership that advocates sustainability and embodies ethical values in their actions and decisions. Extensive prior investigations have delved into the association between green HRM practices and environmental performance (Ahmad & Umrani, 2019; Kim, Kim, Choi, & Phetvaroon, 2019). The existing study resonates with this body of research by confirming the positive influence of green HRM practices on environmental performance. Furthermore, expand on this understanding by highlighting the mediating role of GIC, underscoring the importance of knowledge and competencies in translating HRM practices into tangible environmental enhancements. The antecedents of environmental performance, including the contribution of GIC, have been the subject of previous research (Dumont, Shen, & Deng, 2017). The existing study concurs with these findings, affirming that organizations enriched with GIC generally demonstrate enhanced environmental performance. This alignment underscores the criticality of investing in intellectual capital with a green orientation to foster sustainability.

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Ethical leadership's multifaceted impact on HRM and sustainability has been explored extensively (Hassan, Mahsud, Yukl, & Prussia, 2013a, 2013b; Yukl, 2011). The existing study aligns with prior research by emphasizing the essential role of ethical leadership in moderating the relationship between green HRM practices and GIC. Ethical leadership acts as an amplifier of the constructive effects of HRM practices, aligning with the organization's ethical and sustainable values. While earlier investigations have typically examined these elements individually, existing research sets itself apart by unifying them within a comprehensive framework. By illustrating how green HRM practices contribute to the development of GIC under the influence of ethical leadership, subsequently affecting environmental performance, the researcher furnishes a holistic perspective. This comprehensive approach aligns with the evolving understanding of the interplay among these factors.

Limitations and Future Directions

Identifying the limitations of existing studies is an essential part of any research project, as it helps provide a more comprehensive understanding of the study's context and findings. Future researchers should conduct a systematic review (Gull, M., Ahmed, A., & Warraich, I. A. 2022), of the relationship between green HRM practices and environmental performance can provide better insights into the study. The limitations of the existing study are based on the modest sample size and reliance on quantitative data. To further enrich existing research studies, future research endeavors should explore these relationships in diverse settings and employ longitudinal research designs and qualitative research studies by following the guidelines of (Shahid, Hanif, Naqvi, Hassan, & Gull, 2024; Naqvi et al., 2024; Hassan, S., Gull, M., Jabeen, S., Aslam. R., 2023).

Since data for multiple variables were collected using the same survey instrument, there might be a risk of common method bias. Consider using different data collection methods or statistical techniques to mitigate this issue.

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The data has been collected from Pakistan; it may need to account for cultural variations in the relationship between green HRM practices, green intellectual capital, ethical leadership, and environmental performance.

Theoretical and Practical Implications

Existing study has important theoretical and practical implications that contribute to the fields of human resource management, sustainability, and leadership. The existing study contributes to the theoretical understanding of Green Human Resource Management (GHRM) practices by demonstrating their significant impact on environmental performance. This adds empirical evidence to the growing body of literature on GHRM practices (Huang, Ma & Meng, 2018). The identification of Green Intellectual Capital (GIC) as a mediator between GHRM practices and environmental performance extends theoretical insights into the mechanisms through which HRM practices influence sustainability outcomes. The study introduces the concept of ethical leadership as a moderator in the relationship between GHRM practices and GIC. This theoretical framework adds depth to discussions about the role of leadership in promoting sustainable HRM practices. Existing study findings align with various environmental sustainability theories that emphasize the importance of organizational practices and leadership in achieving sustainability goals. The study supports the integration of sustainability principles into HRM theory (Ren, Tang, & E Jackson, 2018).

Additionally, existing study offers practical guidance for organizations seeking to improve their environmental performance. It highlights the value of implementing GHRM practices as a means of achieving sustainability goals. Organizations can invest in employee training and development programs that enhance knowledge and skills related to sustainability. This can contribute to the development of Green Intellectual Capital. Organizations can revise their recruitment and talent management practices to attract individuals who align with their sustainability values and objectives. Overall, the existing study provides both

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a theoretical foundation and practical insights that can guide organizations in their efforts to integrate sustainability into HRM practices (Rubel, Kee, & Rimi, 2021), develop green intellectual capital, and foster ethical leadership. These efforts can ultimately lead to improved environmental performance and a more sustainable future.

Conclusion

This study aims to explore the impact of GHRM practices on environmental performance. The results of this study offer clear confirmation that organizations embracing GHRM practices tend to perform better on environmental sustainability fronts. GHRM practices, which encompass strategies like eco-friendly recruitment, sustainability-focused training, and employee engagement initiatives, establish a culture of environmental responsibility within the organization. They underline the significance of GHRM practices as a strategic lever in an organization's commitment to environmental sustainability. Moreover, current research unearthed the pivotal role of Green Intellectual Capital (GIC) in mediating the relationship between GHRM practices and environmental performance. GIC, which encompasses the knowledge, competencies, and innovative abilities related to sustainability, acts as a bridge, translating HRM efforts into tangible environmental outcomes. In essence, organizations should prioritize the cultivation of GIC through purposeful training programs and effective knowledge management strategies (Ansoff, Kipley, Lewis, Helm-Stevens, & Ansoff, 2018), thereby fortifying their environmental performance.

Moreover, ethical leadership (EL) emerged as a key factor in existing research studies, moderating the connection between GHRM practices and GIC. Ethical leaders who uphold sustainability values and ethical behavior within their organizations significantly amplify the positive impact of GHRM practices on GIC. This accentuates the critical role of leadership in steering organizations' sustainability agendas. Significantly, current research findings provide robust

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evidence that ethical leadership can galvanize sustainability-driven HRM practices and knowledge capital development.

In summation, research not only underscores the importance of GHRM practices in promoting environmental performance but also illuminates the indispensable roles played by Green Intellectual Capital and Ethical Leadership. Organizations aspiring to bolster their sustainability credentials should contemplate the integration and promotion of GHRM practices, investments in GIC development, and the nurturing of ethical leadership (Milhazes, Ribeiro, & Gomes, 2021). In a world grappling with urgent global environmental challenges, organizations that heed the insights from study stand poised to make a meaningful contribution to a more sustainable future. By embracing GHRM practices, fostering Green Intellectual Capital, and nurturing ethical leadership, these organizations are not only enhancing their environmental performance but also serving as beacons of inspiration across industries and sectors (Fry & Egel, 2021). In doing so, they are taking significant strides towards a world where sustainability is not just an aspiration but a shared commitment and responsibility.

Conflict of Interest

The authors of the manuscript have no financial or non-financial conflict of interest in the subject matter or materials discussed in this manuscript.

Data Availability Statement

The data associated with this study will be provided by the corresponding author upon request.

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