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The Effect of Green Human Resource Management on Green Reputation: Explaining the Mediating Role of Organizational Identity, Green Innovation, and Green Entrepreneurial Orientation (Case Study: Hospitals of Tabriz City)

ABSTRACT

With the growing strategic importance of sustainability in the healthcare sector, building a green reputation has become one of the key challenges for hospitals. The present study aims to investigate the effect of Green Human Resource Management (GHRM) on the green reputation of hospitals in Tabriz. In addition, the mediating roles of three complementary mechanisms—green organizational identity, green innovation, and green entrepreneurial orientation—are analyzed in this relationship. This study employed a descriptive–survey research design. Data were collected through a structured questionnaire based on a five-point Likert scale from 350 hospital employees. Data analysis was conducted using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach. The results revealed that GHRM has a direct and significant positive effect on green reputation. Furthermore, all three variables—green organizational identity, green innovation, and green entrepreneurial orientation—played significant mediating roles in this relationship. These findings indicate that the impact of GHRM on reputation mainly occurs through its capacity to strengthen internal identity, promote tangible innovations, and encourage an entrepreneurial orientation within the organization. The results highlight the necessity for hospital managers to adopt a multifaceted approach, meaning that investment in GHRM policies should be accompanied by efforts to institutionalize environmental identity, support visible innovative projects, and empower employees' entrepreneurial behaviors. Despite the increasing importance of green reputation, the precise mechanisms through which internal green HRM practices translate into external reputation—especially the concurrent roles of identity, innovation, and entrepreneurship—have been less explored. This study was designed to address this knowledge gap and clarify these multi-path mechanisms in Iran's healthcare sector.

Keywords: Green Human Resource Management (GHRM), Green Reputation, Green Organizational Identity, Green Innovation, Green Entrepreneurial Orientation, Hospital.

Introduction

Hospitals worldwide are facing increasing pressure to adopt environmentally responsible practices while maintaining service quality, safety, and cost efficiency. As large and resource-intensive institutions, hospitals significantly contribute to waste generation, energy consumption, and carbon emissions. This has made environmental sustainability a crucial dimension of healthcare management and reputation building [1-3]. Within this emerging paradigm, Green Human Resource Management (GHRM)—defined as the integration of environmental objectives into HR functions such as recruitment, training, appraisal, and rewards—has gained prominence as a strategic mechanism for embedding sustainability into

organizational culture and daily operations [4, 5]. Through this approach, hospitals can align employee behavior and motivation with ecological goals, thereby contributing to institutional sustainability performance and enhancing their perceived legitimacy in the eyes of stakeholders [6, 7].

GHRM initiatives are increasingly being implemented in the healthcare sector as part of broader sustainable development strategies. These initiatives include designing green jobs, promoting eco-friendly competencies, and encouraging environmental citizenship behavior among medical and administrative staff [8-10]. Evidence from diverse organizational contexts highlights that the adoption of GHRM requires supportive institutional climates, top management commitment, and employee engagement [2, 5]. In hospitals, where professional autonomy and patient safety are paramount, the successful implementation of such policies depends on aligning green values with clinical and operational imperatives [3]. Consequently, healthcare managers increasingly view GHRM as a tool for harmonizing organizational sustainability objectives with the well-being and motivation of healthcare personnel [11].

A key theoretical lens for understanding how GHRM contributes to sustainability outcomes is the concept of *green organizational identity (GOI)*, which reflects the internalization of environmental values within the organization's collective self-concept [12]. When employees perceive their institution as environmentally responsible, they are more likely to engage in green behaviors, reinforcing both internal coherence and external image [13, 14]. The formation of a green identity depends on visible managerial practices, symbolic leadership actions, and HR policies that communicate ecological commitment. In hospital settings, such identity work helps unify clinical, administrative, and support units around a shared sustainability purpose, transforming environmental responsibility from a compliance obligation into a cultural norm [12, 15].

Another important construct linked to GHRM is *green innovation (GI)*—the development and application of new technologies, procedures, or services that minimize environmental harm [16, 17]. In hospitals, green innovation encompasses a range of practices such as resource-efficient sterilization, waste recycling, water conservation, and the use of renewable energy systems [1, 18]. Organizational innovation capacity is often built through targeted training, incentive structures, and interdisciplinary collaboration—mechanisms that fall directly under the purview of HR management [4, 10]. Moreover, scholars argue that innovation in the healthcare industry is not only technological but also cultural, requiring behavioral and attitudinal shifts toward sustainability [14, 15]. Thus, GHRM provides the necessary foundation for fostering an innovative climate that supports both environmental and organizational goals.

In addition to innovation, the notion of *green entrepreneurial orientation (GEO)*—a strategic posture characterized by environmental proactiveness, innovativeness, and risk-taking—has become central to sustainability discourse [17, 19]. Organizations with high GEO actively seek opportunities to create environmental and social value while enhancing competitiveness [20, 21]. Within healthcare systems, this orientation may manifest through initiatives such as the development of eco-friendly service processes, circular waste management solutions, and energy-efficient technologies [22, 23]. Studies suggest that HR practices emphasizing autonomy, continuous learning, and risk-tolerant leadership styles encourage the emergence of such entrepreneurial orientations among employees [10, 24]. Accordingly, the role of HR managers extends beyond administrative efficiency to cultivating a workforce mindset that supports sustainable entrepreneurship and environmental innovation.

The Iranian healthcare system provides an especially relevant context for examining these relationships. Hospitals in Iran, including those in Tabriz, are under growing scrutiny to balance service quality with ecological responsibility amid financial

and regulatory constraints [13, 25]. Previous research in Iranian organizations underscores the significance of leadership, organizational climate, and competency-based management for sustaining green practices [26, 27]. In this environment, the institutionalization of GHRM can enhance workforce commitment, strengthen environmental awareness, and legitimize hospital operations as socially responsible enterprises [25, 28]. Furthermore, Iran's movement toward environmental modernization in public services creates both challenges and opportunities for embedding green HR frameworks that align with national sustainability goals [29, 30].

Methodological and theoretical advances also support the exploration of such multidimensional models. Structural equation modeling using variance-based approaches, such as partial least squares (PLS-SEM), enables the simultaneous testing of direct and indirect relationships among complex constructs like GHRM, identity, innovation, and entrepreneurial orientation [31]. These models are particularly suitable for organizational studies in developing contexts, where predictive accuracy and theory development are prioritized over model fit [29]. Applying this framework to hospitals allows researchers to conceptualize sustainability not as a peripheral initiative but as an integrated system of interdependent processes supported by HR infrastructure, cultural identity, and innovative capabilities [10, 15].

The growing body of literature in sustainability and management underscores the need to move beyond viewing GHRM as a standalone HR strategy and toward understanding it as part of a broader system that shapes environmental identity, promotes innovation, and fosters entrepreneurial dynamism [18, 21, 24]. In the hospital sector, such a holistic framework is essential for integrating environmental, social, and economic dimensions of performance [1, 8]. As healthcare institutions face increasing demands for transparency, patient-centered care, and ecological responsibility, adopting comprehensive GHRM strategies can play a decisive role in strengthening their environmental reputation and organizational legitimacy [2, 6].

Accordingly, this study aims to examine the effect of Green Human Resource Management on hospitals' green reputation, with the mediating roles of green organizational identity, green innovation, and green entrepreneurial orientation in the hospitals of Tabriz City.

Methodology

This study is applied in terms of purpose and descriptive—survey in terms of implementation method. The main objective of the research is to test an integrated model explaining the relationship between *Green Human Resource Management (GHRM)* and *green reputation*, considering the mediating roles of *green organizational identity*, *green innovation*, and *green entrepreneurial orientation* in hospitals of Tabriz City. The study employed a quantitative approach using *Partial Least Squares Structural Equation Modeling (PLS-SEM)*. This method was chosen due to the predictive nature of the research and the conceptual model's complexity (including three parallel mediating paths), which allows for the simultaneous assessment of both measurement and structural models.

The statistical population of this study comprised all employees working in hospitals in Tabriz. Sampling was carried out through a non-probability convenience method, resulting in 350 valid and usable questionnaires. The adequacy of the sample size was confirmed based on the "ten-times rule," which requires at least ten times the maximum number of incoming paths to a construct in PLS-SEM. Since the *green reputation* construct had four incoming paths, a minimum of 40 respondents would have been sufficient; therefore, the sample size of 350 far exceeds this requirement.

Data were collected using a structured questionnaire with a five-point Likert scale (from 1 = strongly disagree to 5 = strongly agree). The instrument was developed based on validated international scales and localized for the hospital context. The questionnaire included 17 items measuring the five main constructs of the study and several demographic questions. Details of the constructs and their sources are as follows:

- **Green Human Resource Management (5 items):** Adapted from Dumont et al. (2017), encompassing dimensions of green recruitment, training, performance appraisal, and reward.
- **Green Entrepreneurial Orientation (3 items):** Adapted from Zhao et al. (2011), covering innovativeness, proactiveness, and green risk-taking.
- **Green Innovation (3 items):** Adapted from Jiang et al. (2018), focusing on process and service innovations.
- **Green Organizational Identity (3 items):** Adapted from Chen (2011), emphasizing the internalization of environmental values.
- **Green Reputation (3 items):** Adapted from Chen (2011), assessing the perception of the organization's environmental commitment.

To ensure cultural appropriateness, all items were localized through a translation–back translation process, and their face and content validity were confirmed by academic experts.

Data analysis was performed in two stages using *SmartPLS 4* software. In the first stage, the measurement model (in which all constructs were reflective) was assessed for reliability and validity. Cronbach's alpha, Composite Reliability (CR), and Average Variance Extracted (AVE) were calculated, and discriminant validity was tested using both the Fornell–Larcker criterion and the HTMT ratio. In the second stage, the structural model was analyzed to test the hypotheses. Path coefficients (β) and their significance were evaluated using bootstrapping (5,000 resamples). Coefficients of determination (R^2) and the model fit index (SRMR) were also examined. Additionally, to assess mediation, specific indirect effects for each of the parallel paths were calculated. Finally, to evaluate the model's predictive power, the *PLSpredict* procedure was applied, reporting the $Q^2_{predict}$ index along with comparisons of RMSE and MAE errors.

Throughout all stages of the research, ethical principles were carefully observed, including obtaining informed consent from participants, ensuring data confidentiality, and using the information solely for academic purposes.

Findings and Results

This section presents the analysis of the collected data and the research findings. First, the demographic characteristics of the sample and the distribution of the constructs are reported. Next, based on the PLS-SEM approach, the evaluation of the measurement model (reliability and validity of constructs) and subsequently the structural model and hypothesis testing are presented. All analyses were conducted using *SmartPLS 4* software.

In this study, 350 valid questionnaires were collected and analyzed from hospital employees in Tabriz City. The descriptive profile of the sample (Table 1) shows that the majority of respondents were women (65.7%), mostly aged between 30–39 years (34.6%) and 40–49 years (28.3%), with university-level education (over 76%) and typically between 2 to 10 years of work experience. Nearly half of the sample (48.9%) worked in the nursing department, and most were full-time employees (82.6%). This profile of an experienced and professional workforce provides an appropriate context for examining the adoption of advanced HR policies such as *Green Human Resource Management*.

Table 1*Sociodemographic Characteristics of Respondents*

Percentage	Frequency	Category	Variable
65.7	230	Female	Gender
34.3	120	Male	
21.4	75	20–29 years	Age
34.6	121	30–39 years	
28.3	99	40–49 years	
15.7	55	50 years and above	
12.3	43	Diploma/Associate	Education
56.3	197	Bachelor's	
20.3	71	Master's	
11.1	39	Doctorate	
14.6	51	Less than 5 years	Work experience
37.4	131	5–10 years	
30.0	105	10–15 years	
18.0	63	Over 15 years	Department
48.9	171	Nursing	
25.1	88	Clinical	
13.5	47	Administrative	
8.6	30	Support	
4.0	14	Logistics/Supply	Employment type
82.6	289	Full-time	
12.6	44	Contract-based	
4.8	17	Part-time	Work shift
41.4	145	Day	
37.1	130	Rotating shift	
21.4	75	Night	

To describe the distributional shape of construct scores, skewness and kurtosis indices were reported (Table 2). As shown, the skewness and kurtosis values for all constructs fall within acceptable ranges, indicating no severe deviations from normality. However, given the study's predictive objective and the complexity of the conceptual model, the choice of the PLS-SEM approach—which is robust to non-normal data assumptions—is fully justified.

Table 2*Normality Assessment of Data Based on Skewness and Kurtosis*

Variable	Skewness	Kurtosis
Green Entrepreneurial Orientation (GEO)	-0.431	-0.135
Green Human Resource Management (GHRM)	-0.424	0.008
Green Innovation (GI)	-0.477	-0.076
Green Organizational Identity (GOI)	-0.497	-0.028
Green Reputation (GR)	-0.544	0.255

In this section, the quality of the measurement instrument was evaluated through the assessment of the reliability and validity of the constructs to ensure the accuracy of the data entered into the structural model. In accordance with standard PLS-SEM procedures, the reliability and validity of reflective constructs were examined.

Table 3*Reliability, Convergent Validity, and Model Quality Assessment*

Variable	Cronbach's Alpha	Composite Reliability (CR)	AVE
Green Entrepreneurial Orientation (GEO)	0.778	0.871	0.692
Green Human Resource Management (GHRM)	0.838	0.885	0.606
Green Innovation (GI)	0.764	0.864	0.680
Green Organizational Identity (GOI)	0.822	0.894	0.738
Green Reputation (GR)	0.772	0.868	0.687

Discriminant validity was examined using both the *Fornell–Larcker* criterion (Table 5) and the *HTMT ratio*. According to the *Fornell–Larcker* criterion, the square root of the AVE for each construct (diagonal values) is greater than its correlations with other constructs. In the *HTMT* criterion, all ratios were below the 0.90 threshold. Both tests confirm the discriminant validity of the model.

Table 4

Discriminant Validity Assessment Using Fornell–Larcker Criterion

Variable	GEO	GHRM	GI	GOI	GR
GEO	0.832				
GHRM	0.398	0.779			
GI	0.200	0.368	0.825		
GOI	0.231	0.368	0.175	0.859	
GR	0.454	0.476	0.438	0.459	0.829

Note: Diagonal values represent the square root of AVE for each construct.

Additionally, the *HTMT* values for all construct pairs were below the strict threshold of 0.85, which reconfirms the desirable discriminant validity of the model. Taken together, these results confirm the robustness and high quality of the measurement model prior to the structural model analysis.

Table 5

Discriminant Validity Assessment Using HTMT Ratio

Variable	GEO	GHRM	GI	GOI	GR
GEO					
GHRM	0.489				
GI	0.253	0.458			
GOI	0.282	0.443	0.221		
GR	0.583	0.588	0.569	0.574	

After validating the measurement model, the structural model was assessed to test the research hypotheses. In this part, the explanatory and predictive power of the model were evaluated, followed by the presentation of hypothesis testing results using a bootstrapping procedure with 5,000 subsamples.

The results show that the research model explains 45.2% of the variance in the main dependent variable (*green reputation*), which is considered a moderate explanatory power according to common benchmarks. Furthermore, the effect size (f^2) results indicate that *Green Human Resource Management* (GHRM) has a medium effect size on all three mediating variables ($f^2 > 0.15$). In explaining *green reputation*, the mediating variables showed small to medium effect sizes, while the direct effect of GHRM was small ($f^2 = 0.033$).

Table 6

Coefficients of Determination (R^2) and Effect Sizes (f^2)

Dependent Variable	R^2	Adjusted R^2	f^2 (GHRM)	f^2 (GEO)	f^2 (GI)	f^2 (GOI)
GEO	0.156	0.156	0.188	-	-	-
GI	0.133	0.133	0.157	-	-	-
GOI	0.135	0.133	0.156	-	-	-
GR	0.452	0.445	0.033	0.109	0.118	0.131

Note: Values of 0.02, 0.15, and 0.35 are interpreted as small, medium, and large effects, respectively.

Predictive relevance was also evaluated using the *PLSpredict* procedure, showing that the $Q^2_{predict}$ values for all endogenous constructs were positive ($Q^2_{predict}$ for GR = 0.219), and the PLS model exhibited lower prediction error compared to the linear model (LM). Thus, the model demonstrates satisfactory predictive power.

The results of direct and mediating hypotheses are summarized in Table 7 and illustrated in Figure 1.

Table 7

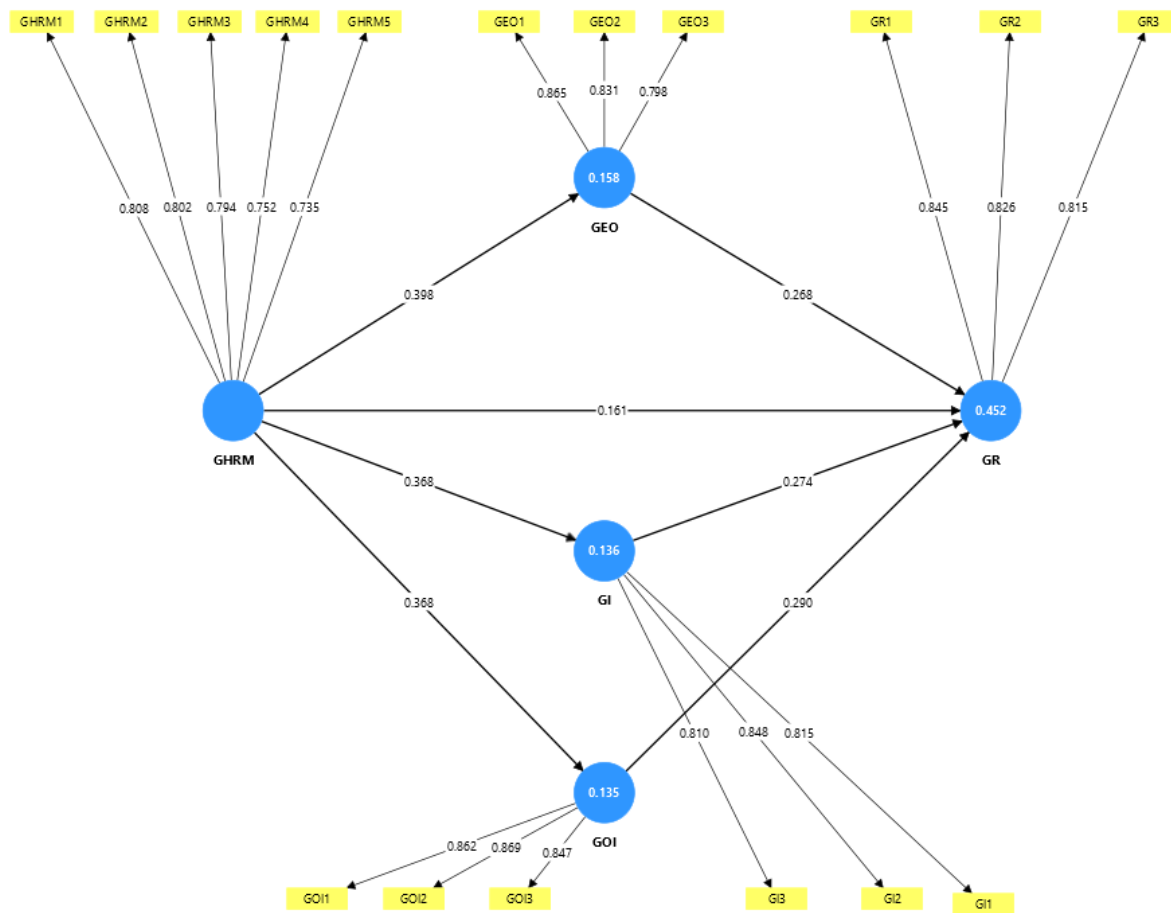
Results of Hypothesis Testing

Hypothesis	Path	Path Coefficient (β)	T Statistic (T)	P Value	Result
H1	GHRM $\rightarrow$ GR	0.161	3.049	0.002	Supported
H2	GHRM $\rightarrow$ GEO	0.398	8.407	<0.001	Supported
H3	GEO $\rightarrow$ GR	0.268	6.089	<0.001	Supported
H4	GHRM $\rightarrow$ GEO $\rightarrow$ GR	0.107	4.928	<0.001	Supported
H5	GHRM $\rightarrow$ GI	0.368	8.008	<0.001	Supported
H6	GI $\rightarrow$ GR	0.274	6.874	<0.001	Supported
H7	GHRM $\rightarrow$ GOI	0.368	7.813	<0.001	Supported
H8	GOI $\rightarrow$ GR	0.290	5.903	<0.001	Supported
H9	GHRM $\rightarrow$ GI $\rightarrow$ GR	0.101	5.229	<0.001	Supported
H10	GHRM $\rightarrow$ GOI $\rightarrow$ GR	0.107	4.721	<0.001	Supported

As the results indicate, all ten hypotheses were supported at the 95% confidence level. The confirmation of direct hypotheses demonstrates that *Green Human Resource Management* has both a direct positive effect on *green reputation* and serves as an essential antecedent for strengthening *green entrepreneurial orientation*, *green innovation*, and *green organizational identity*.

The confirmation of the mediating hypotheses indicates that these three constructs act as significant channels through which GHRM influences *green reputation*. Regarding the mediation type, since both the direct effect (GHRM $\rightarrow$ GR) and all three indirect effects (mediations) were significant, the mediators exhibit *complementary partial mediation*. This means that *Green Human Resource Management* contributes to enhancing hospitals' green reputation both directly—as a credible organizational signal—and indirectly by strengthening internal organizational capabilities.

Effect decomposition analysis revealed that approximately 66% of the total effect of GHRM on GR (total effect = 0.475) is transmitted through these three mediating mechanisms, underscoring the central importance of internal processes in shaping hospitals' external environmental reputation.

Figure 1*Final Structural Equation Model Using the PLS-SEM Approach*

Discussion and Conclusion

The findings of this study revealed that Green Human Resource Management (GHRM) has a significant and positive effect on green reputation in hospitals. Moreover, the results confirmed that this relationship is partially mediated by three complementary constructs—green organizational identity (GOI), green innovation (GI), and green entrepreneurial orientation (GEO). These outcomes collectively indicate that the pathway from HR practices to external reputation is neither linear nor isolated but functions through an integrated system of internal organizational mechanisms. This structure reflects a dynamic interplay between human capital practices, innovation capabilities, and strategic orientation, each contributing to the institution's environmental legitimacy. The direct effect of GHRM suggests that environmental values embedded in HR systems are perceived as credible signals by external stakeholders, reinforcing the organization's image as a socially and ecologically responsible entity [6, 8].

The significant mediating role of GOI underscores that employees' shared understanding of their organization as environmentally responsible is a crucial psychological mechanism translating HRM practices into reputation outcomes. This aligns with the argument that identity serves as a bridge between internal policies and external perception [12]. When healthcare workers internalize environmental values through recruitment, training, and performance appraisal systems, they

collectively shape a strong sense of belonging to an organization that genuinely prioritizes sustainability [13, 25]. Such identity-based cohesion not only drives environmentally friendly behaviors but also strengthens the authenticity of the hospital's public image, since external audiences interpret consistent internal alignment as a sign of integrity [14, 15]. The results therefore reinforce theoretical frameworks proposing that green identity mediates the influence of HR systems on reputation through the internalization of ecological values [10].

The positive and significant mediating effect of GI further validates the proposition that innovation acts as a functional channel for converting internal green intentions into observable, reputation-enhancing outcomes. In hospital environments, GI manifests in initiatives such as sustainable procurement, efficient waste management, and eco-friendly technology adoption—all of which are highly visible to patients, regulators, and the community [1, 18]. These innovations are rarely spontaneous; rather, they emerge from HRM practices that reward experimentation, cross-functional learning, and problem-solving behaviors [4, 5]. This finding is consistent with prior studies demonstrating that GHRM cultivates innovation by equipping employees with green skills, providing cognitive frames for sustainability, and enabling the diffusion of eco-knowledge across departments [15, 16]. The evidence from this study thus reinforces the view that hospitals with strong GHRM foundations possess the adaptive capabilities required to continuously develop and institutionalize environmentally sound practices [14, 21].

The third mediator, GEO, was also found to play a meaningful role in explaining how GHRM affects green reputation. GEO represents the strategic readiness of organizations to pursue environmentally aligned opportunities proactively, creatively, and with a tolerance for risk [17, 19]. This mediating relationship implies that HR practices encouraging employee autonomy, initiative, and proactive behavior create a culture conducive to green entrepreneurship [20, 24]. Hospitals that foster such a climate not only implement sustainability programs but also innovate new eco-services, adopt novel green technologies, and seek collaborations that enhance environmental impact. These behaviors strengthen their reputation as sustainability leaders. The finding aligns with research suggesting that entrepreneurial orientation mediates between HR systems and performance by transforming human capabilities into innovative market or service solutions [21, 22]. From a strategic management perspective, the results highlight the necessity of nurturing both structural and behavioral enablers of entrepreneurship within hospital HR architectures to sustain environmental credibility.

The complementarity among the three mediators—GOI, GI, and GEO—demonstrates that GHRM's influence on green reputation is distributed across cognitive, behavioral, and strategic layers. GOI provides the cognitive frame and value alignment necessary for collective environmental sensemaking, GI represents the behavioral expression of that identity through practical improvements, and GEO extends the strategic boundary by turning sustainability into an opportunity-seeking orientation. Together, these pathways confirm the theoretical proposition that reputation in sustainability contexts emerges from the systemic integration of HR-based cultural alignment, operational innovation, and strategic entrepreneurship [10, 12, 16, 17]. This layered mediation also resonates with the broader dynamic capabilities framework, which views reputation as an emergent property of resource configuration and capability orchestration [14, 21].

From an institutional perspective, the study's outcomes underscore the growing relevance of HRM in supporting environmental legitimacy in healthcare. Hospitals operate under heightened visibility, where credibility depends on both internal consistency and external signaling. GHRM systems serve as a bridge connecting managerial intent with stakeholder interpretation by generating trustworthy environmental cues. When HR policies are congruent with environmental strategies,

stakeholders—such as patients, donors, and government agencies—perceive the organization’s commitment as authentic [3, 6]. Furthermore, identity and innovation mechanisms amplify these signals by demonstrating that sustainability is embedded in the organization’s daily routines, rather than being confined to symbolic communication. Such authenticity is essential for reputation building in high-trust sectors like healthcare, where organizational legitimacy directly affects patient and public confidence [1, 8].

The findings also contribute to the emerging discourse on the role of HR-driven sustainability practices in developing countries. While much of the GHRM literature originates from manufacturing or service contexts in advanced economies, the present study highlights its applicability in healthcare systems characterized by resource constraints and institutional transformation [26, 27]. The Iranian hospital context demonstrates how HR-based environmental management can compensate for structural limitations by mobilizing human capital as a source of innovation and reputation [25, 28]. Moreover, the integration of green entrepreneurship and innovation into HR frameworks shows that even in public or semi-public institutions, strategic orientations can evolve to embrace sustainability without compromising service quality. This perspective aligns with calls for more contextually grounded research linking HRM, innovation, and sustainability in the Middle East and North Africa region [29, 30].

The consistency of these findings with prior studies across industries reinforces the robustness of the GHRM–reputation model. In tourism and hospitality, similar pathways have been identified where GHRM influences reputation through employee engagement and organizational culture [6, 7]. In industrial and manufacturing contexts, research likewise supports the mediating effects of innovation and entrepreneurial orientation [17, 20]. The present study extends these theoretical insights into the healthcare sector, suggesting that human resource systems designed for sustainability can operate as reputation-generating mechanisms across diverse institutional domains. The convergence of findings also implies a maturing paradigm in which HRM is recognized not merely as an administrative subsystem but as a strategic driver of organizational legitimacy, particularly in contexts where public accountability and ecological stewardship intersect [10, 21].

Another theoretical implication concerns the interplay between organizational learning and environmental performance. The mediation of innovation and entrepreneurship suggests that learning mechanisms—training, knowledge exchange, and cross-functional collaboration—are critical in transforming environmental awareness into concrete reputation outcomes [4, 18]. This learning perspective emphasizes that sustainable reputation is not an externally imposed status but the cumulative outcome of iterative learning processes embedded within HR practices. Such an interpretation aligns with the dynamic capabilities framework, in which HR systems serve as integrative mechanisms for sensing opportunities, seizing them through innovation, and reconfiguring resources for sustained competitive advantage [21]. In healthcare, where change is continuous and multidimensional, this adaptive capability is vital to reconciling operational constraints with ecological imperatives.

From a methodological standpoint, the study supports the efficacy of structural equation modeling using partial least squares (PLS-SEM) in examining complex, multi-path relationships. The approach is particularly suitable for service-oriented settings with high interdependence among latent constructs [31]. The validation of the measurement model through convergent and discriminant tests (e.g., HTMT) provides methodological assurance of construct distinctiveness among GHRM, GOI, GI, and GEO—concepts that are theoretically related but empirically separable. By adopting this analytical design, the research contributes to the methodological advancement of sustainability measurement in healthcare organizations, where psychological, cultural, and strategic dimensions are intertwined [29, 30].

Finally, these findings reinforce the conceptual view that environmental reputation in healthcare is an emergent property of internally coherent systems rather than the product of discrete green initiatives. GHRM represents the foundation of this system by embedding sustainability values into the workforce structure. GOI transforms those values into collective meaning, GI translates meaning into visible practices, and GEO expands organizational horizons toward proactive environmental opportunities [12, 16, 17, 19]. Together, these components create a synergistic cycle in which people, innovation, and strategy reinforce one another. This framework offers a comprehensive explanation of how internal human resource processes can culminate in the development of a credible and enduring green reputation for hospitals.

Although this study provides valuable insights into the mechanisms linking GHRM and green reputation in hospitals, it is not without limitations. The research relied on self-reported data collected through structured questionnaires, which may be subject to response bias or social desirability effects. The cross-sectional design limits causal inference, as the relationships observed cannot establish temporal precedence. Additionally, the sample was restricted to hospitals in Tabriz, which may constrain the generalizability of findings to other healthcare systems with different organizational cultures or regulatory environments. The study also focused on three mediating variables; other factors such as green leadership, environmental ethics, or stakeholder pressure may further refine the explanatory framework.

Future studies could adopt longitudinal or mixed-methods designs to better capture the temporal evolution of identity, innovation, and entrepreneurial orientation in the context of GHRM. Comparative research across multiple cities or countries would help examine contextual influences such as institutional support, cultural orientation, and environmental policy frameworks. Researchers may also explore moderating variables—such as organizational size, ownership type, or leadership style—that could influence the strength of mediation pathways. Incorporating objective environmental performance indicators and stakeholder perception data could also enhance the external validity of future models.

Hospital administrators should integrate GHRM principles into all HR processes, ensuring that sustainability goals are reflected in recruitment, performance evaluations, and rewards. Building a strong green identity requires consistent leadership communication and the alignment of values across departments. Encouraging innovation through training and resource allocation will help staff develop and implement environmentally friendly initiatives. Furthermore, fostering an entrepreneurial culture that empowers employees to propose and test eco-efficient solutions can position hospitals as leaders in sustainability. By institutionalizing these practices, healthcare organizations can strengthen both their environmental performance and their long-term reputation for social responsibility.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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