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The Role of Green HRM Practices and Employee Empowerment in Boosting Environmental Sustainability in Higher Educational Institutions in Sindh, Pakistan

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Abstract

This research examines the influence of Green Human Resource Management methods in higher education institutions on employee empowerment and overall environmental performance. This study aims to provide significant insights into the relationship between GHRM practices and environmental sustainability within higher education, recognizing the essential role of educational institutions in cultivating future leaders and promoting sustainable practices. The study employs a cross-sectional strategy utilizing a Google Forms questionnaire. The participants were teaching faculty at higher education institutes in Sindh, Pakistan. Multiple regression is conducted utilizing Amos version 26.0 for structural equation modelling on 361 usable collected data. The findings indicate the positive impact of green HRM practices, specifically green recruitment and selection with β =.320, CR=5.42, p < .001 green training and development with β =.468, CR= 5.92, p < .001 individual green behaviour with β =.417, CR=6.51, p < .002 and green employee empowerment β =.512, CR=7.52, p < .002 on environmental performance, particularly in higher education. This study aims to inform institutional leaders, policymakers, and HR professionals about effective strategies for integrating green practices into HR management, thereby enhancing environmental performance and contributing to the knowledge base on sustainability in higher education. The primary objective of this research is to guide higher educational institutions towards adopting more socially and ecologically responsible human resource management techniques, fostering a sustainable culture that extends throughout society.

Keywords: Green Recruitment & Selection; Green Training & Development; Individual Green Behaviour; Green Employee Empowerment; Environmental Performance.

1. Introduction

Green HRM practices encourage transferable skills in waste management, resource reduction, cleanliness maintenance, Green Campus initiatives, campus water management, and health projects. They also promote innovative teaching to faculty, staff, and other stakeholders through HR processes, enhancing students' productivity, sustainability, and environmental friendliness (Manju & Ganesh, 2019). By 2035, higher education institutions will accommodate 80 million students and employ 3 million educators, presenting an opportunity for sustainable practices and facilitating the integration of economic and ecological considerations. Higher education institutions, including their leadership, staff, and students, can promote teaching sustainability through web-based recruitment, which provides recruiters with supplementary information regarding their environmental protection measures. Green skills refer to competencies that facilitate the environmental sustainability of economic activities, including pollution reduction, waste prevention, environmental remediation, sustainable procurement, and energy generation and management. GHRM principles may have stemmed from employees' increasing environmental awareness, contributing to the organization's sustainability.

As organizations change their strategies and priorities towards environmentally sustainable initiatives, human resources management (HRM) professionals must reassess their mission and expand their practices by integrating green management principles to improve the implementation of fundamental HRM functions. Aboramadan (2022) asserted that human resource management might evaluate and influence employees' sustainability-related behaviours, attitudes, awareness, and motivation. Thus, organizations can effectively leverage HRM to develop and promote ecologically friendly policies (Aftab, Abid, Cucari & Savastano, 2023). Numerous higher education institutions worldwide have endeavoured to incorporate environmental management and sustainable practices into their curricula in recent years. Higher education institutions are expected to play a crucial role in developing strategies and solutions to tackle existing environmental issues (Das & Dash, 2023).

Moreover, it is crucial to set a precedent in addressing and recognizing the evolving demands and challenges related to environmental management issues. Higher education institutions should implement the Go Green idea to foster an environmentally sustainable workplace (Gilal, Ashraf, Gilal, Gilal & Chaana, 2019). Staff in higher education institutions, including teaching, research, and administrative personnel, must use sustainable and environmentally friendly practices in their regular work activities. Employee acts that promote environmental management techniques in the workplace are referred to as green behaviors (Dumont, Shen, & Deng, 2017). Employee environmentally conscious behaviors are seen as crucial for the effective implementation of sustainable policies in the workplace. Research demonstrates that involving employees in sustainable practices is essential for effective environmental management, since it improves environmental performance and competitive advantage (Kim, Kim, Choi & Phetvaroon, 2019). Green human resources management (GHRM) practices are vital HRM tactics for enhancing employees' environmental consciousness and encouraging sustainable behaviors. GHRM strategies aimed at improving environmental management include several activities such as green recruitment, training, rewarding, and performance evaluation (Dumont, Shen & Deng, 2017; Tang, Chen, Jiang, Paille & Jia, 2018).

Research on Green Human Resource Management (GHRM) has become more prevalent in recent years, encompassing various sectors, including tourism and hospitality, information technology, and the automobile industry (Gilal, Ashraf, Gilal, Gilal & Chaana, 2019; Chaudhary, 2019). Nonetheless, there are few investigations of GHRM within higher education (Ojo & Raman, 2019; Al-Alawneh, Othman & Zaid, 2024). Among the few studies, Green Human Resource Management (GHRM) enhances the green behaviours of academics through the mediating effect of

environmental knowledge. Conversely, Gilal, Ashraf, Gilal, Gilal, and Chaana (2019) asserted that integrating employee green behaviours into the management framework of higher education institutions is essential for improving both organizational financial and environmental performance and fostering employee commitment. This study aims to propose a model illustrating the effects of green HRM practices, specifically green recruitment and selection (GRS), green training and development (GTD), individual green behaviour (IGB), and green employee empowerment (GEE) on environmental performance (EP), thereby advancing the literature on green HRM, particularly in higher education to offer practical recommendation for HEIs to enhance their sustainability performance.

Higher educational institutions (HEIs) are considered one of the important pillars of society in promoting sustainability, yet research on Green HRM (GHRM) in HEIs remains limited. Existing studies primarily focus on corporate sectors, overlooking the unique dynamics of HEIs, where employee empowerment significantly influences sustainability. In the context of Sindh, Pakistan, HEIs are gradually adopting sustainability-focused policies, yet empirical evidence on the effectiveness of these initiatives remains limited. This study examines the role of GHRM practices and employee empowerment in promoting environmental sustainability across 18 public and private universities in Sindh. These universities were selected based on their academic standing, diversity in governance, and commitment to sustainability policies. This study addresses this gap by examining how GHRM and employee empowerment contribute to environmental sustainability in HEIs, particularly within an underdeveloped country like Pakistan, providing insights into effective policy development for sustainable academic institutions. By examining GHRM and employee empowerment in HEIs, this study provides empirical evidence to support the development of environmentally responsible academic policies, contributing to both theory and practice in sustainability management. Higher education institutions can cultivate generations of new leaders and skilled professionals through teaching, learning, and research, thereby fostering social and economic development. Green HR emphasizes developing, implementing, and maintaining activities designed to engage staff members in support of sustainable objectives. Initiatives include HR operations such as staffing, performance management and appraisal, training and development, and employment relations, all aligned with the organization's sustainability objectives. This research may contribute to the broader literature on GHRM by examining the link between GRS, GTD, IGB, and GEE with EP (Saeed, Afsar, Hafeez, Khan, Tahir & Afridi, 2019). It enhances the limited research on HRM and GHRM within higher education institutions, particularly in developing nations such as Pakistan

RQ: *How do Green HRM practices and employee empowerment contribute to environmental sustainability in higher educational institutions?*

2. Literature Review and Conceptualization

Various scholars have established Green Human Resource Management (GHRM) practices as encompassing green recruitment and the hiring of individuals possessing environmental awareness and knowledge; green training aimed at enhancing employees' ecological skills, competencies, and knowledge; green performance appraisal utilizing established environmental standards for performance evaluation; and green rewards designed to incentivize the successful realization of the organization's environmental objectives.

2.1 Relationship between Green Recruitment and Selection (GRS) and Green Employee Empowerment (GEE)

GRS is regarded as a human resource management practice that enables an organization to present green HRM activities to potential job candidates. Recruiting and retaining skilled people is recognized as the most challenging issue faced by human resource managers in a global context (Das & Dash, 2023). Organizations are now positioning themselves as environmentally conscious to recruit knowledgeable workers with exceptional knowledge of green practices and sustainability challenges. Conversely, job seekers are also equipping themselves as environmentally conscious employees following international standards of green culture. Environmentally conscious personnel prefer companies whose primary operations focus on environmental protection and social responsibility (Masri & Jaroon, 2017). During the employment analysis process, employers should emphasize environmental factors in the job description specification and clearly articulate the expectations for the selected candidate. Mahesh, Aithal, and Sharma (2024) suggested that inquiries about environmental issues should include a significant component of the interview criteria for prospective applicants. Ashraful, Niu, and Rounok (2021) asserted that organizations can cultivate the requisite support to thrive in their efforts to safeguard the environment by creating environmentally focused new roles or integrating environmental responsibilities into each position's duties to emphasize the firms' environmental management dimensions. During the application shortlisting process, selection criteria must prioritize identifying the most environmentally dedicated candidates who demonstrate concern for the firm's sustainability initiatives (Aftab, Abid, Cucari & Savastano, 2023). Consequently, the subsequent hypotheses are proposed:

H1: GRS has a positive relationship with GEE.

2.2 Relationship between Green Training and Development (GTD) and Green Employee Empowerment (GEE)

GTD is an integral GHRM approach vital for the success of green management within enterprises. Environmental training is essential for the advancement of human resources (Amrutha & Geetha, 2021). It aims to elevate individuals' knowledge and comprehension of environmental challenges, cultivate a constructive mindset, and foster a proactive approach to sustainability initiatives, while also acquiring skills to reduce waste and preserve energy. Deshpande and Srivastava (2023) argued that environmental training substantially improves the efficacy of environmental management systems. Furthermore, environmental training is crucial for the successful implementation of the environmental management system and the development of a sustainable organizational culture. Shahzad, Jianguo, and Junaid (2023) illustrated the significance of firms adopting specialized and customized green staff training and assessing the program's effectiveness with a valid instrument. Yafi, Tehseen, and Haider (2021) advocated for the integration of targeted practices into training programs to improve environmental protection, encompassing training on recycling, energy efficiency and safety, green workplace assessment, waste management, environmental education and initiatives, and job rotation for aspiring green managers within the organization. Training programs must be customized to meet unique training requirements to optimize environmental advantages (Veerasamy, Joseph, & Parayitam, 2024). Therefore, the following possibilities are proposed:

H2: GTD have a positive relationship with GEE.

2.3 Relationship between Individual Green Behaviour (IGB) and Green Employee Empowerment (GEE)

IGB addresses environmentally sustainable practices, especially within the workplace, which are subjective behaviours that are influenced by emotions (Ahmad, Ullah & Khan, 2022). Previous

studies have examined the influence of staff wellbeing on individual green behaviour (Erreygers, Vandebosch, Vranjes, Baillien & De Witte, 2019). The beneficial and positive results of IGB in organizations have captured the interest of researchers around. IGB, in addition to enhancing organizational eco-performance, influences individual personalities. IGB facilitates the achievement of goals by addressing daily working requirements, securing rewards, and improving job satisfaction. Bauer and Aiman have demonstrated that IGB can enhance career prospects and that employees enjoy engaging in environmentally friendly practices (Islam, Khan, Ahmed & Mahmood, 2021). By synthesizing the existing research, we can ascertain that the antecedent variables of green behaviour are more substantial and focus on individual factors, namely self-efficacy, job satisfaction, and emotion, as well as contextual elements, such as green HRM practices, green atmosphere, corporate social responsibility, and leadership behaviour. In contrast, the resultant variable research primarily highlights three dimensions: organizational green performance, career development, and employee job satisfaction (Zhang, Yang, Cheng, & Chen, 2021). IGB can be broadly classified into task-related behaviour and voluntary behaviour. IGB denotes an individual's amicable conduct toward environmental performance (Al-Alawneh, Othman & Zaid, 2024). Individual Green Behaviour (IGB) fosters Green Employee Empowerment (GEE) by encouraging proactive engagement in sustainability practices, boosting employees' confidence and sense of ownership in environmental initiatives. When employees actively participate in green behaviours, they feel more valued and responsible, leading to increased empowerment. Organizations that support and recognize these behaviours further enhance employees' ability to contribute to sustainability efforts effectively. When organizations demonstrate commitment to environmental management practices by establishing clear green objectives, offering green training and development, implementing effective green performance evaluations, and creating green reward systems, employees are expected to reciprocate this environmental dedication by exhibiting green behaviours. Consequently, the subsequent hypotheses are proposed:

H3: IGB have a positive relationship with GEE.

2.4 Relationship between Green Employee Empowerment (GEE) with Environmental Performance (EP)

GEE is crucial for attaining corporate environmental objectives. Organizations may be using GEE as a strategic instrument to prompt individuals to reevaluate their job responsibilities, discover significance in their roles, and elevate their competency levels. Prior studies indicated that employees' sense of empowerment increases their propensity to engage in the organization's EM activities (Adi, Mulyadi, Setini, & Astawa, 2021). Fernandez and Ganesan's (2023) study indicated that empowered employees experience intrinsic motivation, resulting in favourable work-related outcomes, including job satisfaction. Ahrari, Roslan, Zaremohzzabieh, Mohd Rasdi, and Abu Samah (2021) identified several advantages linked to a motivated green workforce, including enhanced work quality, increased dedication, elevated self-efficacy, and greater job satisfaction. The AMO theory elucidates how GHRM policies affect employees' capacity and motivation to pursue environmental objectives and facilitate attaining these goals. Organizations can strengthen staff motivation regarding socioeconomic advantages by offering green training and implementing employee involvement programs (Khan & Muktar, 2024).

Green behaviour, inherently prosocial, carries a social and environmental obligation for employees (Adi, Mulyadi, Setini & Astawa, 2021). Islam, Khan, Ahmed, and Mahmood (2021) contended that environmentally sustainable behaviours in the workplace encompass mandatory (in-role) and discretionary (extra-role) actions, contributing to value creation. Employees vary in their level of discretion in the workplace, which influences their roles regarding the timing and manner of

their discretionary behaviours (Al-Alawneh, Othman & Zaid, 2024). EP is a voluntary action characterized as individual and discretionary social behaviours that are not explicitly acknowledged by the formal reward system and that enhance organizational environmental management (Aftab, Abid, Cucari & Savastano, 2023). Yafi, Tehseen, and Haider (2021) asserted that EP encompasses sustainability perceptions both internally and externally, potentially aiding organizations in attaining their ecological objectives (Shahzad, Jianguo, & Junaid, 2023). Boiral and Paillé (2012), classified Environmental Practices into three broader dimensions: (1) Eco-initiatives refer to environmentally conscious actions undertaken by employees, including recycling, water conservation, energy conservation, and other voluntary efforts to maintain a sustainable environment; (2) Eco-helping denotes the collaboration among employees in addressing environmental concerns; and (3) Eco-civic engagement signifies the active participation of employees in environmental improvement activities, such as workshops and seminars organized by corporations or other organizations. Hoffman (1993) posits that corporations might motivate employees to participate in environmental enhancement initiatives, such as EP, via GEE. Pinzone, Guerci, Lettieri, and Redman (2016) proposed that increased employee involvement in decision-making concerning environmental matters enhances their willingness to participate in voluntary environmental improvement activities. Employees experience GEE when the organization fosters an environmentally friendly atmosphere, which may motivate employees to exhibit Environmental Performance (EP). Consequently, the subsequent hypotheses are posited:

H4: GEE practices have a positive relationship with EP.

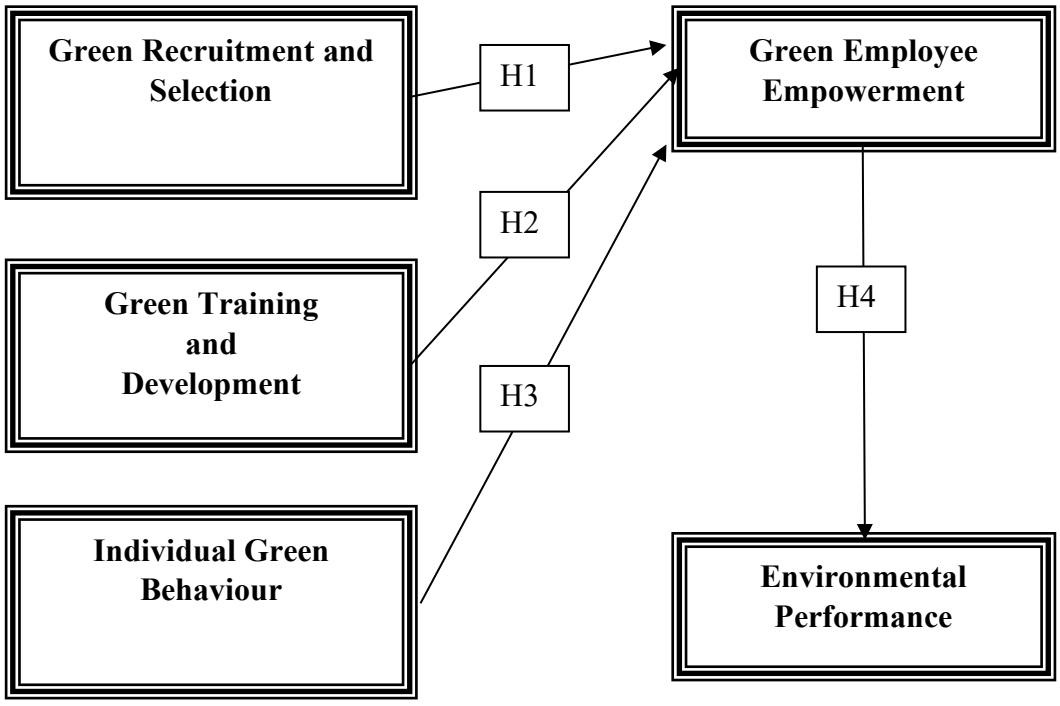

Figure 1. Conceptual Model

3. Research Methodology

This research study uses a descriptive survey to fulfill the research design. The teaching faculty of public universities was designated as the research population to fulfil the study's objective. Data were collected from multiple faculties of 18 public sector universities in Sindh, including the University of Sindh, Mehran University of Engineering & Technology, NED University of Engineering & Technology, and Karachi University, among others, using random sampling to ensure equitable participation opportunities. This study seeks to examine GHRM practices in regard to GEE and the relationship between GEE and EP throughout several public sector universities in Sindh. This research utilized primary data gathered by a survey instrument created from essential items associated with pertinent characteristics identified from prior data. The survey instrument employed a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). The green recruitment and selection (GRS), green training and development (GTD) scales were adapted from Tang, Chen, Jiang, Paille & Jia, (2018), individual green behaviour (IGB) was measured from the adapted scales of Bissing-Olson, Iyer, Fielding & Zacher (2013), green employee empowerment (GEE) was measured through the study of Kularathne (2020) and environmental performance (EP) is measured by scales developed by Rawashdeh (2018). The survey instrument's overall reliability was assessed at 0.882. Thus, this research study proceeded after fulfilling all necessary assumptions and criteria for the reliability and construct validity of the questionnaire. This research determined the sample size as individuals identified as teaching faculty at public sector higher education institutions in Sindh. Faculty members were selected based on their direct involvement in sustainability initiatives, their ability to influence student awareness, and their active role in policy-making and curriculum development. A random sampling approach was employed to collect sample data precisely. Initially, 600 survey questions were distributed to respondents via Google Forms, emails, and personal visits. A total of 370 respondents engaged, resulting in an estimated response rate of 63% using Krejcie and Morgan’s (1970) formula, ensuring statistical adequacy for generalizability. Following data cleaning and screening, 361 valid surveys were identified as suitable for analysis from the total submissions received.

4. Data Analysis and Results

The data were examined using descriptive statistical methods, including mean, standard deviation, percentage, Pearson correlation coefficient, and regression, conducted using structural equation modeling (SEM) using AMOS in SPSS version 26.0. Cronbach's Alpha was employed to assess the internal consistency of the instrument. It has demonstrated significant stability, with values ranging from 0.816 to 0.924, exceeding 0.50 (Hajjar, 2018). The reliability of all instruments is above 70%, and the overall reliability exceeds 94%, exceeding the threshold of 0.60 (Hair Jr, Hult, Ringle, Sarstedt, Danks, Ray & Ray, 2021). Consequently, it can be inferred that the instrument employed in this investigation was both consistent and reliable.

4.1 Respondents’ Demography

The demographic data reveal that male participants constitute 66.48% (n=240), surpassing female responses at 33.52% (n=121). Most respondents, aged 25-30, constituted 49.86% (n=180), while only 6.93% (n=25) were aged 41-50. Of the respondents, 83.93% (n=303) were married, whereas 4.16% (n=15) were identified as divorced/widows. Most respondents in education held a Master's Degree, comprising 54.85% (n=198), while a smaller proportion possessed M.Phil/Ph.D. degrees, accounting for 18.84% (n=68). (Table 1).

Table 1. Demographic

	Category	Frequency	Percentage
Gender	Male	240	66.48
	Female	121	33.52
	Total	361	100.0
Age	25-30 Years	180	49.86
	31-40 Years	62	7.17
	41-50 Years	25	6.93
	50 and More Years	94	26.04
	Total	361	100.0
Marital Status	Single	43	11.91
	Married	303	83.93
	Divorced/Widow	15	4.16
	Total	361	100.0
Education	Bachelor's Degree	95	26.31
	Master's Degree	198	54.85
	M.Phil./Ph.D. Degree	68	18.84
	Total	361	100.0

Table 2. Descriptive Statistics

	N	Mean	Std. Dev	Skewness		Kurtosis	
	Statistic	**Statistic**	**Statistic**	**Statistic**	**Std. Error**	**Statistic**	**Std. Error**
GRS	361	4.84	2.33	-.301	.127	.141	.246
GTD	361	5.24	1.67	-425	.127	.221	.246
IGB	361	4.66	2.45	-.355	.127	.358	.246
GEE	361	5.18	1.41	-.548	.127	.789	.246
EP	361	3.96	2.29	-.664	.127	.219	.246
Valid N(list-wise)	361						

Note(s): GRS, Green Recruitment and Selection; GTD, Green Training and Development; IGB, Intention to Green Behaviour; GEE, Green Employee Empowerment; EP Environmental Performance.

Table 3. Cronbach's Alpha and Pearson's Correlations

	α above 0.7	GRS	GTD	IGB	GEE	EP
GRS	0.825	1				
GTD	0.901	.094	1			
IGB	0.832	.133*	.277**	1		
GEE	0.924	.005	-.141*	-.041	1	
EP	0.816	.185**	.237**	.191**	.010	1

Note(s): GRS, Green Recruitment and Selection; GTD, Green Training and Development; IGB, Intention to Green Behaviour; GEE, Green Employee Empowerment; EP Environmental Performance; α =Cronbach's alpha reliability

Table 4. Structural Path Analysis

H. No	Independent Variables	Path	Dependent Variables	Estimate *β(path co-efficient)*	SE.	CR *(t-value)*	*β*	Result	Decision
H1	GRS	⟶	GEE	0.320	0.059	5.423	0.001	Significant	Supported
H2	GTD	⟶	GEE	0.468	0.079	5.924	0.001	Significant	Supported
H3	IGB	⟶	GEE	0.417	0.064	6.516	0.002	Significant	Supported
H4	GEE	⟶	EP	0.512	0.068	7.529	0.002	Significant	Supported

Note(s): CR, Critical ratio. *** $P < 0.001$; GRS, Green Recruitment and Selection; GTD, Green Training and Development; IGB, Intention to Green Behaviour; GEE, Green Employee Empowerment; EP Environmental Performance.

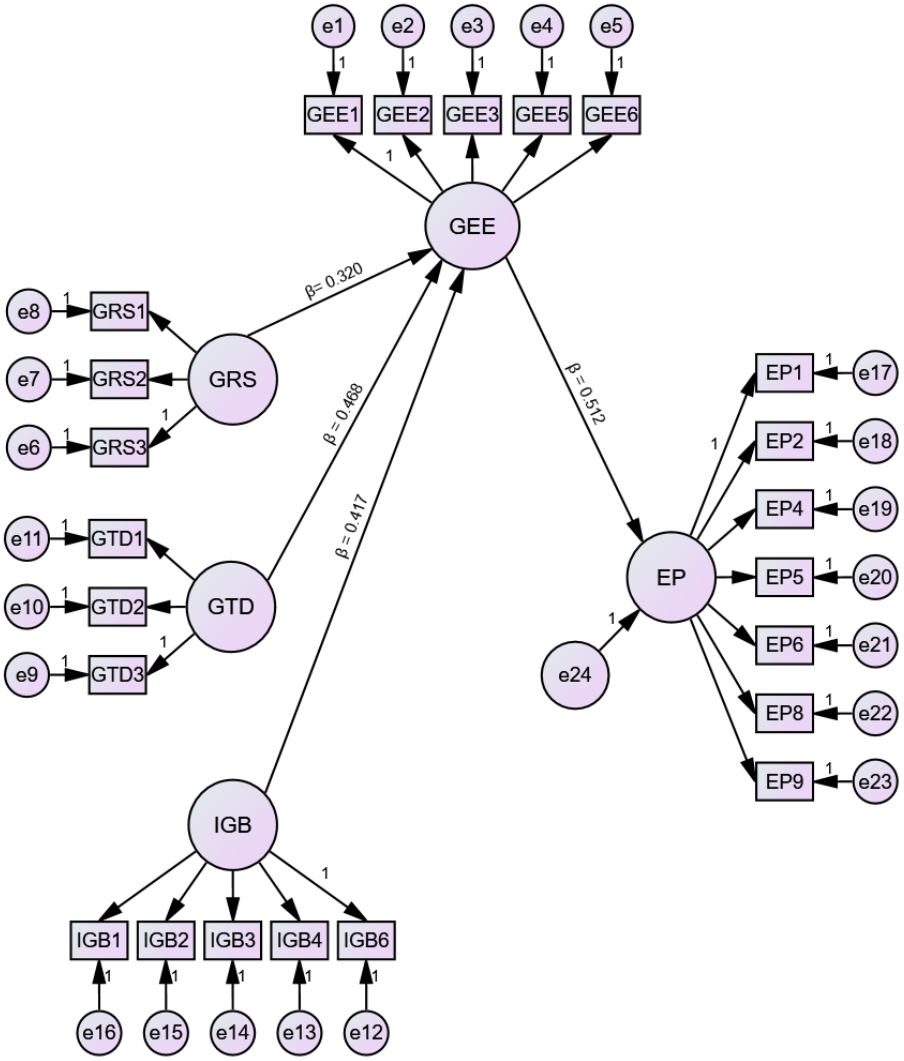

Figure. 2 Structural Equation Model

Source: Authors' own calculation.

Note(s): GRS, Green Recruitment and Selection; GTD, Green Training and Development; IGB, Intention to Green Behaviour; GEE, Green Employee Empowerment; EP Environmental Performance.

4.2 Results

This section presents the findings of the empirical analysis. Table 2 presents the means, standard deviations, and normality as shown by the skewness and kurtosis of the study variables. The skewness value should be 0, signifying a normal distribution with an asymmetric form; however, the kurtosis value is smaller than ±1 and can be disregarded. Consequently, it has been determined that the skewness and kurtosis values should remain within ±2.58; however, the values in the current research did not surpass these thresholds. The descriptive data revealed the respondents' overall consensus about Green HRM practices. The GRS results revealed a Mean of 4.84 and a Standard Deviation of 2.33; GTD exhibited a Mean of 5.24 and a Standard Deviation of 1.67; IGB presented a Mean of 4.66 and a Standard Deviation of 2.45; GEE showed a Mean of 5.18 and a Standard Deviation of 1.41; and EP shown the conformance with a Mean of 3.96 and a Standard Deviation of 2.29. The average score and standard deviation indicated the alignment of respondents' perceptions about these items. According to Pearson's correlation coefficient, Table 3 demonstrates a positive link among EP, GEE, GRS, GTD, and IGB.

Additionally, Table 4 and Figure 2 present the analysis results via SEM to examine the relationship between the independent and dependent variables. The structural path scores for H1 demonstrate a positive and significant correlation between GRS and GEE, $\beta = 0.320$, CR = 5.42, $p < 0.001$. Consequently, H1 is accepted as the significance level, indicating the existence of a link. The SEM results demonstrated a favorable correlation between GTD and GEE $\beta = 0.468$, CR= 5.92, $p < 0.001$. Consequently, H2 is accepted at the significance level, indicating the existence of a link. H3 indicates a positive impact of IGB on GEE $\beta = 0.417$, CR=6.51, $p < 0.002$, validating H3 at a significance level, implying the existence of a link. Consequently, the beta and CR scores between GEE and EP, $\beta = 0.512$, CR=7.52, $p < 0.002$ between GEE and EP validated a positive and substantial connection. Consequently, H4 is acceptable, as the significant threshold, indicating the existence of the link, as shown in Table 4 and Figure 2. The four assumptions proposed in this study are substantiated, since the statistical analysis revealed a favorable correlation between Green HRM practices, both collectively and individually, and GEE. Further elucidating the correlation between GEE and EP. The aforementioned results align with those of other researchers (Ashraful, Niu & Rounok, 2021; Aboramadan, 2022; Abbas, Sarwar, Rehman, Zámečník & Shoaib, 2022; Aftab, Abid, Cucari & Savastano, 2023; Al-Alawneh, Othman & Zaid, 2024; Mahesh, Aithal & Sharma, 2024).

5. Discussion and Conclusion

This study aimed to examine the influence of green HRM practices on GEE and the effect of GEE on EP within higher educational institutions, specifically universities in Sindh, Pakistan. The influence of GRS, GTD, and IGB on GEE was discerned through comprehensive literature reviews and empirical data from university teaching staff. The data indicated that the execution of the Green HRM practices group was moderate, and there was a statistically significant positive correlation between the individual Green HRM practices GRS, GTD, IGB, and GEE, as well as between GEE and EP. These findings are corroborated by prior research conducted in developing nations (Ashraful, Niu & Rounok, 2021; Yeşiltaş, Gürlek & Kenar, 2022). This indicates that university management is

showing a favourable interest in human resources via GTD initiatives. In contrast, the majority of universities in Sindh have implemented cost-reduction tactics in response to the economic crisis impacting the country. Consequently, management seeks to allocate additional funds to their GTD projects to enhance the adoption of Green HRM, which may yield a higher level of GEE, ultimately affecting EP in the long term. Shahzad, Jianguo, and Junaid (2023) affirmed that GTD is a crucial function for enhancing human resources to a standard level and obtaining superior performance. GRS has been documented as the most utilized practice within any organization. This indicates that university management prioritized GEE and EP within their institutions, implementing an effective GRS procedure to identify the most qualified applicants for environmental protection. Das and Dash (2023) emphasized that successful GRS criteria are valuable for attracting well-trained, educated, skilled, and talented individuals who favour employment in environmental organizations. The findings indicated that IGB was not widely utilized to encourage employees' environmentally friendly behaviour. Prior research, such as Islam, Khan, Ahmed, and Mahmood (2021), asserts that the capability for IGB is influenced by the synergistic impact of the firm's performance management and empowerment systems on employee motivation. Though focusing on the RQ, this study aimed to examine the relationship between sustainable HRM strategies and employee engagement in green initiatives, exploring their impact on institutional sustainability. The findings provide valuable insights into how organizations can foster a culture of environmental responsibility through strategic HRM interventions. Consequently, higher education authorities should establish effective criteria that accommodate all individuals to attract and retain environmentally conscious talent, as many prioritize employment with such businesses. Generally, senior management has the authority and visibility required to inspire individuals to participate in environmentally sustainable practices, enhancing their awareness and dedication to their GEE.

In conclusion, this study highlights the significant role of Green HRM practices and employee empowerment in enhancing environmental sustainability within higher educational institutions. The findings confirm that implementing sustainable HRM strategies fosters green behaviors among employees, ultimately contributing to institutional sustainability. By integrating these practices, universities can promote a culture of environmental responsibility, leading to long-term sustainability outcomes. Future research may explore additional factors influencing sustainability in educational institutions.

6. Contribution/ Limitation/ Future Work

This research study discusses how HR functions might enhance the GEE and EP at higher educational institutions in Sindh, Pakistan. It bolsters the literature on Green HRM and environmental protection, which is scarce in developing nations such as Pakistan. Furthermore, it elucidates the interrelationship among Green HRM practices and their connection to GEE and EP across Pakistani higher educational institutions. The study examined the correlation of GRS, GTD, and IGB with GEE and the beneficial influence of GEE on EP within the higher education system, excluding teaching faculty as responders. Cross-sectional data based on a random sampling technique were adopted, which may have limited the generalizability of the findings in this study. Nonetheless, more research is required to obtain higher sample numbers. Furthermore, it is more advantageous to conduct research across various participating business and non-commercial sectors.

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