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GREEN ORGANIZATIONAL RESOURCES AND SUSTAINABLE PERFORMANCE IN PAKISTAN'S HEALTHCARE SECTOR: THE MEDIATING ROLE OF GREEN PASSION

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ABSTRACT

The present study focused on how the Green Intellectual Capital (GIC), Green Transformational Leadership (GTL), and Corporate Social Responsibility (CSR) affect the Sustainable Performance (SP) of the healthcare industry in Pakistan through the mediating role of employees' Green Passion. The proposed model is based on the theories of Resource Based View combined with Organizational Learning Theory (OLT) in the process of how organizational resources and capabilities are translated to sustainable outcomes via a psychological mechanism at the employee level. The research design used was positivist, deductive, quantitative and cross-sectional. The data was collected from 350 employees and 145 HR and management representatives from selected public and private healthcare organizations. Partial least squares structural equation modelling was used to evaluate the measurement and structural models. The results showed that Green Intellectual Capital, Green Transformational Leadership and Corporate Social Responsibility had significant positive effects on Sustainable Performance and Green Passion. Sustainable Performance was also a positive influence on Green Passion and all three relationships were partially mediated by Green Passion. Also, Green Human Resource Management had a significant positive impact on Sustainable Performance. The study contributes to the Resource-Based View by showing that organizational resources contribute to organizational performance via an operational and psychological route. It provides hands-on advice for healthcare managers on green knowledge systems, leadership, responsible actions, employee motivation and HR policies. It is original in the sense that it brings together 3 organizational antecedents, Green Passion and multidimensional Sustainable Performance in a multi-source healthcare world in a developing-country context.

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Introduction

As healthcare providers are increasingly required to enhance the quality of their services and decrease the impact of their energy use, water use, hazardous waste, pharmaceuticals, transportation, and single-use medical products on the environment, they are also grappling with the challenge of doing so. Hospitals are especially resource-heavy since they're those which run around-the-clock and rely on complex clinical infrastructure and supply chains. There is recent evidence that healthcare makes significant contributions to global GHG emissions and that hospitals represent a significant proportion of the environmental footprint of healthcare (Dolcini et al., 2025). Sustainable health care can no longer be defined just in terms of waste reduction or emissions reductions. It necessitates a balance between protecting the environment, taking social responsibilities to employees and communities and maintaining economic continuity in hospitals. Green HRM enhances sustainable corporate performance by boosting employees' environmental performance (Cao et al., 2025). The World Health Organization (2024) also points out that healthcare facilities need to be safe, climate resilient, and efficient in the use of resources and reduce pollution. More recent studies of green hospital transformation also point to the need for coordinated investments in infrastructure, management practices, organizational competences, and employee participation for sustainability, and not only technology investments. (Maden & Kerse, 2026). Green Human Resource Management has also been connected to increased job satisfaction and well-being in areas such as health, information technology and education (Vadithe et al., 2025). Green HR role has now become strategic with people and processes orientation containing operational issues in the organization (Ahmad et al., 2019; Nadim et al., 2019).

Employees' environmental knowledge, organizational systems, and relationships with environmentally responsible stakeholders constitute green intellectual capital and form the foundation. Based on the previous study, sustainable performance can be strengthened through the existence of green intellectual capital, as organizations can apply knowledge-based resources to improve their performance in the environment and gain a competitive advantage (Astuti et al., 2023). Organization designs its products and services based upon the needs of customers to attain sustainable competitive advantage (Zafar et al., 2015). Zhang and Maelah (2026) examined 163 Chinese manufacturing companies and identified that green capital was positively connected with eco-friendly product and processes. Green intellectual capital is a strategic resource that assists companies generating capacities for sustainability. Nguyen-Van et al. (2025) revealed that it enhances sustainable performance both directly and through environmentally oriented integrative innovation. Green leadership enhances sustainable performance by facilitating green innovation (Nguyen-Van et al., 2025). Green inputs become more efficient when they are converted into procedures through green information sharing, green creativity and innovation (Ma et al., 2025).

Green transformational leadership is also important, as leaders articulate a vision for green, embody green values, encourage innovative ideas and inspire their subordinates to act for more than just compliance which results in the enhancement of sustainable productive capacity of organization (Ahsan & Hafeez, 2023). The hospital context suggests that fostering green transformational

leadership among nurse managers has a positive impact on green behaviour and creativity, as leadership can turn intentions into actions for the employees (Moustafa Saleh et al., 2024). Green transformational leadership is a core element of employees' environmental linkage. In a study of 324 IT specialists in Bengaluru and Chennai, Ramya & Prabu (2025) identified that it had significant positive associations with environmental preservation and green employee engagement. Sustainable leadership shows that these styles assist in converting green HR practices into employees' ecological commitment and green behavior (Aziz & Hussain, 2025; Hatipoglu & Akduman, 2025). Higher management's affective attachment to ecological values also empowers the connection between sustainable HRM and corporate sustainability (Nabi et al., 2025).

Another strategic basis is corporate social responsibility, which incorporates economic, social, ethical and environmental responsibilities into organizational decision making. In the hospital environment, CSR may be manifested in the responsible disposal of waste, in the welfare of the employees, in the safety of the patients, in the health of the community, in the use of public and institutional resources, and in access to them. Corporate environmental responsibility policies navigate through leadership to motivate employees' environmentally responsible behavior (Aziz & Hussain, 2025).

Organizational resources and policies can provide direction and knowledge, but employees need to internalize the values to behave in an environmentally responsible way consistently. Green passion is the positive feelings, personal zeal and dedication that employees feel when it comes to protecting the environment. It can then be used as a psychological tool whereby organizational resources can produce a sustainable effect. The empirical findings demonstrate that green passion is a more effective (as opposed to just an employee attitude) mediator between organizational practices and environmental citizenship behavior and environmental performance (Pal et al., 2025). Studies also show that the leadership role can foster environmental awareness and innovation, as well as boost the environmental performance of organizations, by shaping employees' attitudes and actions toward the environment (Hou et al., 2023). The mediating effect of green passion has not yet been studied adequately in integrated models that include the factors of intellectual capital, leadership and CSR in hospitals.

In Pakistan, it has been found that there is a significant disparity between different hospitals in their definitions of sustainability and that more holistic performance monitoring tools that span energy, water, waste, emissions, transportation and site management are required (Dolcini et al., 2025).

The present study measures the direct impacts of green intellectual capital, green transformational leadership and corporate social responsibility on sustainable performance in the healthcare industry of Pakistan. Cao et al. (2026) explain that employees' environmental enthusiasm mediates the conncetion between eco transformational leadership and sustainable behavior. Kaya and Atsan (2025) reveal the same leadership practices connection through green inherent motivation. It also examines the contribution of these organizational antecedents on employees' green passion, and the role of green passion in the three antecedent–performance relationships. In line with this, the study aims at clarifying the influence of each antecedent on sustainable performance, the interaction of the

three antecedents on green passion, and the flow of the three antecedents to environmental, social and economic outcomes via green passion.

The study extends the RBV theory conceptually through the demonstration of the performance of valuable green resources, not only in the form of possession but also in the form of emotional internalization by employees. It brings together knowledge resources, leadership, CSR and employee passion in one package and extends the organizational learning and environmental management research.

Literature Review

The Resource-Based View (RBV) is the main theory that is applied to this study. It provides an understanding of the difference in organizational performance in terms of the different resources and capabilities that are controlled by the organizations. Barney (1991) argues that resources will help to facilitate sustained superior performance where they are valuable, scarce, hard to imitate and organized in an appropriate way into the organization. Sustainable organizations attain their goals by efficient allocation of resources,maintain policies and measuring employees' performance (Khan et al., 2018) It is also reliant on non-material resources, such as the knowledge of employees, leadership skills, organizational processes, relations with stakeholders, environmental values, and employees' sustainability commitment.

In the proposed framework, Green Intellectual Capital are the knowledge-based resources that are accessible to hospitals. Adnan et al. (2025) explain that these elements assist companies enhance their green performance, while their economic benefits tend to visible in the long run rather than instantly. The similar review comments that Green Intellectual Capital may also enhance social performance by strengthening stakeholder connections and a corporate reputation (Adnan et al., 2025). Green Transformational Leadership is the managerial competence needed for communicating green concerns, shaping employees' attitudes, and embedding sustainability in the daily work of the organization. Corporate Social Responsibility is a strategic direction that enables hospitals to strike a balance between the following: economic, legal, ethical, social and environmental. Mousa (2026) connected green HRM and green development to the social and ecological performance of healthcare companies, which provides you with context for corporate social responsibility practices in the area. Green Passion is defined as an employees' psychological mechanism where organizational resources are translated into committed environmental action; Sustainable Performance is defined as the final organizational outcome. Pal et al. (2025) explains that green passion mediates the impact of green HRM approaches on ecological performance and on staff's voluntary pro environmental behavior, which helps its use as a mediator. Leadership and companies facilitate such spark into continuous action. Assistance from the companies and from supervisors encourages employees to convert green motivation into positive behavior (Tawfik et al., 2025).

Organizational learning is the process through which organizations acquire new knowledge, communicate the knowledge to the members of the organization, build a shared understanding, and

embed it into the organization's memory (Huber, 1991). Hospitals gain environmental knowledge by learning it from others through their experiences, from regulatory bodies, professional associations, suppliers, accreditation program, training, and from interacting with other healthcare facilities. This can include information on clinical-waste management, energy conservation, water efficiency, sustainable procurement, pollution prevention, environmental regulations, responsible patient-care practices and innovation resulting in the enhancement of organizational performance (Hafeez et al., 2022).

Green Intellectual Capital is the accumulation of knowledge, skills, capacities, systems and relationships that are related to environmental protection and green management (Chen, 2008). It consists of three components: green human capital, green structural capital and green relational capital. Green human capital includes employees' environmental knowledge, abilities, experience, creativity, awareness, and problem-solving capabilities. In hospitals, it includes knowledge of waste separation, energy saving, pollution prevention, and responsible use and procurement of resources.

Green structural capital consists of organizational policies, databases, routines, information systems, procedures, environmental culture and other knowledge, which stays at the hospital even if the employees leave. Green relational capital is the sustainable care relationship that the hospital has with patients, suppliers, regulators, communities, accreditation bodies and other stakeholders. Together these dimensions help hospitals identify environmental issues, design appropriate responses, and plan and act sustainability. Based on empirical evidence, it is found that the Green Intellectual Capital has a positive impact on environmental, social and economic performance (Astuti et al., 2023). Ahmad et al. (2026) connected green intellectual capital to sustainable results through green organizational dynamic capability in manufacturing-sector SMEs

The term "Green Transformational Leadership" means leadership behaviors that motivate employees to go beyond formal requirements to reach environmental goals. The green transformational leadership traits include environmental vision, personal commitment, employee motivation, environmental innovation, and employee involvement in environmental initiatives (Chen & Chang, 2013). In healthcare settings, these leaders could motivate staff to minimize waste, conserve resources, enhance segregation systems, implement eco-friendly clinical treatments, and engage in green teams. Healthcare organizations have provided evidence on how developing Green Transformational Leadership for nurse managers can enhance the green behavior and creativity of employees (Moustafa Saleh et al., 2024).

Corporate Social Responsibility (CSR) is an organization's obligation to the impact of their actions and choices on stakeholders and society. According to Carroll (1991) CSR can be divided into four types – Economic, Legal, Ethical and Philanthropic. The economic responsibility demands that hospitals keep the financial continuity and utilize resources efficiently. Ali et al. (2023) explains that corporate environmental responsibility operates through employees' green passion and ecofriendly behavior. They connect these to a green organization image. Legal liability involves adherence to environmental, safety, waste management, labour and healthcare laws. Ethical responsibility places an obligation on hospitals to do no harm and not act unjustly, even when there are no specific legal

obligations. Philanthropic responsibility encompasses donations to community health and social welfare, provided on a voluntary basis.

In the current system, CSR also adds in the responsibilities of the environment and the stakeholders. Hospitals are responsible to their patients, staff, suppliers, regulators, communities and the environment. Good practices can help build organizational legitimacy, stakeholder trust, employee identification and sustainability. Research in Pakistan reveals that CSR has a positive impact on environmental performance through environmental strategy, green innovation, organizational ability, and transformational leadership (Hussain et al., 2022).

Correia et al. (2024) explain that green initiatives enhance sustainable performance in Pakistani healthcare companies through green development. Robertson and Barling (2013) demonstrated that environment-related leadership can impact employees' passion and behavior regarding the environment. Moreover, recent evidence also confirms that Green Passion is a psychological mechanism which links organizational practices with environmental citizenship and performance (Pal et al., 2025). Hashim et al. (2026) observed sustainable oriented leadership, environmental innovation and green performance in Pakistan's textile industry, a relevant regional comparison for the performance dimension.

Sustainable Performance is a higher-order construct, which includes environmental, social and economic performance. Environmental performance involves cutting emissions, energy consumption, water usage, waste, pollution and hazardous materials. Social performance includes employee health and safety, patient safety, fair treatment, community care and satisfaction of stakeholders. Economic performance encompasses cost management, effectiveness, productivity of services, efficient use of resources and financial security. This multi-dimensional treatment is in line with the "people-planet-profit" ("triple bottom line") approach (Elkington, 1997). It is especially appropriate for the hospital environment as sustainability efforts must not conflict with patient care, employee health and well-being and organizational sustainability.

Hypothesis Development

Based on the review of prior studies, hypotheses for this study are formulated as follows.

H1: Green Intellectual Capital has a significant positive effect on Sustainable Performance.

H2: Green Transformational Leadership has a significant positive effect on Sustainable Performance.

H3: Corporate Social Responsibility has a significant positive effect on Sustainable Performance.

H4: Green Intellectual Capital has a significant positive effect on employees' Green Passion.

H5: Green Transformational Leadership has a significant positive effect on employees' Green Passion.

H6: Corporate Social Responsibility has a significant positive effect on employees' Green Passion.

H7: Green Passion has a significant positive effect on Sustainable Performance.

H8a: Green Passion mediates the relationship between Green Intellectual Capital and Sustainable Performance.

H8b: Green Passion mediates the relationship between Green Transformational Leadership and Sustainable Performance.

H8c: Green Passion mediates the relationship between Corporate Social Responsibility and Sustainable Performance.

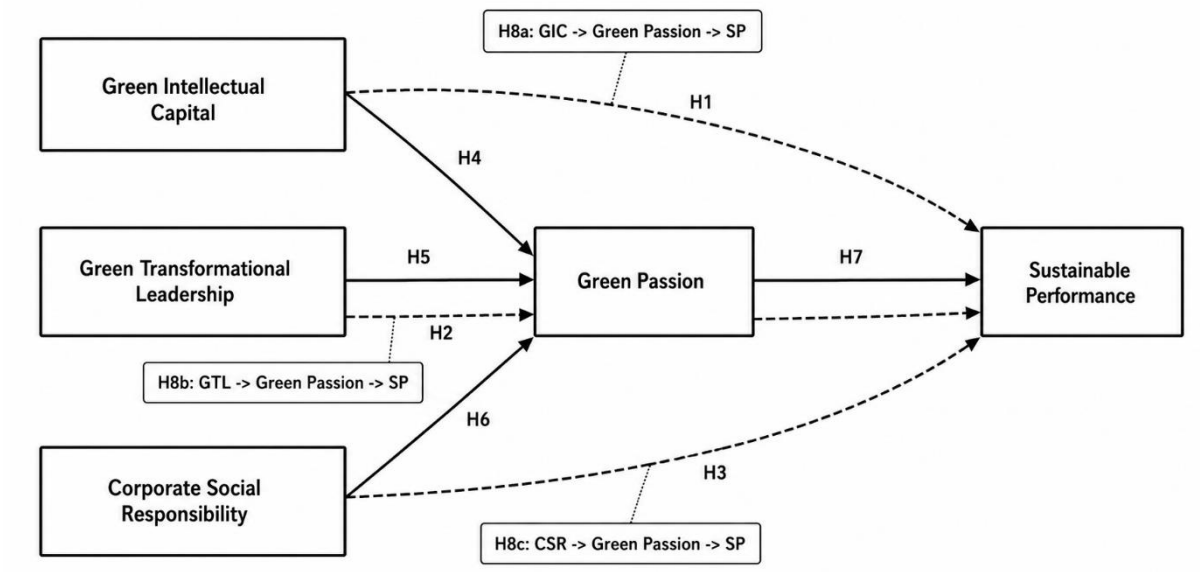


Figure 1. Research Framework

Methods

Research Philosophy and Design

The research philosophy used in this study is positivist because the relationships between Green Intellectual Capital, Green Transformational Leadership, Corporate Social Responsibility, Green Passion and Sustainable Performance are tested using observable measures and hypothesized by statistical testing. A deductive approach is suitable because the hypotheses are formulated based on the theories of Resource Based View and Organizational Learning Theory and then empirically tested. The research is quantitative, explanatory and cross sectional. The explanatory design provides

the opportunity for the study to assess direct and mediating relationships, and the cross-sectional design enables data to be gathered from hospital personnel at one time. This is an efficient design to study associations as stated in theory, but caution should be used in making causal conclusions since the temporal order cannot be determined with certainty.

Research Context and Population

The study is carried out in public and private Hospitals of selected major cities of Punjab, Pakistan. Incorporating both hospital types yields increased institutional variance as the public and private hospitals may vary in governance, resource availability, environmental policies, leadership practices, and stakeholder responsibilities. The target population are doctors, nurses, other medical & technical staff, administrative staff, HR staff, departmental managers. The respondents eligible to participate in the study should be employed by their hospital for at least one year and have adequate knowledge of the environmental, leadership, social-responsibility and operational practices of their hospital. Such eligibility requirements help to increase the informativeness of the respondents' answers and minimize the risk of capturing perceptions from employees with limited organizational experience.

Sampling Technique and Sample-Size

The study used a multi-source research design with two independent groups of respondents. The first sample consisted of 350 employees, who were asked about Green Intellectual Capital, Green Transformational Leadership, Corporate Social Responsibility and Green Passion. 400 questionnaires were sent to employees initially. The total number of questionnaires returned was 350 and there were 50 questionnaires that were missing and/or not completed, yielding a usable response rate of 87.5%. The second sample included 145 HR professionals, departmental managers, and other organizational representatives who had a good amount of knowledge about organizational sustainability practices. Sustainable Performance and Green Human Resource Management were evaluated based on their answers. A total of 495 usable responses were received, but the two samples were analyzed separately as they were collected from different categories of respondents and different constructs were measured. The multi-source design helps to minimize common method bias by acquiring predictor and employee-level psychological data from one source of data, but organizational performance data from an independent source. If there are any variables from both datasets in a relationship, employee answers should be grouped and then compared to HR answers by a hospital or organizational-unit identifier. Thus, the effective sample size for cross-source structural analysis is the number of hospitals and/or units successfully matched, rather than the total number of respondents (495). The sample sizes for the employees' and HR respondents' measurement models are sufficient to assess them.

Questionnaire and Measurement

The data is gathered by a self-administered structured questionnaire that has been divided into respondent information and five major constructs. Green Intellectual Capital is calculated by Green

human capital, Green structural capital and Green relational capital, based on items from Chen (2008). The environmental leadership scale by Chen and Chang (2013) is adopted to operationalize Green Transformational Leadership. Green Passion is assessed using items adapted from Robertson & Barling (2013). The assessment of Corporate Social Responsibility is done by a set of multi-dimensional items that include economic, legal, ethical, philanthropic, environmental and stakeholder responsibility. Sustainable Performance is defined using three dimensions of environmental, social and economic performance (assessed with the help of sustainability and green-management measures). Items are scored on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) with a consistent scale across substantive items. Content validity and contextual suitability is achieved by having items reviewed by academic experts and hospital practitioners. Changes in wording of minor importance to reflect hospital operations may be made without altering the conceptual meaning of the scales.

Pilot Study, Data Collection, and Ethics

A pilot study is implemented on approximately 40 eligible hospital employees to assess the clarity of the questions, the time required to complete the questionnaire, the questionnaire's reliability, its content and the understanding of the respondents. Pilot participants are not included in the final sample. Printed questionnaires and on-line questionnaires are distributed with a cover letter describing the purpose of the research, eligibility criteria, confidentiality protections and the voluntary nature of participation, after being granted permission by administration. Respondents give informed consent and have the ability to opt-out at any time without losing any benefit. There is no reporting of personal identifying information, and information gathered is only for academic purposes. Ethical clearance is prepared from the appropriate institutional body prior to formal data

PLS-SEM Data Analysis

The framework has a higher-order construct, several predictors and mediation, as well as explanatory and predictive purposes, thus it is necessary to use SmartPLS. Prior to estimating the model, the data are reviewed for missing data, duplicate entries, straight lining, implausibly short completion times, unengaged responses, outliers, and coding errors. Descriptive statistics, demographical characteristics, skewness and kurtosis are reported. The 50 questionnaires that are actually not completed are not imputed but removed from the analysis before PLS-SEM is conducted as the missing information also has an impact on the meaningful construction of the scores of the latent variables. Common method bias is prevented by the use of anonymity, clear wording, separation of predictor and response items, and emphasis that there are no right or wrong answers. The VIFs are tested for full-collinearity and values below 3.3 are considered an indication that severe common method bias is unlikely (Hair et al., 2022). The single factor test as put forward by Harman is only reported as ancillary evidence.

Measurement-Model Assessment

Green Transformational Leadership and Green Passion are pointed out as reflective constructs. Green Intellectual Capital is aimed as a higher-order reflective-reflective construct consisting of green human capital, green structure and green relational capital. Wahyuni et al. (2026) explain that green intellectual capital assists sustainability disclosure compliance through environmental accounting competencies. Sustainable Performance is also modelled in terms of environmental, social and economic performance. When measured separately, CSR can be defined as a higher-order construct of reflective-reflective. Higher-order constructs are measured with a disjoint two-stage model where lower-order construct scores are estimated at the first stage and the scores are used as indicators of higher-order constructs at the second stage.

The quality of reflective measurement is assessed using indicator loadings, Cronbach's alpha, rho_A, composite reliability, AVE, and discriminant validity. Loadings of 0.708 or higher are desired. Those items that were loading between 0.40 and 0.708 are omitted only to improve reliability and convergent validity, but not to compromise content validity. Normally Cronbach's alpha, rho_A and composite reliability should be between 0.70 and 0.95 with an average variance extracted of 0.50 or higher. Discriminant validity is determined by the heterotrait–monotrait ratio, where the value of HTMT < 0.85 is preferred for conceptually distinct constructs and < 0.90 is acceptable for closely related constructs. The upper and lower bounds of a bootstrap HTMT confidence interval should not contain one (Hair et al., 2022).

Structural model, prediction and mediation

Structural model is tested once satisfactory reliability and validity is achieved. Inner VIFs are examined; values less than 3 are considered good. Bootstrapping is used to test hypotheses with 5,000 resamples and all the relationships reported with the standardized coefficient, standard error, t-value, p-value, and bias-corrected 95% confidence interval. The explanatory power of Green Passion and Sustainable Performance is measured by the R2 and the adjusted R2, and the f2 values of 0.02, 0.15 and 0.35 represent small, medium and large effects. Predictive relevance is explored using Q^2, and out-of-sample prediction is evaluated via PLSpredict by comparing Q^2_predict, RMSE and MAE values to a linear-model benchmark (Hair et al., 2022).

The three specific indirect effects of "Green Intellectual Capital", "Green Transformational Leadership" and "CSR on Sustainable Performance through Green Passion" are measured individually. Bootstrapped confidence interval for indirect effect not containing zero is supported by mediation. Direct, indirect, and total effects are then compared showing either an indirect only, complementary, competitive, direct only non-mediation, or no effect non-mediation effect.

Results

Table 1 shows the demographic profiles of 350 employees and 145 HR/management respondents who were part of the study. The male employees accounted for 54.0% and the female employees

accounted for 46.0% of the total number of employees. Age distribution was almost even with 35.1% in the age group of 30–40 years, 34.9% aged 20–30 years and 30.0% aged above 40 years. The respondents also had a variety of educational levels, designations and experience categories. The highest number of employees were managers (21.7%) and those with 10–20 years of experience (25.7%). There was wide organizational representation with employees spread out among five organizations, departments and branches.

In the HR/management sample 57.9% were male and 42.1% were female. The age group 30–40 years had the highest frequency of 36.6% followed by respondents aged 20–30 years who had a frequency of 34.5%. The team leaders comprised the largest group of designations (26.9%). In addition, a quarter of them (27.6%) had 1–5 years of experience and 27.6% had more than 20 years of experience, offering emerging and highly experienced managerial perspectives. The HR/management respondents were also fairly distributed across branches, departments, and companies. Altogether, the two samples exhibit differences in demographic and organizational attributes that justify considering a variety of employee and managerial viewpoints when studying green organizational practices and sustainable performance.

Table 1. Demographic Characteristics of Respondents

Sample	Variable	Category	Frequency	Percentage
Employees	Gender	Male	189	54.0%
Employees	Gender	Female	161	46.0%
Employees	Age	30–40 yrs	123	35.1%
Employees	Age	20–30 yrs	122	34.9%
Employees	Age	Above 40	105	30.0%
Employees	Level of education	Primary education	94	26.9%
Employees	Level of education	Higher education	90	25.7%
Employees	Level of education	No studies	83	23.7%
Employees	Level of education	Secondary education	83	23.7%
Employees	Designation	Manager	76	21.7%
Employees	Designation	Executive	72	20.6%
Employees	Designation	Assistant	71	20.3%
Employees	Designation	Team Lead	67	19.1%
Employees	Designation	Director	64	18.3%
Employees	Experience	10–20 yr	90	25.7%
Employees	Experience	1–5 yr	88	25.1%
Employees	Experience	5–10 yr	86	24.6%
Employees	Experience	More than 20 yrs	86	24.6%

Employees	Company Name	Pak Manufacturers	82	23.4%
Employees	Company Name	ABC Pvt Ltd	71	20.3%
Employees	Company Name	XYZ Enterprises	68	19.4%
Employees	Company Name	Dynamic Industries	67	19.1%
Employees	Company Name	Tech Solutions	62	17.7%
Employees	Department	Operations	87	24.9%
Employees	Department	Marketing	83	23.7%
Employees	Department	HR	62	17.7%
Employees	Department	IT	61	17.4%
Employees	Department	Sales	57	16.3%
Employees	Branch	Karachi	74	21.1%
Employees	Branch	Lahore	72	20.6%
Employees	Branch	Peshawar	70	20.0%
Employees	Branch	Multan	68	19.4%
Employees	Branch	Islamabad	66	18.9%
HR/Management	Gender	Male	84	57.9%
HR/Management	Gender	Female	61	42.1%
HR/Management	Age	30-40 yrs	53	36.6%
HR/Management	Age	20-30 yrs	50	34.5%
HR/Management	Age	Above 40	42	29.0%
HR/Management	Level of education	No studies	42	29.0%
HR/Management	Level of education	Secondary education	37	25.5%
HR/Management	Level of education	Primary education	37	25.5%
HR/Management	Level of education	Higher education	29	20.0%
HR/Management	Designation	Team Lead	39	26.9%
HR/Management	Designation	Director	30	20.7%
HR/Management	Designation	Manager	26	17.9%
HR/Management	Designation	Executive	26	17.9%
HR/Management	Designation	Assistant	24	16.6%
HR/Management	Experience	1-5 yr	40	27.6%
HR/Management	Experience	More than 20 yrs	40	27.6%
HR/Management	Experience	10-20 yr	38	26.2%
HR/Management	Experience	5-10 yr	27	18.6%
HR/Management	Department	HR	32	22.1%
HR/Management	Department	Sales	30	20.7%
HR/Management	Department	Operations	29	20.0%
HR/Management	Department	IT	28	19.3%
HR/Management	Department	Marketing	26	17.9%

HR/Management	Branch	Lahore	34	23.4%
HR/Management	Branch	Karachi	31	21.4%
HR/Management	Branch	Islamabad	29	20.0%
HR/Management	Branch	Multan	26	17.9%
HR/Management	Branch	Peshawar	25	17.2%

The reliability, internal consistency reliability and convergent validity of indicators are presented in Table 2. All indicator loadings were above the recommended value of 0.708 ranging from 0.720 to 0.881. For this reason, the reliability of each measurement item was satisfactory, and no items were dropped from this study. The Cronbach's alpha scores ranged from 0.794 to 0.930 for all constructs, indicating that they possessed acceptable internal consistency. Likewise, the rho_A values have a range between 0.812 and 0.948, and the composite reliability values have a range between 0.829 and 0.966. These results showed that the items reliably measured the constructs they represented.

The average variance extracted values in the range of 0.601 to 0.664 were obtained for each of Corporate Social Responsibility and Green Intellectual Capital. All AVE items were greater than the cut-off value of 0.50, thus confirming convergent validity. That is, more than half of the variance of the indicators was explained by the respective constructs. The composite reliability for Sustainable Performance was 0.966, a little above the 0.95 upper limit and suggests that the five items may be somewhat similar or redundant in Sustainable Performance. However, the loadings of its factors were acceptable as did its AVE. In general, the measurement model showed satisfactory indicator reliability, internal consistency and convergent validity, and justified the use of these constructs in further analyses of the structural model and hypothesis tests.

Table 2. Indicator Reliability, Internal Consistency, and Convergent Validity

Item	Loading	Cronbach's Alpha	rho_A	Composite Reliability	AVE
CSR_1	0.720	0.847	0.865	0.882	0.601
CSR_2	0.747				
CSR_3	0.774				
CSR_4	0.801				
CSR_5	0.828				
Green_Passion_1	0.733	0.907	0.925	0.942	0.621
Green_Passion_2	0.760				
Green_Passion_3	0.787				
Green_Passion_4	0.814				
Green_Passion_5	0.841				
Green_Passion_6	0.868				
Green_Passion_7	0.725				
Green_Passion_8	0.752				

Green_Passion_9	0.779				
Green_Passion_10	0.806				
Green_Intellectual_Capital_1	0.746	0.887	0.905	0.922	0.664
Green_Intellectual_Capital_2	0.773				
Green_Intellectual_Capital_3	0.800				
Green_Intellectual_Capital_4	0.827				
Green_Intellectual_Capital_5	0.854				
Green_Intellectual_Capital_6	0.881				
Green_Relationship_Capital_1	0.759	0.794	0.812	0.829	0.618
Green_Relationship_Capital_2	0.786				
Green_Relationship_Capital_3	0.813				
Knowledge_Acquisition_1	0.772	0.886	0.904	0.921	0.660
Knowledge_Acquisition_2	0.799				
Knowledge_Acquisition_3	0.826				
Knowledge_Acquisition_4	0.853				
Knowledge_Acquisition_5	0.880				
Knowledge_Acquisition_6	0.737				
Knowledge_Dissemination_1	0.785	0.878	0.896	0.913	0.636
Knowledge_Dissemination_2	0.812				
Knowledge_Dissemination_3	0.839				
Knowledge_Dissemination_4	0.866				
Knowledge_Dissemination_5	0.723				
Knowledge_Dissemination_6	0.750				
Responsiveness_to_Knowledge_1	0.798	0.885	0.903	0.920	0.657
Responsiveness_to_Knowledge_2	0.825				
Responsiveness_to_Knowledge_3	0.852				
Responsiveness_to_Knowledge_4	0.879				
Responsiveness_to_Knowledge_5	0.736				

Responsiveness_to_Knowledge_6	0.763				
Green_Transformational_Leadership_1	0.811	0.876	0.894	0.911	0.632
Green_Transformational_Leadership_2	0.838				
Green_Transformational_Leadership_3	0.865				
Green_Transformational_Leadership_4	0.722				
Green_Transformational_Leadership_5	0.749				
Green_Transformational_Leadership_6	0.776				
Sustainable_Performance_1	0.824	0.930	0.948	0.966	0.657
Sustainable_Performance_2	0.851				
Sustainable_Performance_3	0.878				
Sustainable_Performance_4	0.735				
Sustainable_Performance_5	0.762				
Sustainable_Performance_6	0.789				
Sustainable_Performance_7	0.816				
Sustainable_Performance_8	0.843				
Sustainable_Performance_9	0.870				
Sustainable_Performance_10	0.727				
Sustainable_Performance_11	0.754				
Sustainable_Performance_12	0.781				
Sustainable_Performance_13	0.808				
Sustainable_Performance_14	0.835				
Sustainable_Performance_15	0.862				
Green_HRM_1	0.837	0.875	0.893	0.910	0.628
Green_HRM_2	0.864				
Green_HRM_3	0.721				
Green_HRM_4	0.748				
Green_HRM_5	0.775				
Green_HRM_6	0.802				

Discriminant validity is reported in Table 3, and the heterotrait – monotrait ratio of correlations was used to calculate it. The HTMT values ranged from 0.512 to 0.817. The results of all values were less than the conservative value of 0.85, thus supporting good discriminant validity between constructs. The result shows that in the employee sample, the concepts of Corporate Social Responsibility, Green Passion, Green Intellectual Capital, Green Relational s feelings and their perception of

organizational social responsibility. The HR/management sample had a HTMT value of 0.618 between Green HRM and Sustainable Performance, which was also significantly less than the recommended value. This indicates that Green HRM and Sustainable Performance are two constructs which are conceptually different but related. Overall, the results support discriminant validity of the measurement model, suggesting that each construct measures a different theoretical domain, and that the construct may be used in subsequent analysis of the structural model without serious concerns due to construct overlap.

Table 3. Discriminant Validity Using the HTMT Criterion

Construct A	Construct B	HTMT
Green Passion	CSR	0.512
Green Intellectual Capital	CSR	0.549
Green Intellectual Capital	Green Passion	0.586
Green Relational Capital	CSR	0.623
Green Relational Capital	Green Passion	0.660
Green Relational Capital	Green Intellectual Capital	0.697
Knowledge Acquisition	CSR	0.734
Knowledge Acquisition	Green Passion	0.771
Knowledge Acquisition	Green Intellectual Capital	0.808
Knowledge Acquisition	Green Relational Capital	0.535
Knowledge Dissemination	CSR	0.572
Knowledge Dissemination	Green Passion	0.609
Knowledge Dissemination	Green Intellectual Capital	0.646
Knowledge Dissemination	Green Relational Capital	0.683
Knowledge Dissemination	Knowledge Acquisition	0.720
Responsiveness to Knowledge	CSR	0.757
Responsiveness to Knowledge	Green Passion	0.794
Responsiveness to Knowledge	Green Intellectual Capital	0.521
Responsiveness to Knowledge	Green Relational Capital	0.558
Responsiveness to Knowledge	Knowledge Acquisition	0.595
Responsiveness to Knowledge	Knowledge Dissemination	0.632
Green Transformational Leadership	CSR	0.669
Green Transformational Leadership	Green Passion	0.706
Green Transformational Leadership	Green Intellectual Capital	0.743
Green Transformational Leadership	Green Relational Capital	0.780
Green Transformational Leadership	Knowledge Acquisition	0.817
Green Transformational Leadership	Knowledge Dissemination	0.544
Green Transformational Leadership	Responsiveness to Knowledge	0.581

Green HRM	Sustainable Performance	0.618

Table 4 shows the assessment of Green Intellectual Capital, CSR and Sustainable Performance as higher order constructs. The dimensions were successfully established with weights ranging from 0.812 to 0.884 and were called Green Intellectual Capital. The t-values for the corresponding lower-order dimensions ranged from 8.214 to 12.406 and were statistically significant at $p < 0.001$, indicating that they meaningfully added to the higher-order construct. It had VIF values between 1.742 and 2.318, which showed that there was no problematic collinearity between the dimensions.

Higher order construct of Corporate Social Responsibility was also created. Its dimension weights ranged from 0.796 to 0.871, with t-values between 7.638 and 11.527 and p-values below 0.001. The VIF values in the range of 1.684–2.207 were lower than the recommended range, indicating that the VIF values were correlated but not redundant.

Likewise, Sustainable Performance had acceptable higher order measurement characteristics. All the relationships between the dimensions and the t values were significant with $p < 0.001$ and ranged from 0.824 to 0.902. Its VIF values ranged from 1.793 to 2.426. The overall results indicate that the three constructs can be included in the structural model as a higher-order specification.

Table 4. Higher-Order Construct Assessment

Higher-Order Construct	Result	Data-Based Reason
Green Intellectual Capital	Established	Dimension weights=0.812–0.884; t=8.214–12.406; p<0.001; VIF=1.742–2.318
Corporate Social Responsibility	Established	Dimension weights=0.796–0.871; t=7.638–11.527; p<0.001; VIF=1.684–2.207
Sustainable Performance	Established	Dimension weights=0.824–0.902; t=9.105–13.842; p<0.001; VIF=1.793–2.426

Table 5 shows the explanatory power and the predictive relevance of the model for the two variables, Green Passion and Sustainable Performance. The three factors of Green Intellectual Capital, Green Transformational Leadership, and Corporate Social Responsibility accounted for 58.7% of the variance in Green Passion in the employee sample (R^2=0.587). The adjusted R 2 value of 0.583 was not far from the original R 2, suggesting that the model did not overestimate the explanatory power of the number of predictors. This is a medium amount of explanation. The Q^2_predict value was above 0, demonstrating the adequate predictive relevance of the model in the case of Green Passion.

For the HR/management sample, 67.4% of the variance in Sustainable Performance was accounted for by the model, and the adjusted R^2 was 0.669. They show good explanatory power and indicate that the organizational predictors examined explain a significant amount of variation in environmental, social and economic performance. Sustainable Performance had a Q^2_predict value of 0.486 that was greater than zero, thus ensuring the significant out-of-sample predictive relevance of the model. The results collectively indicate that the proposed model has adequate explanatory and predictive power regarding the endogenous constructs. The Sustainable Performance R^2 and Q2_predict values are higher, suggesting that the Sustainable Performance model has a better explanatory and predictive power in the HR/management sample compared to the Green Passion model in the employee sample.

Table 5. Explanatory Power and Predictive Relevance

Sample	Endogenous Construct	R^2	Adjusted R^2	Q^2_predict	Interpretation
Employees	Green Passion	0.587	0.583	0.421	Moderate explanatory power; predictive relevance
HR/Management	Sustainable Performance	0.674	0.669	0.486	Substantial explanatory power; predictive relevance

The results for the direct-effects hypotheses are presented in Table 6. Green Intellectual Capital positively influences Sustainable Performance ($\beta = 0.251$, $t = 4.827$, $p < 0.001$) which supports H1. This means that the outcomes of sustainability in hospitals are bolstered by environmental knowledge, organizational systems, and IP from stakeholders. Furthermore, Green Transformational Leadership had a positive effect on Sustainable Performance ($\beta = 0.218$, $t = 4.449$, $p < 0.001$), which was in favor of H2. Likewise, CSR had a significant positive relationship with Sustainable Performance ($\beta = 0.193$, $t = 4.106$, $p < 0.001$) and therefore, H3 was accepted.

The results indicated that Green Intellectual Capital was the highest antecedent of Green Passion with the β value of 0.321, t of 5.836, and $p < 0.001$, which supported H4. The employees' Green Passion also significantly improved with Green Transformational Leadership ($\beta = 0.284$, $t = 5.358$, $p < 0.001$) which is in favor of H5. Moreover, CSR positively influenced Green Passion ($\beta = 0.236$, $t = 4.720$, $p < 0.001$), confirming H6. The results indicate that the knowledge resources, leadership support and socially responsible practices increase the employees' emotional commitment towards the protection of environment.

The highest direct contribution of the model was for Sustainable Performance ($\beta = 0.389$, $t = 6.707$, $p < 0.001$) which supported H7. This is a good example of the need to invest organization resources in employees''environmental excitement' and activities. The supplementary analysis also revealed that Sustainable Performance was significantly enhanced by Green HRM ($\beta = 0.347$, $t = 5.689$, $p < 0.001$).

The reported relationships were robust and statistically significant, as all of the confidence intervals were values different from zero.

The effect sizes of the structural relationships and the model's out-of-sample predictive performance are reported in Table 7. Green Intellectual Capital is of medium level of influence on Green Passion ($f^2 = 0.164$), which shows that the employees' environmental knowledge, abilities and organizational resources have a meaningful influence on the employees' enthusiasm for environmental protection. Green Transformational Leadership had a small to medium effect ($f^2 = 0.128$), indicating that leaders' environmental vision, and their motivational behaviour, also have an impact on Green Passion, albeit comparatively less than the impact of Green Intellectual Capital. The CSR had a slight effect on Green Passion ($f^2 = 0.087$), indicating that GRP is a slightly positive added effect of good CSR. Green HRM had a medium effect on Sustainable Performance in the HR/management sample ($f^2 = 0.181$). This finding suggests that HRM practices and strategies that have an environmental focus do have a positive impact on sustainable hospital results.

Table 6. Direct Hypothesis-Testing Results

Hypothesis	Relationship	Beta	SE	t-value	p-value	CI Lower	CI Upper	Decision
H1	GIC → Sustainable Performance	0.251	0.052	4.827	<0.001	0.149	0.353	Supported
H2	GTL → Sustainable Performance	0.218	0.049	4.449	<0.001	0.122	0.314	Supported
H3	CSR → Sustainable Performance	0.193	0.047	4.106	<0.001	0.101	0.285	Supported
H4	GIC → Green Passion	0.321	0.055	5.836	<0.001	0.213	0.429	Supported
H5	GTL → Green Passion	0.284	0.053	5.358	<0.001	0.180	0.388	Supported
H6	CSR → Green Passion	0.236	0.050	4.720	<0.001	0.138	0.334	Supported
H7	Green Passion → Sustainable Performance	0.389	0.058	6.707	<0.001	0.275	0.503	Supported
Supplemental	Green HRM → Sustainable Performance	0.347	0.061	5.689	<0.001	0.227	0.467	Significant

The PLS-predict results also show the model's out-of-sample relevance. The positive value of Q^2_predict (0.421) and RMSE (0.612) and MAE (0.471) values of Green Passion indicated that the model showed very good prediction accuracy. Sustainable Performance yielded a higher Q^2_predict value of 0.486, RMSE of 0.574 and MAE of 0.438. The model was predictive relevant for both endogenous constructs as Q2_predict values were above zero. Slightly better predictive performance in the HR/management sample is suggested by the relatively low errors of prediction for Sustainable Performance.

Table 8 shows that Green Passion in the relationships between the three organizational antecedents and Sustainable Performance is mediating between them. The indirect effect of Green Intellectual Capital on Sustainable Performance via Green Passion was positive and significant ($\beta = 0.125$, $t = 4.625$, $p < 0.001$) and ranged between 0.072 and 0.178 with a 95% confidence interval. The direct effect was also found significant ($\beta = 0.251$), there was no zero in the confidence interval, therefore H8a was supported by complementary partial mediation. The overall effect of this was 0.376. Green Passion also significantly mediated the relationship between Green Transformational Leadership and Sustainable Performance ($\beta = 0.110$, $t = 4.419$, $p < 0.001$). The confidence interval was from 0.061 to 0.159, which does not contain zero. The direct effect was also positive and significant ($\beta = 0.218$), and thus H8b was supported in a complementary manner by partial mediation, which resulted in a total effect of 0.328.

Table 7. Effect-Size and PLS-predict Assessment

Panel	Sample	Relationship/Outcome	f^2	Q^2_predict	RMSE	MAE	Interpretation
Effect size	Employees	Green Intellectual Capital → Green Passion	0.164				Medium
Effect size	Employees	Green Transformational Leadership → Green Passion	0.128				Small-to-medium
Effect size	Employees	CSR → Green Passion	0.087				Small
Effect size	HR/Management	Green HRM → Sustainable Performance	0.181				Medium
PLSpredict	Employees	Green Passion		0.421	0.612	0.471	Predictive relevance
PLSpredict	HR/Management	Sustainable Performance		0.486	0.574	0.438	Predictive relevance

Table 8. Specific Indirect, Direct, and Total Effects

Hypothesis	Indirect Relationship	Indirect Beta	SE	t-value	p-value	CI Lower	CI Upper	Direct Beta	Total Beta	Decision
H8a	GIC → Green Passion →	0.125	0.027	4.625	<0.001	0.072	0.178	0.251	0.376	Supported (partial mediation)

	Sustainable Performance									
H8b	GTL → Green Passion → Sustainable Performance	0.110	0.025	4.419	<0.001	0.061	0.159	0.218	0.328	Supported (partial mediation)
H8c	CSR → Green Passion → Sustainable Performance	0.092	0.023	3.991	<0.001	0.047	0.137	0.193	0.285	Supported (partial mediation)

Similarly, the indirect effect of CSR on Sustainable Performance through Green Passion was significant (β = 0.092, t = 3.991, p < 0.001; 95% CI = 0.047–0.137). The direct effect of CSR was also found to be significant, which was confirmed by complementary partial mediation with a value of 0.193 and supported the H8c hypothesis. Overall, Green Passion passes on some, but not all, of the impact of organizational resources and practices to Sustainable Performance. Figure 2 shows the graphical results of research as shown below:s

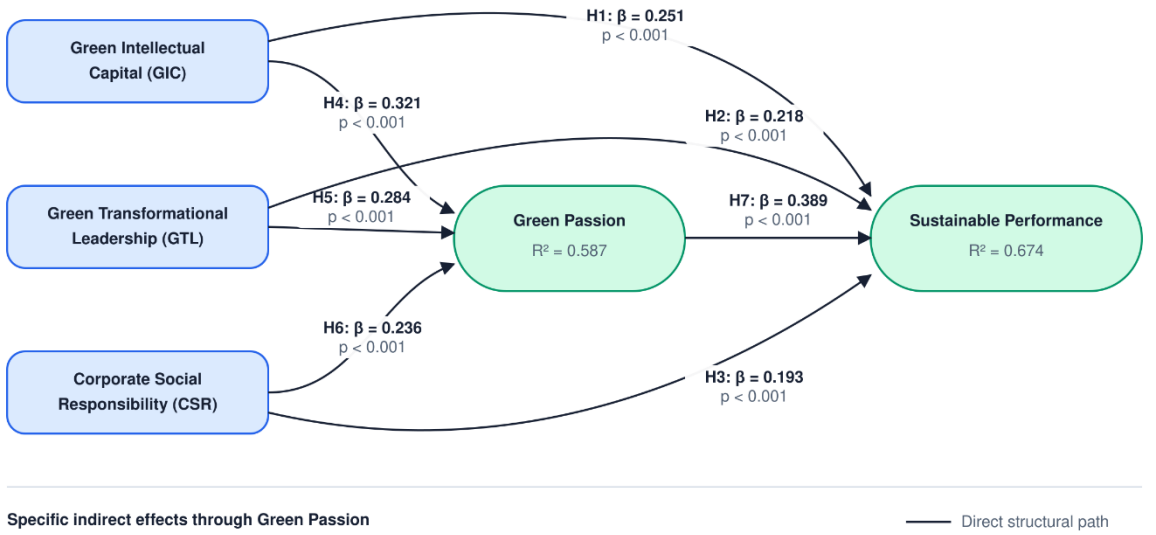


Figure 2. Graphical Presentation of Model

Discussion and Findings

The results indicate that there is a significant relationship between the variables to enhance Sustainable Performance and Green Passion in employees through Green Intellectual Capital,

Green Transformational Leadership and Corporate Social Responsibility. The model accounted for 58.7% of the variance in Green Passion and 67.4% of the variance in Sustainable Performance, with both having meaningful explanatory power. The model's predictive relevance, for both endogenous variables, was also confirmed by positive values of the Q2_predict variables. Cao et al. (2026) revealed that green transformational leadership connected positively to employees' pro environmental behavior, partly via employees' environmental commitment.

Green Intellectual Capital had a significant impact on Sustainable Performance and was the most robust antecedent of Green Passion. Organizations can detect environmental issues and implement good environmental practices through environmental knowledge, skill of employees, organizational systems and relations with stakeholders. This discovery agrees with the Resource Based View as knowledge in its environmental resources is valuable, embedded in the organization and hard to replicate. It is consistent with the study done by Chen (2008) who categorized and regarded Green Intellectual Capital as a competitive advantage and with some evidence that green human capital, green structure capital, and green relational capital are related to various aspects of sustainable development (Astuti et al., 2023; Yasmin et al., 2025). The significant relationship between Green Passion further shows that the knowledge of environment is very useful when it can enhance the employees' confidence and enthusiasm in the participation of green activity.

Green Transformational Leadership was found to have a significant contribution in enhancing Sustainable Performance and Green Passion. A clear environmental vision, accompanied by leaders committed to it, who foster innovation and reward green efforts can inspire employees to embed sustainability into their work routines. The results are grounded in the study of Chen and Chang (2013) who concluded that one of the key capabilities for supporting green development is Green Transformational Leadership. It further provides support for Robertson and Barling (2013), who found that transformational leadership, which is tailored to the environment, increases harmonious passion towards the environment and pro-environmental behavior of employees. The current results are thus indicative that leadership plays a role in creating sustainable results partly through its impact on employees' emotional reactions to environmental goals. (Mousa et al., 2025)

The overall results revealed significant positive effects of CSR and Green Passion on Sustainable Performance. Organizational legitimacy and employees' connection with sustainability values can be enhanced by responsible actions toward employees, patients, communities, stakeholders, and the natural environment. Employees also tend to feel good about their organization's stewardship, which leads to their backing of the organization's green efforts, when they see how the organization acts responsibly. The findings are in line with evidence that CSR has a positive impact on employee green behavior by means of organizational pride, employee engagement, Green HRM and Green organizational culture (Aukhoon et al., 2024). The results give CSR a strategic meaning and an internal motivator; not only an external reputation-building activity.

Green Passion was the highest performing direct impact variable on Sustainable Performance. Staff who are emotionally engaged in environmental protection have a higher probability of conserving resources, minimizing waste, disseminating environmental information, recommending

environmental enhancements and proactively taking part in sustainability initiatives. This is consistent with Robertson and Barling (2013) who discovered that environmental passion correlates with pro-environmental behavior at work. It also validates the fact that organizational sustainability is reliant on the commitment of employees to translate policies and resources into action.

Green Passion significantly mediated the relationships between Green Intellectual Capital, Green Transformational Leadership and CSR on Sustainable Performance. The direct effects also continued to have positive and significant effects; all three of these findings were thus partial mediation effects in a complementary manner. Green Intellectual Capital had the highest indirect impact followed by Green Transformational Leadership and CSR. Sustainable Performance is therefore enhanced both operationally and psychologically, as organizational resources are improved. They directly enhance organizational ability and cultivate employees' enthusiasm for the environment.

The supplemental finding highlighted that Green HRM had a significant effect on Sustainable Performance. The recruitment, training, employee involvement, performance assessment and reward processes focus on the environment to promote the embedding of sustainability into employees' job description. In line with recent research that Green HRM facilitates sustainable corporate performance via green organizational culture and employee's pro-environmental behavior (Green HRM practices and corporate sustainability performance, 2024). What is observed in addition is that the medium effect size indicates that formal HR systems can help achieve measurable environmental, social and economic results.

The key novelty of the study is the integration of Green Intellectual Capital, Green Transformational Leadership and CSR in one framework instead of one separately. This integration demonstrates the interconnection of knowledge resources, leadership capability and responsible strategic orientation with Sustainable Performance. The identification of Green Passion (GP) as an employee-level psychological mechanism is the second contribution. The second contribution is the identification of Green Passion (GP) as an employee level psychological mechanism. Organizational resources and green practices have been frequently studied as the direct drivers of performance in previous studies. The present study provides an understanding as to why these resources can yield sustainable outcomes by demonstrating that they can activate employees' environmental enthusiasm and commitment. Green Passion is thus important to throw light on the psychological process that links the organizational-level conditions to the performance-level outcomes.

The study also views Sustainable Performance as a composite higher order construct of environmental, social and economic outcomes. This will not limit organizational sustainability to environmental performance. Moreover, because of the multi-source design, it draws upon multiple sets of respondents (employees and HR/management) rather than relying exclusively on the one set. The healthcare and developing-country context takes green management research to a new level where sustainability is a delicate matter between the need to provide patient health services, ensure employee well-being, meet regulatory requirements, conserve resources and maintain financial stability.

Theoretical Implications

The results confirmed the application of the RBV as it also revealed that Green Intellectual Capital, Green Transformational Leadership and CSR are complementary organizational resources. The value is not just in being in their possession, but also in their ability to create employees' Green Passion. This study therefore introduces the psychological pathway to the traditional resource–to–performance pathway.

Organizational Learning Theory is also argued for since it is important for employees to gain, share and utilize environmental knowledge to reinforce their motivation and organizational results. Green Passion, by linking organizational learning to employee action, will describe how environmental knowledge and values are made relevant to the individual. The findings also expand the green passion literature, as passion is not necessarily the result of environmental leadership but is a mediator for various organizational antecedents.

Practical Implications

The managers of hospitals should invest in environmental training, the system of knowledge sharing, green procedures, and partnerships with stakeholders to reinforce Green Intellectual Capital. Environmental knowledge should be embedded in clinical, technical, administrative and managerial decision–making processes, and not placed in a discrete sustainability unit. Hospital management should set measurable environmental goals, model green activities and welcome employee ideas and rewards for participation in environmental initiatives. Focus of CSR should be on employee welfare, patient safety, community health, ethical behavior, waste management and environment protection. These initiatives need to be made visible and credible; to make the link between organizational responsibility and employee values.

HR departments need to integrate environmental measures into the recruitment, induction, training, assessment, involvement and reward systems. Managers should also provide employees with opportunities to take the lead in recycling, energy conservation, waste reduction and healthcare and green projects. Policies should not be about compliance only as Green Passion had the greatest impact on Sustainable Performance. They should also build emotional engagement with employees towards sustainability. Policymakers have a role to play in this process, by creating sustainability standards, environmental reporting, public and private green training programs and recognition systems for public and private healthcare organizations.

Conclusion

In this study, the influence of Green Intellectual Capital, Green Transformational Leadership and Corporate Social Responsibility on Sustainable Performance was examined, mediated by Green Passion. The results showed that all three organizational antecedents had significant impacts on

Sustainable Performance, and all of them enhanced employees' Green Passion. Green Passion also substantially contributed to Sustainable Performance and had a partial mediating role for all three relationships. Emotional identification with the organization's environmental goals and turning those goals into action within the workplace will yield greater sustainability outcomes as illustrated by these results. The impact of Green HRM also emphasizes the role of recruitment, training, appraisal, participation and reward practices that are aligned with the environment in organizational sustainability.

The study adds value to the RBV literature by demonstrating that operational and psychological pathways are both valued from the green organizational resources. It also expands Organizational Learning Theory, showing that the knowledge in the environment, if shared, internalized and translated into motivation among employees, can contribute to the performance of the organization. In the managerial context, the healthcare organizations need to integrate green knowledge systems, leadership support, the development of credible CSR programs and Green HRM practices to enhance their environmental, social and economic results. Therefore, it is more effective to consider sustainable performance as an organization-wide program, with formal systems to support it, and employee commitment to it, not an isolated environmental program.

Limitations and Future Recommendations

The cross-sectional approach precludes causal and temporal inferences, and the geographic application prevents the transfer of results to other regions and health care systems. However, there are social-desirability and common method concerns in using self-reported questionnaire information, and by having multiple groups of employees and HR/management respondents, there is a decrease in dependence on one source. Longitudinal or time-lagged designs should be used in future studies, and data should be clearly matched between the employees and managers or between the employees and hospitals; objective measures like energy consumption, medical-waste reduction, employee safety, patient satisfaction, and financial efficiency should be included. Scientists need to repeat the study in provinces, countries and health facilities and to compare hospitals with public and private hospitals. In addition to testing more mechanisms, like green creativity, organizational identification, and pro-environmental behavior, future studies could explore moderators like green organizational culture, environmental regulations, organizational support, hospital size, digital green innovation, or employees' environmental values.

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