



Research article

Green HRM and ecofriendly behavior of employees: Relevance of proecological climate and environmental knowledge

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ABSTRACT

Human Resource Management (HRM) helps develop an ecofriendly culture by molding employee behavior. However, numerous elements also play critical roles. The intent of this article was to inspect the influence of green HRM on workers' in-role and extra role ecofriendly behavior using the mediating effect of proecological climate and green empowerment. The regulating effect of environmental knowledge on workers' extra role behavior was also planned to investigate. To inspect the data, this study employed a two-stage approach of structural equation modeling (SEM). Purposive sampling was applied to collect data for the study, which included an empirically verified questionnaire. The discoveries from the study revealed that environmental knowledge doesn't strengthen the affiliation between GHRM and employees' extra role ecofriendly behavior. Besides, proecological climate and green engagement have an important role to shape employees' ecofriendly activities. The results of the study can assist the industry-wide decision-making process. It will also open new ground to study other sectors.

1. Introduction

Convergence on the environmental issues connected to global warming, ecological pollution, an increase of CO₂, technological affluence so on and so forth pushed back the business organization to reform the environmental performance in a greener way to condense the adverse impact on the environment. Environmental injustice, climate change, ethical quandaries concerning the environment, social responsibility, the marginalization of environmental issues, the emergence of powerful interest groups, radicalism, & anti-capitalist protests have all stumped up the environmental awareness toward society [1]. Green Human Resource Management (GHRM) is a concept of this effort to promote HR practices that contribute to the business, society, and the environment to a greater extent. GHRM is defined by different authors in various literature. It symbolizes the HRM policies & practices by incorporating environment-friendly HR inauguration for sustainable use of resources with efficiencies. It also focuses on waste reduction, promotion of job-related attitude, balanced work/life, the introduction of vehicle sharing program, e-filing, telecommuting, simulated conferences, online training, recycling, energy-efficient office space, and so on to promote green behavior or ecofriendly behavior not only for employees but also for the society [2]. Functions of HRM, for instance, recruitment & selection, performance management, training & development, and compensation management are next to the vision, mission, and strategy of the firm for achieving competitive advantage [3]. GHRM efforts have been noted in a variety of academic works such as "green recruitment & selection, green training, green performance management, green pay & reward, green involvement, green leadership, green induction" [4–6].

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HRM affects employee work attitudes & behavior which stimulus organizational performance [7,8]. Several works of literature supported that GHRM influences employee behavior & attitude by enhancing individual green initiatives during recruitment & selection along with training and sharing information about the firm's care for the environment [6, 9, 10]. It promotes employees' green activities through improving knowledge, skills, and competence due to having work & job designs that encounter environmental requirements & practices on green training. The literature also suggests that the success of HRM activities in regulating employee behavior is strengthened by the perception of employees' adoption of the HRM functions. Henceforward, employee psychological green climate is connected to GHRM positively [11].

Employee empowerment encourages productivity & efficiency in the workplace [12]. Organizational performance is connected to the HRM system of an organization to a greater extent whereas employee engagement can play a strong mediating role in strengthening the relationship [8]. Employee empowerment is documented in several pieces of literature as having an impact on GHRM. [11–13]. Employees are empowered by support, constructive criticism, and supervisory involvement in the green duties to help them achieve the green goals. SEM used to assess their data and discovered a strong indirect effect of GHRM on OCB via employee empowerment in an ecofriendly manner. According to the study, personal green ethics, and eco-friendly employee empowerment are crucial components that support the interconnection between GHRM & OCB [12].

Green behavior or ecofriendly behavior of employees that is approachable towards the environment is called ecofriendly behavior [14]. Sufficient literature support is available on the significant effect of GHRM on employees' ecofriendly behavior [7]. Furthermore, GHRM influences employee productivity & morale toward company goals such as eco-efficiency programs [15]. Understanding & evaluating the impact of actions on the ecosystem is considered environmental knowledge (EK). Voluminous research has shown a substantial link between GHRM and employees' EK [14]. The impact of moral leadership and GHRM on ecofriendly behavior which can be amplified through EK in the organization [1]. Another study highlighted the positive relationship of GHRM on employee ecofriendly behavior where EK plays a mediating role [14]. Chen et al. argue that perceived green ecological climates can be a crucial psychological & sociocultural factor in the effects of GHRM on employees' environmentally friendly activities. According to the authors, organizations can foster employee ecofriendly behavior through the incorporation of green elements with clarification of green responsibilities throughout the areas of HRM such as job design, performance appraisals, rewarding while adopting GHRM activities [16].

As an emerging economy, Bangladesh is becoming a manufacturing hub for labor-sensitive products. At present approximately 500 organizations are continuing their operations in nine EPZs in Bangladesh [17]. Apart from these, 97 economic zone sites including 29 private economic zones contribute to the national GDP of the country [18]. Despite the lethargic development, Bangladesh is the 133rd ranked country among 189 countries in the World Human Development Index (HDI) in 2019 [19]. Moreover, referred to world bank data, CO₂ discharge in Bangladesh per capita was 0.513 metric tons in 2018 [20]. With the global green movement and government efforts to develop a sound & sustainable industrial environment, many organizations are now moving towards the green business policy. At present, Bangladesh has the highest number of green RMG (ready-made garments) factories in the world having 150 green factories certified by the United States Green Building Council [21]. Sustainability strategies are the absolute must for this fast-growing business world and alignment of more critical concerns of GHRM in business strategies would facilitate competitive advantage in this sector. Therefore, the role of GHRM practices on employee behavior needs to be justified aligning with the effect of green climate to promote this green awareness not only in the RMG sector but also in the service sector as well. Though, some researchers studied the challenges & opportunities of GHRM in RMG sector & hotel industry [22,23] in Bangladesh but few researches were conducted in service sector of Bangladesh to be exact based on the role of EK and influence of green climate within the organization. Moreover, the findings of the study will allow the organizations related to the service sector in Bangladesh will be able to regulate their green policies and its' influence on their employee behavior. Thus, Bangladesh is a promising place to conduct our study and encourage green movement in developing nations like it.

Our study attempted to place some significant contributions to the field of GHRM by adding value to ecology-based literature. Which is well-developed in developing countries like Bangladesh. More precisely, the aims of the research are premeditated to three pleats. First, the study is designed to reconnoiter the effect of GHRM policies on ecofriendly work behavior of employees. Secondly, the study examines the interceding effect of pro-ecological climate and green empowerment (GE) on GHRM activities and employee ecofriendly behavior. Lastly, this examination will investigate the regulatory effect of EK on the affiliation between GHRM activities and ecofriendly work behavior. In most of the research green, HRM is treated as a combined concept of GHRM functions. This study explained how separate functions of GHRM determine the degree of GHRM activities using a two-stage approach where GHRM acted as a higher-order construct.

The study can also raise awareness of GHRM among HR managers & directors, environmental pressure groups, employees, customers, suppliers, and policymakers through highlighting critical and insightful perspectives like ecofriendly behavior of employees, proecological climate, and EK. Thus, the study directs as well as promotes the scope of further research in this area for exploring the connection between various GHRM practices with HR strategies.

This study will also induce a substantial role for the policymakers in the deployment of policies aligned with the environmental concern and aimed to foster & facilitate GHRM in the organizational setting to benchmark the remarkable achievement of the green movement in Bangladesh.

2. Theoretical background

GHRM stands for HRM activities, guidelines, and ideas to promote the justifiable usage of organizational resources [24]. It exacerbates environment-friendly HR practices. Now, this practice is immensely needed to rescue our environment and preserve

organizational resources. The emphasis on “GHRM” is increasing day by day among scholars as our environment is enormously degraded by organizational chemicals & waste [25,26]. To preserve these resources, HR has made an important contribution to promoting employee ecofriendly behavior through effective GHRM activities [7].

This study is consistent with Ability, Motivation, and Opportunities (AMO) and social cognitive theory. The AMO was first conceptualized by Bailey and others in Ref. [27]. The AMO theory explains HRM practice improves HR competencies to ensure discretionary behaviors of employees by motivating & favoring participation [12]. There are three concepts are related to AMO theory: employees must have the abilities, then motivate employees to perform discreet behavior, and empower them to attain organizational outcomes [28]. This implies that if an employee’s capacity is increased through recruitment, selection, training & development, or if they are given prospects to share in teamwork and decision-making processes, they make a performance-based contribution to organizational goal attainment [28]. In general, when employees have the necessary skills, drive, and chances to work in an environmentally friendly manner, HRM practices will improve the company’s ecological measures [14]. Besides, social cognitive theory (SCT) defined how people are influenced and how they affect their environment. In that case, social factors play important roles. Both desirable & undesirable learning can be learned from the observations of individuals’ [29]. By resorted these two theories (AMO theory, and social cognitive theory), this study will examine the impact of GHRM on ecofriendly behavior of employees (in-role and extra role) within the context of service industries in Bangladesh. The following Table 1 explains definitions of the latent variables used in this study.

Founded on these two theories, the conceptual framework of the study contains one higher-order reflective-formative construct named GHRM. There are two endogenous variables named in-role behavior & extra role behavior along with two mediators named proecological climate, and green empowerment (GE) in addition to one moderator termed environmental knowledge (EK) to test its moderation effect between GHRM and extra role behavior. “Green recruitment & selection”, “green training & development”, “green performance management”, and “green pay & reward” [6] are the four first-order constructs that created the higher-order construct of GHRM. Hence, considering AMO and social cognitive theory we proposed the framework (Fig. 1).

Based on the framework and study of relevant literature, we can develop the following hypotheses.

H₁GHRM activities affirmatively influence green empowerment (GE).

H₂GE affirmatively influences in-role behavior.

H₃GE affirmatively influences extra role behavior.

H₄GHRM activities affirmatively influence proecological climate in the organization.

H₅Proecological climate in the organization affirmatively influences in-role behavior.

H₆Proecological climate in the organization intercedes the affiliation between GHRM and in-role behavior.

H₆GHRM activities affirmatively influence GE.

H₇GE intercedes-

a) The relationship between GHRM and in-role behavior

b) The relationship between GHRM and extra role behavior

Table 1
Variables related to the study.

Variables	Descriptions
Green HRM	“Green HRM refers to the policies & procedures for recruiting, selecting, training & developing, evaluating performance and ensuring employee engagement by protecting the environment” [30].
<i>Green Recruitment & Selection (GRS)</i>	“A GRS strategy upholds the organization’s dedication to environmental sustainability by incorporating environmental activities into workers’ job duties and offering employment possibilities based on environmental values” [31].
<i>Green Training & Development (GTD)</i>	“Employee awareness of environmental management standards and the significance of environmentally friendly workplace practices are a part of GTD” [31].
<i>Green Performance Management (GPM)</i>	“GPM allows employees to receive timely feedback on their environmental behavior relative to the desired performance standard, which can increase their interest and engagement” [31].
<i>Green Pay & Reward (GPR)</i>	“When the pays & rewards such as promotion or career advancement, are the result of green practices or encourage environmentally responsible methods, such as converting waste into reusable material is called GPR” [31].
Green empowerment	“When management collaborates with employees to identify environmental issues and create the company’s environmental goals, this approach is known as green empowerment” [31].
Pro-ecological climate	“The Pro-ecological climate is also known as the green or sustainable psychological climate. Therefore, psychological climate is the state of mind that people have at work and how that state of mind affects their performance, satisfaction, and enjoyment in an organization” [32].
Ecofriendly behavior	“Ecofriendly behavior is defined as an employee’s environmentally conscious behavior, which can include both in-role & extra role behavior” [33].
<i>In-role ecofriendly behavior</i>	“Green formal tasks that are connected to an employee performance evaluation are denoted to as in-role ecofriendly behavior” [9,33].
<i>Extra role ecofriendly behavior</i>	“Extra role ecofriendly behavior, on the other hand, describes voluntary green actions that are not required to be followed and that are also not specifically addressed in an employee performance review” [9,33].
Environmental knowledge (EK)	“EK is the awareness of individual’s knowledge about the state, climate change, and ecological effects on their consumption & production” [34].

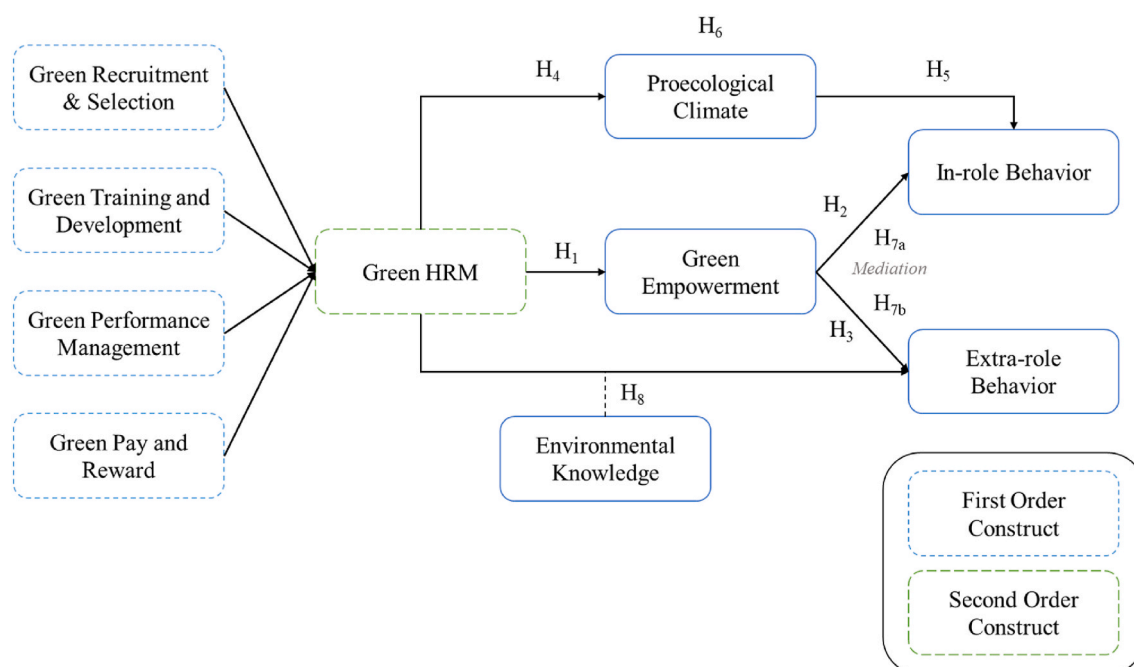


Fig. 1. Research framework.

H_8 Environmental knowledge strengthens the affiliation of GHRM and extra role behavior.

2.1. Hypothesis development

2.1.1. Green HRM, empowerment, and ecofriendly behavior

Green HRM employs greening in every part of HR activity in an organization [35]. Different scholars referred to a wide range of GHRM activities. Table 2 summarizes the common areas of GHRM activities.

Numerous scholars exert that GHRM practice leads to a friendly environment by promoting ecofriendly behavior among staff [12, 23, 42]. Ecofriendly behavior implies environment-friendly behavior towards the organization and the environment. Where in-role ecofriendly behavior implies conducting formal work behavior. On the other hand, voluntary ecological behavior which is not bound to obey pertains to extra role ecofriendly behavior [33].

GHRM techniques (recruitment, selection, training) increase employees' knowledge, skills, talents, and competencies to encourage environmental awareness [6, 11]. Besides, performance appraisal and reward systems help increase engagement in ecofriendly actions [43]. According to the social exchange theory, employees are more loyal to their employers when their companies uphold their green practices through GRS, green training & evaluation, and green awards [44]. Besides GHRM activities directly affect employees' both task related EGB and voluntary EGB within the organization [35].

Empowerment motivates employees toward their tasks and improves job performance effectively & efficiently [45]. GE signifies the autonomy and responsibilities of employees to improve their organizational performance [46]. Many researchers argued that

Table 2
Dimensions of Green HRM (based on recent articles).

Variable	Dimensions
GHRM	"Green Hiring, Green Training & Development, Green Performance Management & Compensation" [36]
	"Green Recruitment & Selection, Green Training & Development, Green Performance Management & Appraisal, Green Reward, and Compensation" [37]
	"Green Recruitment & Selection, Green Training, Green Performance Management, Green Pay & Reward, Green Involvement" [6, 38]
	"Green Recruitment & Selection, Green Training & Development, Green Performance Management, Green Reward & Compensation, Green Employee Empowerment" [31]
	"Green Analysis & Job Description, Green Recruitment & Selection, Green Environmental Training, Green Performance Evaluation, and Green Rewards" [39]
	"Green Job Design, Green HRP, Green Recruitment, Green Selection, Green Induction, Green PE, Green Reward, Green Training, Green Discipline, Green Safety & Health, Green IR" [40]
	"Job Description, Recruitment, Selection, Training, Performance Assessment, and Reward" [41]

GHRM influences the ecofriendly behaviors of employees. One of the key behaviors to achieving the green objective is GE. The AMO theory also mentioned GHRM activities motivate employees toward green goals and provide opportunities to achieve the goal [12]. Managers need to provide support and feedback through empowerment to attain their green tasks [13]. A study conducted among 460 managerial workers in Sri Lanka. The results also found a direct relationship between GHRM on GE [10]. So, we can assume GHRM directs employees empowered to achieve green goals.

H1. GHRM activities affirmatively influence GE.

GE makes employees motivated to perform green tasks. In another way, GE makes employees oblique to the green environment [46]. It ensures that employees are inspired to attain green goals effectively & efficiently. Overall, strengthen the outcome of an organization [47]. When employees perceive GE, it will enhance their organizational performance [48]. In their research, further demonstrated that employees who feel empowered are more likely to carry out their green environmental tasks. Also mentioned are two core aspects of GHRM: one is eco-protection, and the other is organizational assets. In both cases, employees play a critical role because the green-empowered employee will pursue more attention to sustaining those aspects [13]. As a result, the well-being of the organization is ensured. In a study done in China [10], found that GE directly improves both in-role & extra role ecofriendly behaviors. Our research also implies that more research is needed on in-role ecofriendly behavior in the workplace. Hence, we can predict H₂ and H₃.

H2. GE has a favorable influence on in-role ecofriendly behavior.

H3. GE has a favorable impression on extra role ecofriendly behavior.

2.1.2. Proecological climate

GHRM activities and guidelines can shape these perceptions of employees about their organizations. Whereas psychological climate is a mental process, firms send signals to the employees about their concern for the sustainable environment and seek employee green engagement by practicing GHRM [11]. In addition, the four psychological states (hope, optimism, self-efficacy, and resilience) are collectively called psychological capital that affects employees' mental state, attitude, and ultimately performance [49]. The literature on HRM behavior suggests that HRM influences employee work behavior and attitude, which in turn affects organizational performance [11]. Furthermore, sustaining different types of industries (like manufacturing, oil, mining industry, etc.) has more influence on GHRM on the green psychological climate. Hence, we assumed our fourth hypothesis.

H4. GHRM activities have an affirmative effect on the proecological climate.

The literature so far suggests that employees' behavior is influenced by their perception of their organizations. By focusing on green (recruitment & selection, training), the green consciousness of employees is increased to improve performance. Furthermore, promotion, appraisal, and rewards pursue employees' encouragement for green contributions [6, 11]. Organizations are trying to transfigure the employees' attitude by practicing green HR. only then will they perform ecofriendly behaviors; otherwise, employees will perceive organizations are less responsible toward their society. Therefore, organizations need to be careful to clarify green activities among all stakeholders, especially employees, to expand their green performance [7, 36].

In the review of organizational climate & culture, the psychological climate is seen as a significant applicable factor influencing the attitudes and behavior of employees. And the climate is strongly connected to employee behavior [24]. Additionally, a psychological mechanism (such as the proecological climate) connected to employees' conduct was discovered, and it was discovered that the proecological environment has a direct positive association with employee proecological behavior [50]. Therefore, we predicted the fifth hypothesis.

H5. Proecological climate positively influences in-role ecofriendly behavior.

Rendering to the behavioral research, GHRM can mediate an employee's behavior. Proecological climate mediates their interactions [36, 38, 50]. Employees' conduct is greatly influenced by how they view their organizations. Green habits are impacted by GHRM both straight and ramblingly through the mediation of several social and psychological elements, such as psychological capital (in-role ecological behavior & extra role ecological behavior) [11]. GHRM methods have an influence on employees' pro-ecological behavior, which motivates them to adopt green habits and enhances their performance [51].

Employee perceptions of the psychological climate of their work can be shaped by GHRM activities. Employees understand that your company is ecologically friendly and devoted to saving the environment when you use GHRM policies & practices. Overall, the pro-ecological climate is strengthened by practicing GHRM [7]. This strong Pro-ecological climate increases the awareness of employees for environmentally friendly behavior. Thus, the pro-ecological climate has a strong influence on employees' ecofriendly behaviors [50]. Therefore, the hypothesis can be

H6. Pro-ecological climate considerably intercedes between GHRM and in-role ecofriendly behavior.

2.1.3. Mediation of green empowerment (GE)

Employee performance is strongly correlated with green empowerment (GE) since it makes them accountable for their work [13, 47]. Previous research has shown that employee engagement and happiness are increased by empowerment, which in turn increases organizational productivity [52]. Employees' green habits are influenced by GHRM. Empowering employees to act sustainably is one of the crucial behaviors to reach [12]. Empowering employees is always encouraged and recommended when it comes to environmental challenges [16]. When employees feel more empowered, it may inspire them to act more independently in accordance with environmental policies [52]. A systematic review of 30 current studies that are pertinent to this subject is conducted and the study's

findings are consistent with encouraging and empowering employees to take on duties related to environmental management and sustainability [47].

Another study focusing on mediating role of GE in Sri Lanka. This study concluded that GHRM activities and ecofriendly behaviors are mediated by GE. If employees are inspired (monetary or non-monetary) or empowered by the organization, they are more likely to choose to show ecofriendly behavior [51]. Overall, we can develop the following hypothesis-

H7. GE intercedes-

- a) The affiliation between GHRM and in-role behavior
- b) The affiliation between GHRM and extra role behavior

2.1.4. Environmental knowledge

Environmental knowledge (EK) relates to individuals' understanding of how goods are produced, how they affect the environment, and how shared responsibility is necessary for long-term development [53]. Environmental education contributes to the prevention of environmental problems rather than only increasing EK. Additionally, it is a crucial instrument for educating the population, especially for a developing nation [54]. Environmental education is inevitable for pursuing ecofriendly behaviors [55] EK can be of two types: one is abstract knowledge which means knowledge about environmental issues, and solutions; the other is concrete knowledge which is factual knowledge [56].

Even though an indirect link between GHRM and ecofriendly behaviors, they also found that this link is mediated by EK [14]. On the other hand, conducted a study of 347 workers in the manufacturing, chemical, and pharmaceutical sectors. According to the study's findings, environmental awareness strengthens the link between GHRM and employees' environmentally friendly behavior [7]. The powerful connection between environmental awareness and ecofriendly behavior has strengthened the relationship [36, 53]. Environmental awareness is also anticipated to influence ecofriendly behavior outside of the workplace or extra role ecofriendly behavior (e.g., green consumption in daily life). Additionally, environmental awareness can prevent people from acting in a certain way. For instance, after learning about the effects of chlorine fluoride on the environment, individuals no longer use hair sprays [28]. Henceforth, Employees will behave protectively toward the environment and the company when they are aware of and knowledgeable about environmental issues and difficulties. Their performance will consequently be enhanced.

H8. Environmental knowledge strengthens the affiliation between GHRM and extra role ecofriendly behavior.

3. Methodology

3.1. Data collection, sampling & sample description

Data were collected from service industries of Bangladesh including banks, hospitals, telecoms, real estate, IT, etc. Providing primary data for the study. This sector has been chosen for becoming a booming sector not only in Bangladesh but all over the world. Furthermore, this massive industry is also focusing on green transformation in recent years. The respondents were chosen from the organizations in the prime locations in Bangladesh including Dhaka, Chattogram, Khulna, Rangpur etc. In some cases, the respondents from organizations related to the service industry in different commercial hubs including EPZs were also accessed. In total, 25 service organizations were polled to obtain responses from 400 individuals notwithstanding with their gender & age. We wanted to conduct our study without any gender biasness. Consequently, we didn't try to maintain any male & female ratio in the data collection process.

The study focused on the non-probability purposive sampling method for collecting the primary data. This method is appropriate in the case of field research or behavioral science research and provides valid and meaningful results [57–59]. Within the organization in the purposive sampling method, the general behavior or opinion of the employees is almost the same, so researchers can select respondents based on their judgment & willingness of respondents [60]. Furthermore, when the total population is unknown or infinite, the method of non-probability is applicable [61].

There were 400 questionnaires were distributed. Due to the incomplete data and other pertinent issues, 109 were eliminated for final analysis. The current population of the study was found to be unknown. Therefore, the study used G*power for determining the credibility of the sample size [62]. The study had a sample size of 291 people, an effect size of 0.19, and a confidence interval is 95%. There were forty-four items in the study. The sample size is sufficient as it is more than five times the total number of items [63].

Primary data were acquired from 25 service organizations, regardless of age or gender. The data collection was administrated from

Table 3

Details of inclusion criteria for the study.

Topic	GHRM activities, green behavior
Variables	Green recruitment, green selection, green performance, green orientation, green training, green pay & reward, green involvement, environmental knowledge, green empowerment, ecofriendly behavior
Methodology	Qualitative/quantitative/mixed methods
Sample	291
Language	English Composition

March 2021 to May 2021 before taking authorization from the HR department. Secondary data was generated from an extensive study of literature closely related to the topic. Table 3 is presenting the details of the inclusion criteria for the literature review of the study.

3.2. Research instruments

The variables included GHRM, EK, PEC, IRGB, ERGB, and GE which were developed through an extensive literature review. A five-point Likert scale was used to measure the latent variables in the study, '1' represented strongly disagree, and '5' meant strongly agree. Here, the items of each of the latent variables were collected from the prior literature. The study only considered those items, tested through academically accepted methods based on the preceding literature (Table 4). Apart from this, all the latent variables were examined through confirmatory factor analysis (CFA) to test their reliability and validity in the findings and analysis section. The following table shows the sources of selected items for each of the variables of our study.

In doing the analysis, Smart PLS version 3.3 was employed by SEM [64]. Besides, the study used MS Excel for the representation of the demographic information collected from the survey.

4. Analysis of data

The final analysis was conducted using 291 samples. Among them, most of the respondents were from the banking industry approximately 42.96%. On the contrary, respondents from FMCG, manufacturing sector, and telecom industry are 29.55%, 15.46%, and 6.53% respectively. Though the research didn't consider the age & gender factor at the time of sampling, the total number of males among the respondents was 215, and the number of females were 76. The male & female ratio were 74% and 26% which was consistent with the studies conducted in the service sector in Bangladesh [65,66]. Most of the participants have job experience of three to five years consisting of 35% of total male and 36% of total female poll. Apart from this 21.31% of respondents have a job experience of 0–2 years (Table 5). Approximately 45% of male and 38% of female participants were involved in the banking sector which is the highest portion of the total.

4.1. Measurement model

To establish the factor structure, the study used CFA. The theoretical framework was based on a hierarchical component model. In this study, the two-stage method was used. This technique aids in examining the measurement model of the initial setting of the research, which includes other reflective first-order constructs [67,68]. The investigation evaluated the validity & reliability using standards set by SEM specialists. The outer loadings of the constructs must be 0.708 or above in order to determine the reliability. The Cronbach's alpha, rho-A, and composite reliability (CR) ought to be 0.708 or more as well. On the contrary, the Average Variance Extracted (AVE) ought to be greater than 0.500 in order to support the convergent validity [63,69,70]. Initially, the study included 9 items to measure environmental knowledge (EK) and four items to gauge green performance management, nevertheless the study eliminated one item owing to low factor loadings of less than 0.708 from GPM along with three items from EK, and final calculations were executed using smart PLS version 3. After the removal of these four items, the CFA results showed factor loadings higher than 0.700 in all other items from every construct (Table 6).

In addition, Cronbach's alpha, CR, and rho-A of all the latent variables is greater than 0.708 which specifies that the constructs conceded internal consistency. The AVE of the constructs is larger than 0.500, which is greater than the reference value to declare the constructs devouring convergent validity.

The analysis used heterotrait-monotrait ratio (HTMT) to examine the discriminant validity. Several scholars suggested HTMT test discriminant validity as it is proved to be a more efficient method than the Fornell-Larcker criterion through Monte Carlo simulation [71]. To be a theoretically distinct construct, the HTMT ratio from all variables should be smaller than 0.85 [63]. In this study, all the variables have an HTMT ratio of less than 0.85 which justifies that the study succeeded to declare the discriminant validity (Table 7). To avoid major multicollinearity difficulties, the VIF of each item in the research should be less than 5. VIF value between 3 and 5 indicates a probable collinearity issue. The preferable VIF value is less than 3 to evade possible collinearity issues [72]. The investigation doesn't have any possible or serious multicollinearity issue as the items of the study have a VIF of less than the reference value 3 (Table 8).

Table 4

Sources of measures items and Cronbach's alpha of the factors.

Constructs		No. Of items	Cronbach's Alpha
Green HRM [[6]]	GRS	3	0.84
	GTD	3	0.83
	GPM	3	0.87
	GPR	3	0.87
		6	0.83
Green Empowerment [[37]]		6	0.83
In-Role Ecofriendly behavior [11]		3	0.86
Extra role Ecofriendly behavior [11]		3	0.85
Proecological climate [37]		5	0.82
Environmental Knowledge [37]		6	0.89

Table 5
Detailed statistics.

		Gender		Total	Percentage
		Male	Female		
Experience	0–2 years	42	20	62	21.31%
	3–5 years	75	27	102	35.05%
	6–10 years	45	10	55	18.90%
	11–15 years	32	5	37	12.71%
	16–20 years	15	11	26	8.93%
	20 years & above	6	3	9	3.09%
Industry	Banking	96	29	125	42.96%
	FMCG	61	25	86	29.55%
	IT industry	29	16	45	15.46%
	Telecom	14	5	19	6.53%
	Others	15	1	16	5.50%
* Male Respondents	215				
* Female Respondents	76				
* Total	291				

Table 6
Measurement model.

Constructs	Items	Loadings	Cronbach's Alpha	rho_A	CR	Average Variance Extracted (AVE)
GHRM, Green Recruitment & Selection	GRS1	0.853	0.840	0.869	0.902	0.755
	GRS2	0.854				
	GRS3	0.899				
GHRM, Green Training & Development	GTD1	0.846	0.813	0.813	0.889	0.727
	GTD2	0.854				
	GTD3	0.858				
GHRM, Green Performance Management	GPM1	0.841	0.753	0.762	0.858	0.669
	GPM2	0.814				
	GPM3	0.797				
GHRM, Green Pay & Reward	GPR1	0.849	0.735	0.744	0.849	0.653
	GPR2	0.775				
	GPR3	0.798				
Proecological climate	PEC1	0.807	0.887	0.889	0.917	0.689
	PEC2	0.843				
	PEC3	0.874				
	PEC4	0.816				
	PEC5	0.809				
Green Empowerment	GE1	0.777	0.859	0.862	0.895	0.586
	GE2	0.743				
	GE3	0.777				
	GE4	0.768				
	GE5	0.790				
	GE6	0.735				
Environmental Knowledge	EK1	0.816	0.837	0.877	0.878	0.547
	EK2	0.746				
	EK3	0.701				
	EK4	0.728				
	EK5	0.723				
	EK6	0.716				
In-Role Ecofriendly behavior	IRGB1	0.904	0.893	0.894	0.934	0.824
	IRGB2	0.902				
	IRGB3	0.917				
Extra role Ecofriendly behavior	ERGB1	0.868	0.796	0.808	0.880	0.709
	ERGB2	0.836				
	ERGB3	0.821				

4.2. Structural model (hypotheses testing)

In the second stage, the study formed GHRM as the higher-order reflective formative construct using the scores of their accompanying lower-order dimensions in the first stage [67,72]. To validate the second-order construct GHRM, the study examined the magnitudes of the outer weights along with outer loadings, and VIF to assess the multicollinearity. As discussed earlier the VIF should be less than 5 to dodge serious multicollinearity issues. In addition, the outer weights should be significant enough to ensure the validity of the second-order formative construct of the measurement model [72]. The first-order constructs of the study were found to be significant enough and the VIF of the study was less than 5 which is lesser than the reference value. Therefore, the higher-order

Table 7
HTMT criterion.

	GRS	GTD	GPM	GPR	PEC	GE	EK	IRGB	ERGB
GRS									
GTD	0.095								
GPM	0.191	0.682							
GPR	0.116	0.529	0.544						
PEC	0.356	0.259	0.470	0.224					
GE	0.168	0.415	0.505	0.404	0.207				
EK	0.104	0.360	0.428	0.378	0.383	0.238			
IRGB	0.362	0.317	0.240	0.172	0.424	0.525	0.121		
ERGB	0.265	0.308	0.286	0.253	0.267	0.435	0.197	0.702	

Table 8
Variance inflation factor (VIF).

Items	VIF	Items	VIF	Items	VIF
GRS1	1.992	EK1	1.724	PEC1	2.061
GRS2	1.954	EK2	1.680	PEC2	2.316
GRS3	1.993	EK3	1.554	PEC3	2.765
GTD1	1.763	EK4	1.759	PEC4	2.171
GTD2	1.774	EK5	1.608	PEC5	2.218
GTD3	1.814	EK6	1.601	GE1	1.785
GPM1	1.501	IRGB1	2.578	GE2	1.719
GPM2	1.536	IRGB2	2.584	GE3	1.768
GPM3	1.500	IRGB3	2.900	GE4	1.839
GPR1	1.581	ERGB1	1.734	GE5	1.846
GPR2	1.456	ERGB2	1.799	GE6	1.637
GPR3	1.387	ERGB3	1.589		

construct has enough validity to be accepted for further analysis (Table 9).

In the model (Fig. 2) above, the value of the outer model shows the path coefficient & the p-value. And the inner circle of the constructs shows the value R^2 . Based on the value of R square, it can be observed that the variation of dependent variables IRGB & ERGB can be clarified by the independent, mediating, and moderating factors by 30.5% & 20.3% respectively.

The hypotheses were explored with 5000 samples of suggested bootstrapping [63]. The bootstrapping was conducted using a one-tailed *t*-test as the hypotheses were found to be unidirectional based on the study of the prior works.

Table 10 explains the result of the path coefficient analysis. Here, GHRM has a high correlation with both proecological climate (PEC), and with green empowerment (GE). GHRM and in-role behavior were not found to be highly correlated ($\beta = 0.080$, $t = 1.08$). Nonetheless, there is a strong link between GHRM and workers' extra role behavior ($\beta = 0.218$, $t = 3.154$). Thus, our findings suggest organizational efforts to improve GHRM practices within the organization do not have a direct effect on the ecofriendly behavior of employees within the organization but have a substantial influence on their behavior outside the organization. As most of the respondents of this study are from the banking sector and the banks rely on the online system, therefore they must stay and maintain a green environment irrespective of the GHRM effort of the organization, but GHRM affects their behavior outside the organizational setting largely. This context also validates our findings on the interaction between PC and employees' in-role behavior ($\beta = 0.275$, $t = 4.435$). Similarly, GE has also an affirmative impact on employees' in-role & extra role behavior. On the contrary, there is not any affiliation found between environmental knowledge (EK) and employees' extra role behavior ($\beta = 0.058$, $t = 0.751$). Furthermore, EK doesn't reinforce the affiliation of GHRM and employees' extra role behavior ($\beta = 0.189$, $t = 1.110$). Organizations tend to hire well-educated employees for their organizations. Most of our respondents are from the millennial generation. Thereby, they are already aware of environmental awareness which triggers their behavior at the heuristic level, which is a probable explanation for the relationship between EK and employee behavior. GE and PEC were observed to have a highly significant buffering role in the relationship between GHRM and employees' in-role behavior. Additionally, the mediating effect of GE in the tie amid GHRM and extra role behavior was strong enough ($\beta = 0.105$, $t = 3.122$). Industries, covered in our study dominate the economy. Hence, organizations and

Table 9
Validity test for the higher order construct.

HOC	LOCs	Outer Weight	t statistics	p values	Outer Loadings	VIF
GHRM	GRS	0.422	4.747	0.000	0.089	4.427
	GTD	0.241	2.185	0.014	0.110	2.118
	GPM	0.570	5.056	0.000	0.113	4.856
	GPR	0.214	2.232	0.013	0.096	2.029

Legend: GRS- Green Recruitment & Selection; GTD- Green Training & Development, GPM- Green Performance Management; GPR- Green Pay & Reward, GHRM- Green Human Resource Management.

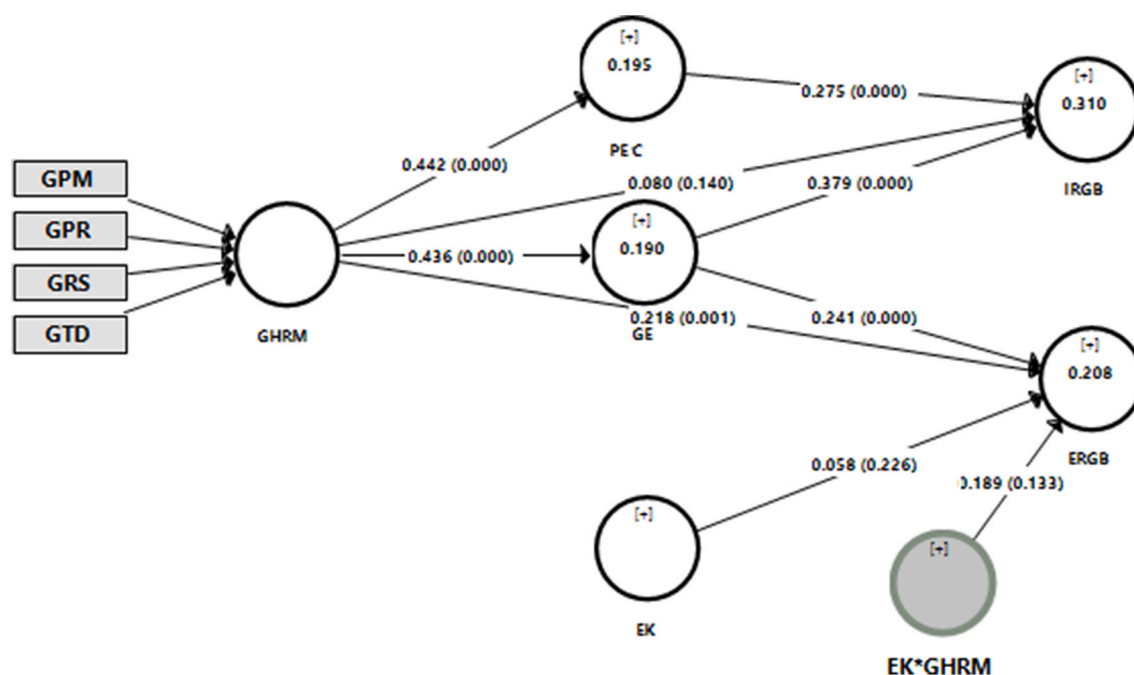


Fig. 2. Graphical presentation of structural equation model.

Table 10

Path coefficient.

	Paths	Beta	Standard Error	t statistics	Bias Corrected Confidence Interval	Results
H ₁	GHRM - > GE	0.436***	0.059	7.387	[0.324, 0.521]	Supported
H ₂	GE - > IRGB	0.379***	0.068	5.592	[0.266, 0.487]	Supported
H ₃	GE - > ERGB	0.241**	0.067	3.579	[0.146, 0.366]	Supported
H ₄	GHRM - > PEC	0.442***	0.050	8.924	[0.353, 0.516]	Supported
H ₅	PEC - > IRGB	0.275***	0.062	4.435	[0.173, 0.375]	Supported
H ₆	GHRM - > PEC - > IRGB	0.121***	0.031	3.908	[0.074, 0.176]	Supported
H _{7a}	GHRM - > GE - > IRGB	0.166***	0.037	4.488	[0.108, 0.227]	Supported
H _{7b}	GHRM - > GE - > ERGB	0.105**	0.034	3.122	[0.059, 0.175]	Supported
H ₈	EK*GHRM - > ERGB	0.189 ^{NS}	0.170	1.110	[-0.365, 0.243]	Not Supported

Legend: GHRM-Green Human Resource Management; PEC-Proecological climate; GE-Green Empowerment; EK-Environmental Knowledge, IRGB-In Role Ecofriendly behavior; ERGB-Extra Role Ecofriendly behavior.

P > 0.05 Not Supported (NS).

P ≤ 0.05 *.

P ≤ 0.01 **.

P ≤ 0.001 ***.

regulatory bodies emphases more on employee empowerment and participation. As a result, GE enables employees to adopt organizational policies in regular life as a part of their extra role behavior.

5. Discussions

Our primary motivation for our research was to examine the role of employee empowerment, proecological climate (PEC) in the organization, and EK in the relationship between GHRM and employees' ecofriendly behavior. In prior studies, GHRM was used as a combined concept of its function rather than a single entity. We have used GHRM as a higher-order construct where its major functions were used as lower-order constructs to define it. Our study used a two-stage approach to explore the results through the analysis of the interceding effect of GE) and PEC along with the regulating effect of EK of the employees. In-role & extra role eco-friendly behavior were the two endogenous variables.

The investigation suggests that GHRM has a positive effect on organizations' efforts in motivating and empowering employees to support the cause of green policy. GE positively mediates the relationship between employees' ecofriendly behavior both in role & extra role. Though, had similar results in their study [22, 73]. Apart from this, GHRM facilitates the organizations' commitment to establishing an organization-wide proecological psychological climate. This pro-environmental setting positively mediates the

relationship between GHRM policies and in-role behavior. Several research also confirms our claims [7, 53, 74]. Moreover, organizations' effort to assure GE within employees, not only positively affects employees' in-role & extra role environment friendly-behavior but also augments organizational performance. GHRM is regarded as a crucial component of strategic HRM in today's world [75] which in turn play a core element to endorse organizational as well as employee performance [76]. Also, the outcome of our research showed a similar result to the study conducted by Ref. [77] where they found that GHRM practices and ecofriendly behavior enhance employee motivation along with organizational effectiveness.

Surprisingly, the study didn't find any relationship including mediation between EK with extra role behavior which contradicts the previous literature from Ref. [14]. Similarly, there was no evidence found on the regulating effect of EK between the affiliation of GHRM and extra role behavior. Our insights suggest that most of the employees are minimum graduates, and they have enough knowledge of current environmental crises like global warming, change in climate, lack of forestation, and others. As a member of the millennial generation, respondents in our study received a vast amount of knowledge about the environmental crisis, the dos and don'ts along with their consequences, which in turn facilitates their green attitudes and engagements [54]. We assume that a lack of social norms also played a vital role in these dissimilarities. But still, some of them do have not any green values or intention to support the cause. Therefore, our study created a plot to study further to identify the reason.

Organizational climate and employee behavior are directly related to one another where, a sustainable organizational climate has the capacity to influence employee behavior [78]. Our study explained that GHRM practices directly affect PEC within an organization in a positive manner [79]. found that GHRM strongly moderates the relationship between ecofriendly leadership and PEC. GHRM practices also affirmatively augment the pro-environmental attitudes of employees [80]. Our research shows that proecological behavior successfully bridges the connection between GHRM and employee in-role behavior. Therefore, organizations can optimize their effort to institutionalize ecofriendly behavior of employees by promoting a PEC within the organization.

6. Ethical issues

The questionnaires were distributed before taking authorization from the organization through the HR department. The respondents were invited to give their consent after reading the general objectives of this study. In addition, for a basic understanding of the GHRM concept, a summary was presented. The aggregated result is used only for research purposes without disclosing the name of the organization or respondents.

7. Conclusions and recommendations

Our investigation attempted to explain the consequences of GHRM activities including the regulating and interceding effects of some relevant factors like EK, GE, and PEC. Based on the responses that we have collected from the staff employed in the service sector in Bangladesh we can summarize that GHRM activities help employees to develop green concerns and behave in an environmentally friendly way. Though EK doesn't have any impact on the employee's behavior, we believe that this finding created a new dimension to explore more factors that might have a significant influence on their behavior. In addition, a workplace having an ecofriendly atmosphere encourages employees to assimilate their behavior in a green manner. Moreover, regulating effect of EK with the association between GHRM and ERGB was not significant enough.

Based on our discoveries, we suggest that HR practitioners should focus more on the successful implementation of green practices in regular HR functions. Furthermore, organizations need to create an ecofriendly environment in the workplace so that employees can get used to ecofriendly behavior and practice them in their personal life as well. On top of that, organizations do not need to focus on providing extra EK among their employees as it doesn't have any influential effect on employees' green behavior. But other factors such as family support, role of leadership and others can be examined as a regulator to the association between GHRM and employee behavior.

There were some shortcomings in our study where we may improve our findings by searching for the gender effect of the relationships we studied in this research. Apart from this, the effect of other GHRM functions like health and safety compliances, green involvement, green leadership, green induction, etc. can be studied in forthcoming studies. Ecological climate within the organization might also have an interceding effect on GHRM and employee extra role behavior which can be provide new direction to the imminent investigations not only in the context of the developing nations but also in the developed and underdeveloped nations as well.

7.1. Theoretical and conceptual implications

Global awareness to save our ecology pushes organizations to develop a green environment within the organization. Therefore, the first step should be taken by the HR department as the success of this process relies on the efficient decisions taken them. To establish green policies all over the organization, it's crucial not only to focus on the policies but also on their AMO. In this study we paired both AMO and the social cognitive theory to examine the dynamic encounters among employee behavior, self-efficacy, and environmental awareness.

7.2. Practical implications

HR managers need to prioritize green awareness & motivation among the candidates which will also aid the organization's green reputation among them as well as society in a broad [6, 81]. The regular evaluation of employees' green performance and provide

financial & nonfinancial rewards to them based on their behavior [12]. Organizations should observe job applicants' behavior closely at the time of their recruitment. In addition, eco-friendly training & development programs facilitate ecofriendly behavior which in return assist organizational goal accomplishment [82].

To ensure ecofriendly behavior among employees, only the physical green climate doesn't play a single driver. Rather, it is accompanied by the level of employee empowerment & green awareness among them [81]. But our investigation suggests that green awareness doesn't strengthen the level of ecofriendly behavior of employees in addition to their in role organizational ecofriendly behavior. Our insights suggest that the organizations should focus on other drivers to assure ecofriendly behavior outside the organizationally defined ecofriendly initiatives.

7.3. Theoretical and practical contributions

Our research attempted to explore the implications of GHRM activities in such a manner that not only focuses on the organizational drivers of employee behavior but also the insinuation of social cognitive theory. In addition, we believe that employee ecofriendly behavior is being driven by several factors which might not apply in all contexts.

Over the last few decades, we witnessed a tide of eco-friendly revolution not only in business but also in every sphere of society. Increasing use of plastic waste, global warming, and natural disasters stimulated this phenomenon to the highest level. Employees are treated as an organization's sustainable goal-accomplishing agent. Therefore, the HR department plays a vital role to direct and develop its employees toward a viable change.

Most of the findings of our research conveyed the same messages as the prior literature [7, 12, 73, 81]. Nonetheless, we found that EK doesn't have any influence on employees' extra role behavior. Though many studies suggested continuously providing EK to the employees we suggest not to get engage with these programs deeply. As a developing nation, people tend to focus more on efficiency and financial gain rather than environmental damage. Therefore, organizations should focus more on rewarding ecofriendly behavior and motivate them to reduce waste, recycle, and reuse environmentally harmful products not only in the workplace but also practice ecofriendly behavior outside the workplace for the greater good.

7.4. Limitation & future implication

To provide directions for further endeavors, the weaknesses of our research should be acknowledged and addressed. In our study, other stakeholders' viewpoints such as customers, stockholders, suppliers, regulators, etc. Were not counted as they can be the best judge regarding the activities of any organization, especially in the service sector which is the target population in this study. Supplementary sectors such as educational institutions, manufacturing, public administration, and e-commerce can generate different outcomes. This way the authors believed that research on this time-demanding issue can be extended by targeting other sectors. The environmental performance of employees, as well as an organization, can be explored in green and non-green organizations in extended research. As most of the people in Bangladesh are very responsive to monetary rewards [83], mediating the role of financial and nonfinancial rewards for ecofriendly behavior might provide meaningful insight into the prevailing literature. Future researchers can incorporate environmental values, green attitudes, etc. As moderators or mediators in the model to get a new avenue. We had tried to make our study gender bias free. We also didn't consider the gender issue of the respondents where we might get nonlinear result. Therefore, there is a scope to extend this research using group data based on the gender-based samples.

This study also promotes a broader route for upcoming researchers to receive a tour of the rising domains of GHRM such as green intellectual capital, green perceived behavioral control, and so on to reveal newer aspects in the field of research. This research also gives a thorough explanation of the GHRM, which is still an embryonic topic in developing countries like Bangladesh and needs the high attention of decision and policymakers not only to mitigate environmental damage but to create awareness as well responsibility among the business units in the society at the large extent. Consequently, the outcomes of the study, which was carried out locally in Bangladesh, apply to other developing nations, as GHRM has become a global issue. The current study also provides useful insights for business sectoral managers about the in-depth thoughtfulness of the idea of GHRM, its importance, benefits, and other dimensions which need to be addressed and analyzed to get the level of influence on employee ecofriendly behavior. In this way, the top management can formulate a strategy to effectively motivate employees toward issues of GHRM and ecofriendly behavior in an integrated significant way. Consequently, top management can integrate GHRM into the vision & mission of the organization for building a positive image reflected in their functioning decisions which can gain the trust of the customers, the government as well as other stakeholders.

Author contribution statement

RABBIR RASHEDIN TIRNO: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

NAFIZA ISLAM: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

KAMRUNNAHAR HAPPY: Conceived and designed the experiments; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interest's statement

The authors declare no conflict of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2023.e14632>.

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