LEVERAGING GREEN HRM FOR ENVIRONMENTAL SUSTAINABILITY: THE MEDIATING ROLE OF EMPLOYEE ENGAGEMENT IN HOSPITALITY

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Abstract

Purpose – This study investigates the effects of green human resource management (GHRM) practices on employee engagement (EE) and pro-environmental behavior (PEB), including the mediating role of EE and the moderating role of green self-efficacy (GSE) in the EE–PEB relationship.
Methodology/Design/Approach – Primary data were collected from 426 hotel employees. The dataset was complete with no missing values. SPSS 25 and AMOS 24 were used for statistical analysis.
Findings – The study asserts that GHRM practices encourage EE and PEB. Furthermore, it suggests that GSE strengthens the link between employees' goals and green human resource methods. On the other side, the analysis shows that GHRM has no significant impact on employees' PEB. Additionally, the findings indicated a significant mediation effect of EE and a significant moderation effect of GSE.
Originality of the research – These findings contribute to the literature by offering a context-specific explanation for why GHRM may not directly lead to PEB in developing economies, and by emphasizing the roles of engagement and self-efficacy in facilitating behavioral change. This study provides practical insights for hospitality managers aiming to foster environmental sustainability through GHRM practices that not only exist in policy but also resonate with employees' psychological readiness and motivation.
Keywords Green HRM practices, Employees' Pro-environmental attitude, Green self-efficacy, Employee engagement, Bangladesh

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INTRODUCTION

The rapid expansion of the hotel industry worldwide has not only improved social and economic conditions in many countries (Nisar et al., 2023) but has also increased the focus on sustainability. In fact, in recent years, governments, academics, and business executives have increasingly placed greater emphasis on sustainability, particularly since the United Nations (UN) established the Sustainable Development Goals (SDGs) (Elshaer et al., 2021). The UN has recognized the hotel industry as a critical factor in accomplishing the 17 Sustainable Development Goals (SDGs) and the 169 related targets, with the industry contributing more than 10% of GDP (Abdou et al., 2020). The UN World Tourism Organization (UNWTO, 2019) reports that 1.5 billion tourists visited the world in 2019, representing a steady yearly increase of 3.8% over the previous 60 years. This rise has significantly affected leisure expenditure, which grew globally by 7% from US$ 495 billion to US$ 1.5 trillion. Revenue and occupancy of the rooms also increased significantly (Nisar et al., 2023). Neglecting environmental issues might pose problems for a company's capacity to grow sustainably and economically (Elshaer et al., 2021). Businesses in the hospitality and tourism sectors are realizing in today's fast-paced world how crucial it is for them to have environmentally aware workers (PEBs) to achieve environmental sustainability goals (Chung, 2020). These industries' service providers have recognized the need to preserve the environment by implementing green technologies, saving water and energy, cutting waste, encouraging a culture of responsible learning inside the company, and obtaining a competitive edge—all of which helps to promote environmentally sustainable economic development (Karatepe et al., 2020).

Researchers are increasingly recognizing the need for workers' environmental awareness as a result of the current study (Norton et al., 2015). Research has looked at how the pro-environmental actions of individuals relate to the environmental sustainability of businesses (Roscoe et al., 2019). The researchers and HRM practitioners have emphasized the need for green HRM approaches to encourage environmentally friendly activities and behaviors at work (Renwick et al., 2012; Roscoe et al., 2019, ; Longoni et al., 2018). Green performance management, green training and development, green rewards and incentives, and green EE are just a few of the green HR strategies that have received special attention in the past few years (Pham et al., 2019). Academics have increasingly recognized the importance of employees' engagement in environmentally friendly activities due to extensive research (Norton et al., 2015; Paillé et al., 2013). This research highlights how companies have achieved sustainability and how their staff members are environmentally conscious (Roscoe et al., 2019). However, many topics remain poorly understood and understudied in the emerging country context. A fascinating topic is how GHRM could improve workers' pro-environmental performance (Dumont et al., 2017). Sectors, particularly the service and hospitality industries, must find ways to link green HR policies to employees' environmentally friendly actions in order to improve national environmental performance. Research

has shown that implementing green HR strategies significantly enhances the environmentally conscious behavior of employees (Dumont et al., 2017). For example, Kim et al. (2019) demonstrated that the implementation of green HR procedures improved the environmentally conscious behavior of hotel sector employees.

However, research in this field has been somewhat limited, despite the critical role that PEB among employees plays in addressing global environmental concerns and reaching sustainable development goals (Ahmad et al., 2021). Moreover, there is a noticeable scarcity of empirical studies exploring GHRM and PEBs in the context of developing countries like Bangladesh. The unique socio-economic, regulatory, and institutional environment of Bangladesh creates a distinct setting where global sustainability practices often face implementation challenges. This study responds to the call for more localized research by focusing on the Bangladeshi hotel industry, where sustainability awareness is growing but employee-level pro-environmental engagement remains under-investigated. Additionally, SCT introduces the concept, while much about employee GSE remains unknown, studies have shown that green HRM significantly predicts environmentally friendly behavior (Saeed et al., 2019). Moreover, a study in the manufacturing sector demonstrated that green HRM enhances employee behavior and skills, leading to an increase in work satisfaction. Despite this, there has been less focus on the procedural components of green HRM practices. Furthermore, this study uniquely contributes to the literature by focusing on the context of on an emerging economy-Bangladesh where limited empirical research has explored the mechanisms through which GHRM practices influence PEBs in the hotel sector. It integrates AMO and SCT theories in a novel way to examine how GSE moderates the relationship between EE and PEB, an area that remains underexplored in current sustainability and HRM research.

This research makes a distinctive theoretical contribution by employing a need and sufficiency logic to identify the most effective green HRM practices necessary for fostering pro-environmental behavior. It aims to offer practical insights for managers by outlining how tailored GHRM interventions can drive meaningful employee engagement in environmental sustainability. This research proposes a merged theoretical framework drawing on ability, motivation, and opportunity (AMO) theory and social cognitive theory (SCT). The AMO theory is particularly suitable for this study because it explains how GHRM practices can enhance employees' pro-environmental behavior by developing their ability (through green training), boosting their motivation (via green incentives and performance appraisal), and offering them opportunities (such as green participation or suggestion schemes) to act environmentally. Meanwhile, SCT is highly relevant for addressing the research gap because it incorporates psychological mechanisms—especially GSE that help explain why some employees engage in pro-environmental behavior more consistently than others, even when GHRM practices are in place. By integrating these theories, a deeper understanding demonstrated of how GHRM practices influence EE in PEBs. AMO theory provides the foundation for understanding the importance of ability, motivation, and opportunity. SCT adds the concept of self-efficacy as a moderator, highlighting how employees' belief in their capabilities can significantly impact their engagement in PEBs. Despite SCT's emphasis on personal agency, few studies have examined the moderating role of GSE in the relationship between EE and PEBs. By integrating GSE into the AMO-SCT framework, this research addresses a theoretical gap by exploring how employees' confidence in their green capabilities may strengthen or weaken the impact of engagement on actual environmental behaviors—especially in a collectivist, resource-constrained setting like Bangladesh. This nuanced approach provides a more context-sensitive understanding of how to design effective green HRM strategies. Through an investigation of how GSE affects the relationship between EE and PEB, this study seeks to close the current research gap. Accordingly, this study aims to examine how GHRM practices influence employees' PEB in the Bangladeshi hotel industry by investigating the mediating role of EE and the moderating role of GSE.

This study initially investigates the relationship between GHRM practices and environmentally conscious workplace behavior in an emerging county like Bangladesh in order to fill the gaps in the current research and the concerns raised. Furthermore, this study investigates the reciprocal impact of EE on environmentally friendly behavior. In addition, the study looks at the moderating function of GSE in encouraging employee involvement and PEB. This study adds to the body of knowledge on the function of green HRM practices in improving both EE and pro-environmental activities by emphasizing the significance of self-efficacy as a critical moderating element.

The paper is structured as follows: Section 2 explains the theoretical background, discussing the importance of GHRM practices in predicting environmentally responsible behavior. It also examines EE as a mediator between GHRM practices and PEB, and the moderating role of GSE in the relationship between EE and PEB within the proposed theoretical framework, which is based on the AMO and SCT theories. Sections 3 and 4 describe the sample and methods, including an explanation of the structural equation modeling (SEM) technique. Finally, Section 5 presents the main conclusions, implications, and considerations for future research.

1. LITERATURE REVIEW

1.1. Underpinning Theory

Underlying this research is Bandura's social cognitive theory, which he presented in 1986 (Bandura, 1986). According to this theory, a person's behaviors, surroundings, and personality all affect their behavior. Positive behaviour in conduct can result from temperament, knowledge, and abilities. Green HR solutions improve employees' capabilities, attitudes, and abilities while also encouraging progressive behaviors that lead to environmentally friendly actions. One contribution of these methods is to produce better environmental results (Bandura, 1994). Bandura (2001) further proposed that people engage with their social and physical surroundings to learn new things and develop abilities that then affect their attitudes and actions.

This implies that candidates who have received training in environmentally friendly policies, have a good education, and act in an ecologically responsible manner will probably do better. Studies by Temminck et al. (2019), Singh et al. (2020), and Sawitri et al. (2015) suggest that GHRM practices can achieve significant environmental performance even when staff members face minimal difficulties (Medina-Garrido et al., 2023). Appelbaum et al. (2000) developed the AMO (ability-motivation-opportunities) hypothesis, which asserts that successful employee performance requires three essential components: personal aptitude, motivation, and engagement opportunities. Highly productive employees need the ability to complete tasks, managerial assistance in carrying out duties, and opportunities to grow professionally and take part in various projects and decision-making processes. Human behavior, as per the AMO hypothesis, suggests that HR policies significantly impact employees' attitudes and overall performance (Rayner & Morgan, 2017).

1.2. Green HRM

In the twenty-first century, traditional organizational goals are increasingly incorporating environmental issues (Renwick et al., 2012). Companies now need to adopt a proactive stance towards ecological issues and the root causes of environmental degradation. As a result, organizational operations and environmental management are now inextricably linked. Effective environmental management intertwines with human resource management, as a company's policies and procedures fundamentally stem from its human resource practices (Jabbour et al., 2010).

As a result, GHRM practices blend human resources and environmental management (Moraes et al., 2019). Empirical evidence from the Portuguese hotel industry also supports the relevance of HRM practices in promoting sustainable organizational strategies, indicating that HR plays a pivotal role in aligning employee behaviour with broader ecological goals (Costa et al., 2021). The pioneers in defining green HRM—Jackson and Seo (2010) defined it as "HRM activities that contribute to positive environmental outcomes." Including HRM processes like recruiting, training, empowerment, incentive administration, and selection helps to develop an ecologically aware staff committed to accomplishing the company's green goals (Mathapati, 2013). By implementing ecologically friendly policies and practices, human resources departments can influence the ecological behaviors, beliefs, and attitudes of their staff (Saeed et al., 2019).

Green HR policies can significantly influence the employment behaviour of employees. They are essential in encouraging PEB because they improve staff members' capacities, inventiveness, and skills (Provasnek et al., 2016 Sugita & Takahashi, 2013). Green knowledge sharing significantly influences employees' environmentally friendly behaviors, especially when supported by green autonomy and green rewards (Ansong et al., 2024). Furthermore, the implementation of green initiatives and the acceptance of green HR policies and procedures within companies are closely related (Zaman et al., 2025).
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1.2.1. Green Training and Development

Initiatives for green training and development aim to enhance staff members' skills and equip them with the motivation and tools necessary to tackle future environmental challenges (Iftikar et al., 2022). Such training increases workers' knowledge and skills, as well as awareness of ecological activities at work (Rubel et al., 2025). Green training, according to research, improves workers' comprehension of how to identify and resolve environmental problems. These programs enhance managers' and employees' capacity to evaluate complex environmental issues, help them understand the environmental effects of workplace policies, practices, and activities, and promote a feeling of accountability for meeting environmental objectives (Pinzone et al., 2019).

Green training should supplement existing educational programs to help all staff members better understand environmentally friendly working practices. It gives employees confidence that they can contribute to the company's environmental goals. Because they emphasize environmental sustainability, these training and development programs encourage staff members to choose green projects within their companies with more knowledge (Iftikar et al., 2022). Green training gives staff members the knowledge and abilities to gather waste data and recognize different pollution sources, thereby raising their awareness of the importance of environmental preservation. By improving their capacity to comprehend and deal with a broad spectrum of environmental concerns, training staff members encourages the use of environmentally friendly activities (Baumgartner & Winter, 2013).

1.2.2. Green Performance Management and Appraisal

Evaluating employee performance in relation to environmentally friendly projects is an aspect of green performance management and evaluation (Saeed et al., 2019). Human resource managers assess this performance to determine the success of meeting environmental goals. Furthermore, HR managers might include different pro-environmental criteria (Marcus & Fremeth, 2009). Employers and HR managers may make staff members accountable for their environmental contributions by employing environmental performance indicators. Clear criteria motivate employees to enhance their environmentally friendly activities and sustain their performance (Zibarras & Coan, 2015). Among the many standards specified by green performance management are environmental responsibilities, carbon emission reduction, incident management, and communication of environmental policies and concerns. These green performance indicators are `developed by green performance management (Saeed et al., 2019).

Recognizing employees who achieve the company's environmental objectives encourages them to take on more initiatives (Hussain et al., 2023). HR directors should discuss with staff about how to cut waste even more and raise environmental performance during performance evaluations (Roscoe et al., 2019).

1.3. Hypothesis Development

1.3.1 GHRM Practices and Pro-Environmental Behavior

The roles and obligations of workers must include environmental awareness, and human resource practices can help achieve this. This is especially important in the industrial sector, where problems such as resource loss during production and air and water pollution from carbon emissions are commonplace. Regular and continuous training on environmental management programs, working conditions, and opportunities for environmental education encourage employees to engage in pro-environmental activities (Tseng et al., 2013). GHRM practices modify staff members' views, attitudes, and actions toward the environment through the implementation of green projects (Saeed et al., 2019). Green HR practices encourage staff members to actively engage in environmental projects by raising their understanding of the environment. These procedures impact both environmental activism and the ethical conduct of employees (Tang et al., 2018). Several facets of the employee lifecycle, such as empowerment and recruiting, can successfully foster and improve environmental factors (Pham et al., 2019). Resources should be allocated by organizations to green HR practices, as studies indicate that they encourage workers to behave ecologically (Luu, 2018). Environmental consciousness and the conduct of employees are greatly influenced by HR policies and practices. It is expected of workers to adhere to these rules, which inevitably encourage environmentally beneficial practices. For example, green training makes workers more capable to take pro-environmental measures at work (Srivastava & Shree, 2018). In creating initiatives meant to promote and improve employees' environmental consciousness, Green HRM plays an essential role, claim Bohlmann et al. (2018). The HRM programs of their employer are seen by employees to influence their attitudes and actions at work. Employee adoption and support of a company's green activities are therefore higher when environmental sustainability is included in its HR policy (Nishii et al., 2008). Green HRM is the ongoing endeavour to enhance environmental performance by forming the attitudes and beliefs of staff members, which then affect their pro-environmental actions.

Based on the evidence presented above, therefore propose the following hypothesis:

H1: GHRM practice has a positive impact on PEB.

1.3.2. GHRM Practices and Employee Engagement

According to human resources literature, HRM policies influence employee attitudes and actions, which in turn affect the firm's performance. GHRM practices promote commitment, conduct, and ecologically friendly attitudes in staff members (Saeed et al., 2021). GHRM practices strengthen the feeling of accountability, connection, and commitment to environmentally friendly actions by enhancing employees' awareness of the company's environmental policies and objectives (Roscoe et al., 2019). Companies increasingly understand the need to give their employees environmental training. Green training and development practices consist of two main elements: (1) providing managers and staff with environmental training to enhance their skills and knowledge, as recommended by Cook and Seith (1992); and (2) offering training to promote the adoption of environmentally friendly practices, such as reducing long-distance business travel and initiating recycling programs (Renwick et al., 2012).

Research has shown that educating workers on environmental consciousness at work is helpful (Jackson & Seo, 2010) and emphasizes the need to teach staff members how to do green audits of their workspaces (North, 1997). Renwick et al. (2012) also discuss the use of job rotation to produce managers who will be environmentally conscious in the future (Opatha, 2013). Macey and Schneider (2008) conducted a thorough study of how workers react psychologically and socially to HRM procedures and duties linked to sustainability. Green incentives and compensations is the practice of giving staff members incentives to promote their participation in enhancing environmental performance (Hussain et al., 2023). Research indicates that offering both cash and non-cash incentives for environmentally responsible behavior works better than only cash incentives (Jabbour et al., 2010; Renwick et al., 2012).

Therefore, propose the following hypothesis;

H2: Green HRM Practice has a significant positive influence on the EE

1.3.3 Employee Engagement and Pro-Environmental Behavior

Work engagement as a happy and satisfying mental state marked by great commitment, intense participation, and high energy. Research has studied many aspects of job satisfaction (Alarcon & Lyons, 2011). A firm's ability to carry out sustainability programs and meet environmental goals significantly depends on the behavior of its workers, both within and outside of their positions. This does not, however, rule out the potential for several antecedents that help these related behaviors emerge. Importantly, a variety of contextual and individual-related processes and elements might affect behavior in work settings

(Paauwe, 2022). Guest (1997) proposed that attitudinal factors, such as cognitive, emotional, and activation aspects of self, influence general HRM methods and employee behavioral results. In the same way, research on green HRM has led to the creation and study of new frameworks that demonstrate the social and psychological factors that link green HRM practices to employees' actions that are good for the environment (Dumont et al., 2017; Renwick et al., 2012). Recognized as a key factor influencing job satisfaction, EE has emerged as a very significant and hot issue of research (Farrukh et al., 2020). Given that only 16% of workers worldwide are completely engaged, and disengaged individuals are expensive to replace in terms of lost productivity, EE is essential to the success of any firm (Nazir & Islam, 2020).EE is defined by Al Amri et al. (2019) as the degree of dedication, zeal, allegiance, and vitality that workers bring to their everyday jobs. Organizational behavior and psychology theories serve as the foundation for understanding EE. Employee involvement, according to Kahn (1990), is the complete integration of a worker's mental, emotional, and physical components. The cognitive component reflects to employees' impressions and comprehension of the company's leadership and working circumstances. The emotional component pertains to how employees feel about the company, particularly about their sense of loyalty. The physical component is the energy used by staff members to accomplish work-related objectives and duties. Therefore, the following hypothesis is proposed:

H3: EE has a significant positive influence on PEB.

1.3.4 The Mediating Role of EE between GHRM Practices and PEB

As mentioned before, people both within and outside of their designated positions are crucial to the organization's capacity to meet its environmental objectives and carry out its sustainability programs. Still, it is conceivable that several unrelated factors may help to develop these interrelated behavioral patterns. It is crucial to underline again how different processes and individual elements may affect behavior at work (Paauwe, 2022). For instance, Guest hypothesized in 1997 that attitudinal factors, such as cognitive, affective, and activating components of self, influence the link between general HRM procedures and employee behavioral outcomes. The literature on green HRM has promoted the creation and analysis of new frameworks that illustrate the psychological and social processes relating employees' environmentally conscious behavior to sustainable HRM practices. Works by Reinwick, Redman, and Maguire (2013) and Dumont et al. (2017) provide examples of this idea. According to the research by Macey and Schneider (2008) and Ababneh and Macky (2015), employee involvement in environmental actions is a complex concept with behavioral, cognitive, and emotional aspects. This is a comprehensive investigation, taking into account their social and psychological traits, of how workers view and react to environmentally friendly HRM practices and job sustainability obligations. Ever since Kahn's (1990) ground breaking description of the engagement concept, research on EE (e.g., Saks 2006; Shuck & Wollard, 2010) has concentrated on combining the emotive, cognitive, and behavioral components. Building on Schaufeli et al.'s (2002) original three-factor definition (vigor, devotion, and absorption), Ababneh and Macky (2015) and Ababneh et al. (2019) have extended the operational definition of EE to include task performance and goal orientation. As components of engagement are good emotions, absorption, persistence and devotion, job performance, and goal concentration, the AMO theory indicates a substantial association between GHRM and EE (Ababneh et al., 2019). The AMO framework holds that opportunity, motivation, and ability all affect performance. Participating in green projects creates opportunity, performance management techniques and incentives increase motivation, and hiring and selection processes impact ability. Therefore, we anticipate that the effective implementation of environmentally friendly HRM strategies will boost employees' commitment to the company's environmental initiatives, leading to adherence to corporate policies and job requirements (Chen, 2021; Darvishmotevali & Altinay, 2022).

Therefore, propose the following;

H4: EE mediates the relationship between Green HRM practice and the PEB

1.3.5 Green Self- Efficacy as a Moderator

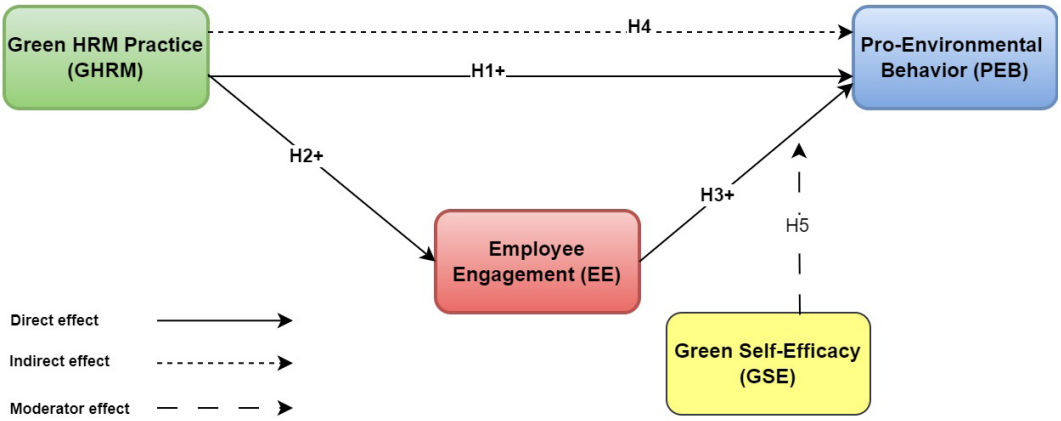
According to Chen et al. (2014), GSE is the conviction that one can adopt a certain behavior and use that action to accomplish a certain goal or purpose. Green HR practices implement environmentally friendly procedures and foster a corporate vision for environmental projects. This common goal may empower staff members to feel more competent in taking on problems and creating environmentally friendly plans. Enforcing environmentally friendly HR procedures is also a successful approach to inspiring staff members to go above and beyond performance goals. According to Shamir et al. (1993), establishing high performance criteria and reassuring staff members of the company's capacity to reach its objectives can help to build trust in the company. GSE fosters attitudes and behaviors that support overcoming challenges and improving sustainability, thus encouraging employees to act in ways that help the environment. This self-belief increases employees' confidence in their ability to handle environmental issues, which is crucial for the successful execution of HR policies. Behavioral results benefit self-efficacy (Chen et al., 2014).

GSE, the conviction that one can act in an ecologically good way, may motivate employee pro-environmental conduct. An organization's confidence in achieving its environmental goals may ultimately influence employee adoption of environmentally friendly activities. Management theories also assert that a person's level of self-efficacy significantly influences their ability to form specific habits (Vinney, 2019). This led to our hypothesis that

H-5: GSE moderates the relationship between Green HRM practice and PEB.

We conceptualize an extensive study model, as illustrated in Figure 1, based on the aforementioned theoretical basis and hypothetical linkages.

Figure 1: **Proposed Theoretical Framework**



2. RESEARCH METHODOLOGY

2.1. Data and Questionnaire

This cross-sectional study sought to gather a sample of Bangladeshi hotel sector employees. In particular, the focus of data collection efforts is on the Bangladeshi areas of Kuakata and Barishal. These cities are due to their proximity and reputation as hubs for hospitality (Taskin & Rashid, 2018; Hossain et al., 2021). These cities are in central locations, which greatly support economic growth, claim Taskin and Rashid (2018). Regarding the sampling strategy, a non-random, convenience sampling method, and two approaches were used to collect data from hotel employees: (1) posting links to a Google Forms survey at various hotels, and (2) distributing physical questionnaires to hotel employees during their working hours. This combination of online and offline data collection methods was designed to capture responses from a broad range of hotel employees. After excluding incomplete responses, a total of 426 valid replies were obtained, which were then analysed for this study. This sample size was considered sufficient for the statistical analyses and modeling conducted in this study.

2.2. Tools and Analysis

SEM is our preferred analytical approach because it helps with validity testing and clarifies theoretical links between variables. Moreover, an important step was taken to improve the scientific quality of our study by using the strong statistical methods of the Amos-24 program, which enabled simultaneous and instantaneous estimates of both the structural and measurement models. First by evaluating the measurement model (Figure 2) by looking at the correlations between variables and the items they corresponded to, as advised by Anderson and Gerbing (1988). Investigating the interrelationships between the variables via an organizational analysis. The study also assessed the convergent and divergent validity of the measured constructs within the model.

2.3. Measurement Instruments

The study evaluated the aspects addressed by the 20 items in the questionnaire using a 7-point Likert scale, which runs from 1 (strongly disagree) to 7 (strongly agree). The study's measurement tools were adapted from previously validated measures or derived from prior research. These tools were selected based on their proven validity and relevance to the constructs being investigated, ensuring they are appropriate for the study's objectives in the hotel industry context. GHRM measures are adapted from the research of Mousa and Othman (2020), Yusoff et al. (2018), and Saeed et al. (2019), which comprehensively capture green HR practices. EE is adapted from the research of Ababneh et al. (2019), as employee engagement is essential in understanding behavioral outcomes. GSE is based on the works of Chen et al. (2014), reflecting individuals' belief in their capacity to act sustainably. PEB is based on the work of Roberson and Carleton (2017), which directly measures employees' environmentally responsible behaviors.

3. ANALYSIS AND RESULTS

Descriptive statistics:
The distribution of respondents' genders revealed that men made up the bulk of the sample (n = 374, or 87.8%), while women made up the remaining 12.2% (n = 52). Table 1 shows that 173 (40.6%) of the study's respondents were in the age range 16–25,

while the remaining 98 (23%) and 155 (36.4%) respondents were in the age group 26–35. The study's minimal number of respondents was in the age group 36–45. The distribution of respondents' educational backgrounds revealed that the majority had an HSC (n = 162), accounting for 38% of the sample; respondents with an SSC (n = 109) represented 25.6% of the population; and respondents with a graduation (n = 155) represented 36.4% of the sample.

Table 1: **Demographic profile of respondents**

Demographic	Classification of Variables	Frequency	Percent
Gender	Male	374	87.8%
	Female	52	12.2%
Age	16-25	173	40.6%
	26-35	155	36.4%
	36-45	98	23%
Level of Education	SSC	110	25.8%
	HSC	162	38%
	Graduate	154	36.2%

Source: survey data

With 426 individuals, our study's sample satisfies the prerequisites for statistical analysis. Using Cronbach's alpha coefficient (Table 2), evaluating the survey findings' dependability in all dimensions, including hygienic aspects and other variables like GHRM practices, EE, GSE, and pro-environmental conduct. The total Cronbach's alpha value is 0.973, which is very good. To assess the suitability of the data for SEM, the normality of all variables was examined using skewness and kurtosis values. While minor deviations were observed, the data remained within an acceptable range for SEM analysis. The AVE scores ranged from 0.532 to 0.837, all of which surpass the acceptable threshold of 0.50 (Table 3). Additionally, both divergent and discriminant validity were confirmed, as the correlation values between constructs were lower than the square root of the AVE, in line with the recommendations of Hair et al. (2010) and Fornell and Larcker (1981). Given that SEM, particularly using AMOS, is robust to slight non-normality when using maximum likelihood estimation with a sufficiently large sample size, the analysis proceeded without data transformation.

Table 2: **Reliability Test Result**

	Cronbach's Alpha (N=426)	Items
GHRM practices	.742	4
EE	.958	4
GSE	.959	4
PEB	.973	5

Source: survey data

Table 3: **Model Validity Measures**

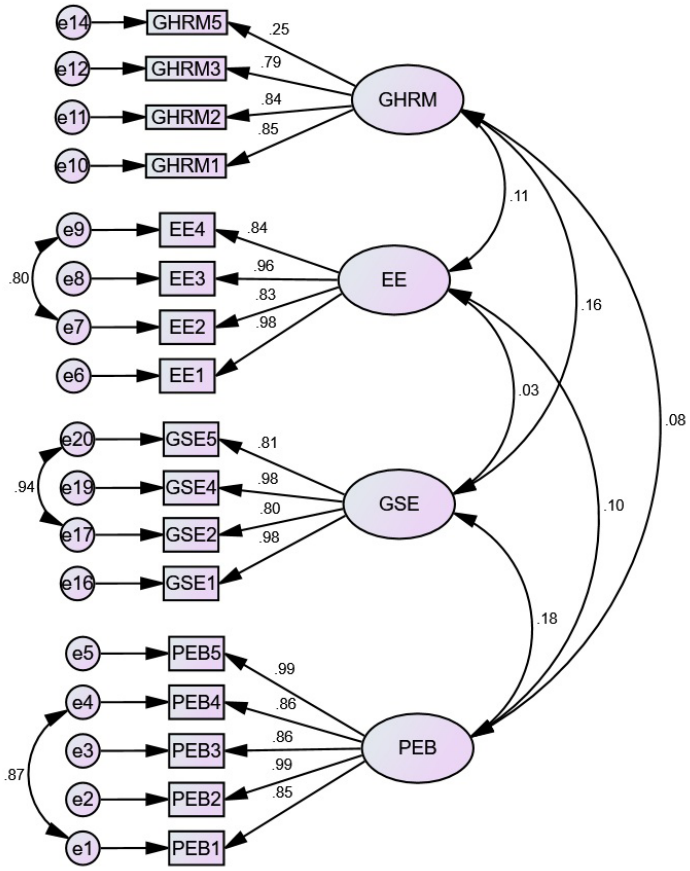
	CR	AVE	MSV	MaxR(H)	PEB	EE	GHRM	GSE
PEB	0.962	0.837	0.033	0.995	0.915			
EE	0.947	0.817	0.012	0.973	0.103*	0.904		
GHRM	0.801	0.532	0.027	0.873	0.077	0.111*	0.729	
GSE	0.944	0.809	0.033	0.985	0.182***	0.031	0.164**	0.900

Source: survey data

Notes: *** p < 0.001; ** p< 0.01; ** p< 0.05

Table 3 shows the Model Validity Measures ratio of the constructs. It can be seen that all the values are significant and discriminant validity is established.

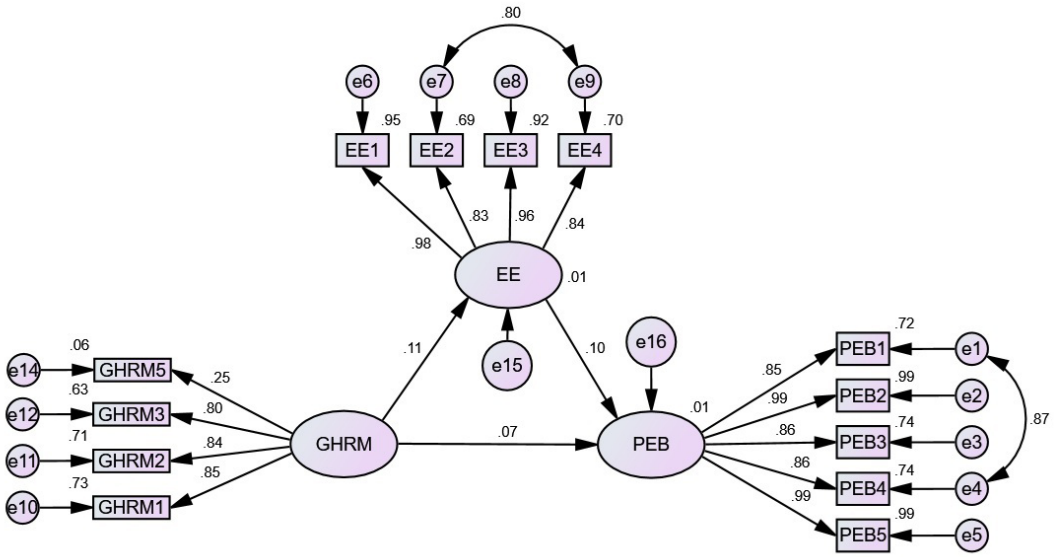
Figure 2: **Measurement Model**



Source: Authors' own work

To evaluate if the study's hypothesis is accepted or rejected, the structural model of the investigation was analyzed using SPSS and Amos. It represents the potential directions suggested by the study framework. Based on the fitness of the measurement model, we performed structural equation modelling (SEM) (Figure 3) to examine the hypothesized routes. Table 4 shows that the SEM model has an adequate model fit to the data X2/d= 3.809, GFI=.931, AGFI=0.869, CFI=0.976, TLI=0.969, IFI=.976, NFI= 0.968, RMSEA= 0.081.

Figure 3: **Structural Model**



Source: Authors' own work

Table 4: **Hypothesis Results**

Factors	Estimate	S.E & T value	P value	Decision
GHRM→EE	.160	.076 (2.111)	.03	Accepted
EE→PEB	.082	.042(1.935)	.05	Accepted
GHRM→PEB	.081	.064(1.265)	.21	Rejected

Model fit indices: X2/d= 3.809, GFI=.931, AGFI=0.869, CFI=0.976, TLI=0.969, IFI=.976, NFI= 0.968, RMSEA= 0.081
Notes: *** p < 0.001; ** p< 0.01; ** p< 0.05; n.s. = not significant; t-values are in parentheses
Source: Authors' own work

Mediation analysis

A mediation is conducted to analysis to assess the mediating role of EE in the relationship between GHRM and PEB. As indicated in Table 5, the overall effect of GHRM on PEB was statistically significant (β = 0.300, t = 6.130, p = 0.000). Specifically, the influence of GHRM on PEB remained significant (β = 0.147, t = 2.286, p = 0.022) when the mediating variable EE was included in the model. Importantly, GHRM had a significant indirect effect on PEB through EE (β = 0.153, t = 2.673, p = 0.008). These findings suggest that EE acts as a partial mediator in the relationship between GHRM and PEB (author's last name, year).

Table 5: **Mediation Analysis**

Indirect Path	Unstandardized Estimate	Lower	Upper	P-Value	Standardized Estimate
GHRM → EE → PEB	0.012	0.001	0.039	0.051	0.0009

Source: Authors' own work

Moderation Analysis

The total impact of EE and GSE on PRB is statistically significant at 95% level as a whole (β = 0.21, p <0.05), thus supports H5 that GSE moderates the linkage between GHRM and PEB (Table. 6). This suggests that those with high levels of GSE have an even stronger positive relationship between EE and PEB. The relationship between EE and PEB is weaker by employees with lower GSE levels, on the other hand.

Table 6: **Moderation Analysis**

Indirect Path	Estimate	SE	C.R.	P-Value
EE*GSE→PEB	-.363	0.051	-7.052	***

Note: "***" typically denotes a p-value less than 0.001, indicating high statistical significance.
Source: Authors' own work

4. DISCUSSION

The purpose of this study was to assess how green HRM practices affect employees' PEB in a specific setting. The findings provide empirical support for the proposed framework. . The study found that GHRM does not have a significant direct effect on PEB, leading to the rejection of the hypothesis (H1). This result contrasts with studies like Mousa and Othman (2020), who found a direct link, but aligns with Saeed et al. (2019), who emphasized the mediating role of factors like employee engagement (EE). In the context of Bangladesh's hotel sector, this implies that GHRM alone may not be sufficient—employees need to feel engaged and motivated to translate green practices into actual behavior. In contrast, the study confirmed hypothesis H2, demonstrating a significant positive impact of green HRM practices on EE (Hussain et al., 2023). This finding aligns with other studies across various industrial contexts, suggesting that green HRM enhances employees' PEB. The results of hypothesis H3 which were supported that EE positively impacts PEB. However, this finding contrasts with Chen et al. (2014), who reported a non-significant relationship between EE and PEB in their study. The divergence may stem from contextual differences, such as cultural factors or the nature of green HRM practices in the Bangladeshi hotel sector, which may enhance the salience of employee engagement in fostering PEB.

Additionally, the study supported hypothesis H4 and showing that EE acts as a mediator between PEB and green HRM practices in the emerging county context. Chen et al. (2014) similarly theorized that EE plays a mediating role in this relationship which is significant findings. Finally, the study validated hypothesis H5 and indicating that GSE moderates the relationship between PEB and green HRM practices. The negative moderation effect suggests that as GSE increases, the strength of the positive relationship between EE and PEB decreases. In practical terms, this implies that employees with higher confidence in their ability to perform PEBs may not require as much engagement to exhibit these behaviors, whereas employees with lower GSE may need higher engagement to encourage PEB. Overall, this study contributes to the existing literature by expanding our understanding of how green HRM practices influence PEB, as well as the roles of EE and GSE in this relationship.

CONCLUSION

This paper emphasizes the importance of green HRM in companies, particularly in light of the environmental challenges facing the world. The hotel industry urged the use of green HRM techniques to maintain Bangladesh as a top tourist destination worldwide. The study examines the underlying processes by which implementing green practices helps to create environmentally conscious companies, as well as how these policies affect workers' PEB. The study results provide credence to the notion that putting green HRM techniques into practice improves the PEB of staff members. The study also demonstrates that workers act as mediators in this connection, with GSE being particularly important. The findings highlight the complex interplay between EE and PEB, moderated by GSE. Organizations aiming to enhance PEB should consider both engagement strategies and initiatives to boost employees' GSE. By understanding this moderation effect, organizations can tailor their approaches to foster a more environmentally responsible workforce effectively. This model is further supported by the AMO hypothesis, which postulates that putting green HRM techniques into place may result in the development of ecologically friendly companies and motivate staff members to act in an environmentally friendly manner. The project intends to close the knowledge gap on green HRM and its impact on environmental performance by bridging the gap between study and practice in the industry.

Implications

Managers of organizations can practically benefit from the present study in a number of ways. Organizations in the hospitality industry should focus on integrating environmentally friendly HRM procedures into their long-term strategies, specifically designed to enhance both EE and PEB. To improve environmental performance and encourage ecologically conscious behavior among individuals, GHRM practices must be optimized and closely aligned with the company's sustainability objectives. GHRM practices need to be integrated into policy to foster a green organizational culture. For instance, companies should consider implementing specific green training programs to improve employees' environmental competency, thus increasing their engagement and likelihood of engaging in PEB. Dumont et al. (2017) research suggests that industrial and service companies should utilize GHRM to effectively implement green policies and improve ecological performance. For hospitality businesses, it is crucial to develop green recruitment strategies that highlight environmental commitment to attract like-minded employees. Companies must implement GHRM to effectively communicate their environmental commitment to their employees. Additionally, they should provide employees with clear green goals and offer regular performance feedback related to sustainability to enhance both EE and PEB. Environmental issues need to be included by organizations in their recruiting advertising. Offering thorough chances for green training and development is a crucial component of encouraging staff members' interest in environmental sustainability. Developing a structured reward system that recognizes employees' contributions to environmental goals can also motivate them to engage in more sustainable practices. Finding specific training needs that complement the company's environmental goals is critical before training and growing staff. Moreover, organizing collaborative green initiatives where employees contribute ideas can boost their confidence in making eco-friendly decisions, thereby improving both their engagement and pro-environmental behaviors. This will improve the PEBs of employees. If one wants to know if environmental objectives are being achieved, one must thoroughly evaluate the staff. Enhancing employee motivation also requires offering both financial and non-financial rewards to those who accomplish their environmental goals. Employees can generate innovative environmental ideas that can foster the concept of greening and promote eco-friendly practices within their companies. Managers should encourage the generation of such ideas by creating an environment where innovation is rewarded, further linking green initiatives to employee motivation and engagement. The participation of employees helps pro-environmental actions be adopted. Furthermore, the capacity of employees to accomplish green goals is increased by their GSE. Focusing on developing employees' GSE through GHRM initiatives can help employees feel more confident in achieving environmental goals and engaging in PEB. Employee competence and assurance set the norms and eventually shape their environmentally friendly behavior.

Limitation and future research

In the present study, using a simple random selection; may use systematic sampling in the future to provide more precise results. This study focused only on specific regions of Bangladesh (Kuakata and Barishal), which may limit the generalizability of the findings to other regions or countries. Accessibility issues forced data collection to take place at resorts in Kuakata and Barishal. Future studies may include other Bangladeshi cities to enhance the applicability of the results. Additionally, as the study relied on self-reported data, there may be a risk of response bias. Using multiple data sources or triangulation in future studies could help mitigate this issue. The study's cross-sectional design limits the ability to make causal inferences. Future research could employ longitudinal or experimental designs to examine changes over time and establish causality. Future studies may prioritize the development of new techniques to reduce the impact of social desirability bias on study findings. For example, to encourage participants to answer more honestly and openly, use confidential surveys or indirect questioning strategies. The connections between green innovation, green creativity, and views of a green work environment may be helpful to investigate to comprehend the processes underlying GHRM practices and PEB. Future research may want to consider adding as mediators other factors, including green commitment, green lifestyle, work happiness, and green inventiveness. Further moderators to elucidate the connection between GHRM practices and workers' PEB may include creative green ideas and green cooperation. One could also employ a qualitative study to elucidate the concept and provide a more comprehensive explanation of GHRM practices.

Declaration of generative AI and AI-assisted technologies in the writing process

In preparing this paper, the author(s) used ChatGPT for improving the readability and language of the manuscript. Following the use of this tool/service, the author(s) have reviewed and edited the content as necessary and take full responsibility for the content of the published article.

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APPENDIX

QUESTIONNAIRE

Variables	Items	Reference
(GHRM) Green Hiring	GHRM: 1 The hotel prefers hiring staff members with environmental expertise. GHRM: 2 Applicants for the Job in the hotel are preferred based on knowledge about the Environment. GHRM:3 Employees are recruited based on environmental standards. GHRM:4 Employees are happy with the green training by the hotel management.	(Mousa and Othman, 2020) (Yusoff et al., 2018)
Employee Engagement	EE:1 I am happy with my work EE:2 I am positive about my work EE:3 I provide more time to think about my work EE:4 I can work for a long time	(Ababneh et al., 2019)
Green self-efficacy	GSE:1 We think we can success in achieving environmental ideas GSE:2 We can accomplish more environmental goals GSE:3 We can deal with environmental mission. GSE:4 We can able to perform effectively with environmental issues.	(Chen et al., 2014)
Pro-Environmental Behavior	PEB:1 Recycling the cans & bottles is convenient to me PEB:2 I like to clean the bottles for recycling. PEB:3 Save materials or energy is convenient for me PEB:4 I always remember to turn off the electronic devices in the room PEB:5 Pro-environmental behaviors are convenient for me	(Roberson and Carleton, 2017)