Malaysian Journal of Social Sciences and Humanities (MJSSH) (e-ISSN : 2504-8562)
2025, Volume 10, Issue 2, e003242
DOI: https://doi.org/10.47405/mjssh.v10i2.3242

RESEARCH ARTICLE

Green HRM and Employee Green Behavior: Mediating Roles of Green Organizational Identity and Green Self-Efficacy

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KEYWORDS:
Green Human Resource Management
Employee Green Behavior
Green Organizational Identity
Green Self-Efficacy

CITATION:
Huang, J., & Azlan Ali. (2025). Green HRM and Employee Green Behavior: Mediating Roles of Green Organizational Identity and Green Self-Efficacy. *Malaysian Journal of Social Sciences and Humanities (MJSSH), 10*(2), e003242. https://doi.org/10.47405/mjssh.v10i2.3242

ABSTRACT

Achieving the dual-carbon goals has been a critical strategy to promote the green sustainability and the ecological progress. Employee green behavior (EGB) is regard as one of the key factors to achieve the green sustainability, and Green Human Resource Management (GHRM) plays an important role in promoting EGB in the organization. Based on Social Cognitive Theory (SCT) and Ability-Motivation-Opportunity (AMO), the impact of GHRM on EGB by taking Green Organizational Identity (GOI) and Green Self-Efficacy (GSE) as the mediating variables is studied in this paper. The results of the analysis with the survey data from 587 employees in the Chinese hotel industry reveal that both GOI and GSE indirectly effect EGB, while GHRM directly enhances EGB in the hotel industry. Furthermore, the analysis results also show that GOI and GSE serve as partial mediators in the relationship between GHRM and EGB. In addition, the analysis results also highlight that GOI plays an important role in fostering the employee environmental responsibility while GSE effectively encourage employees to take green behaviors. This study provides the theoretical and practical insights for the organizations seeking to fostering EGB via GHRM, underlining the role of psychological mechanisms in shaping the green behavior.

Contribution/Originality: This study investigates the role of GHRM in enhancing EGB, revealing that GHRM not only directly influences EGB but also indirectly promotes employee behaviors by strengthening their psychological mechanisms through green recruitment, training, incentives, etc., within the hotel industry. This provides the hotel industry with more precise and deeper management strategies.

1. Introduction

Green Human Resource Management (GHRM) advocates meeting people's reasonable needs, creating a working environment conducive to people's development, guiding

employees to enhance their sense of subjectivity, self-management, and self-growth, and complying with people's subjective development requirements (Renwick et al., 2013; Jiang et al., 2024). GHRM enhances the employee environmental awareness and the organization ecological responsibilities by embedding the environmental objectives into the human resource management practices such as green recruitment, training, performance evaluation (Renwick et al., 2013; Jiang et al., 2024). Employee green behavior (EGB) has been regarded as an important factor to achieve the dual-carbon goals and the sustainable development in the organization. However, most existing research on EGB mainly focuses on manufacturing, and there is a lack of research on EGB in the hotel industry. From the green-related perspective, the huge energy consumption and the environmental impact are the important microcosms in the hotel industry. Therefore, according to the characteristics of the hotel industry, studying the impact mechanism of GHRM on EGB through GOI and GSE is very important for the sustainable development of the hotel industry.

The existing research shows that GHRM not only directly promotes EGB, but also indirectly has an important impact on EGB through psychological mediation. Among these mediators, Green Organizational Identity (GOI) and Green Self-Efficacy (GSE) have been identified as critical mechanisms. GOI reflects the extent to which employees internalize an organization green objectives and green values, fostering a sense of environmental responsibility and encouraging proactive green behaviors (Chen, 2011; Rajabi et al., 2023). In contrast, GSE refers to employees' confidence in their ability to accomplish green tasks (Bandura, 1997; Wu et al., 2024). In the hotel industry, how GHRM can use these media to promote EGB is still not fully explored.

By combining the Social Cognitive Theory (SCT) and the Ability-Motivation-Opportunity (AMO), the impact mechanism of GHRM on EGB in the hotel industry is studied in this paper. SCT believes that employee behavior is shaped by the interaction between cognition, behavior, and environmental factors (Bandura, 1997). AMO explains how GHRM enhances EGB through training, incentives and tasks, providing an important basis for further discovering ways to enhance EGB (Ghosh & Haque, 2024). In the context of GHRM, organizations can shape employee psychological perception and provide environmental support, playing an important role in enhancing EGB. The integration of SCT and AMO provides a comprehensive framework to understand the direct and indirect ways in which GHRM promotes EGB.

In order to reveal the mediating role of GOI and GSE in the impact of GHRM on EGB, this study takes the Dongguan hotel industry in China as an example to empirically study how GHRM affects EGB through GOI and GSE. Through combining theoretical exploration with practical insight, this study expands the application boundaries of SCT and AMO, and provides the actionable guidance for designing effective green management strategies under the dual carbon goal. The primary contribution of this study is finding that GHRM not only directly enhances EGB but also indirectly fosters employees' behaviors by strengthening employees' psychological mechanisms through green recruitment, training, and incentives, etc. in the hotel industry, providing the hotel industry with more precise management strategies at a deeper level.

2. Literature Review

2.1. Social Cognitive Theory (SCT)

SCT suggests that human behavior is the result of the interaction between individuals, behaviors and the environment (Bandura, 1997). In the hotel industry, SCT has a concrete and vivid expression. From the perspective of observation and learning, hotel employees learn new green behavior patterns by observing the green behavior of leaders and colleagues. If the hotel employees are praised by leaders or recognized by colleagues for imitating these green behaviors, this positive feedback will further strengthen their motivation to continue implementing green behaviors. In the hotel industry, self-efficacy plays an important role in EGB. A high sense of self-efficacy will enhance employees' motivation and persistence in the face of green challenges and encourage them to proactively participate in the hotel's green actions. Conversely, if employees lack confidence in their ability to implement green behaviors and believe that they cannot effectively complete green tasks, their enthusiasm for participating in green actions will be suppressed. Interactive determinism holds that behavior, cognitive factors and the environment all interact and influence each other. In the context of hotel, the emergence of EGB is influenced by external ecological support and internal psychological factors, such as GOI and GSE. GOI captures the extent to which employees internalize green values and the organization's sustainable development goals, cultivates a sense of belonging and responsibility, and encourages proactive green behavior (Chen, 2011; Rajabi et al., 2023). At the same time, GSE reflects employees' confidence in their ability to implement green behaviors and becomes a key driver for achieving continued engagement in practice (Pham et al., 2019; Shah et al., 2021). It can be seen that GHRM can provide the necessary psychological foundation for green behavior by cultivating GOI and GSE.

2.2. Ability-Motivation-Opportunity (AMO)

AMO provides a comprehensive analytical framework for a deep understanding of employee behavior and emphasizs that the behavior is driven by the interplay of ability, motivation, and opportunity (Appelbaum et al., 2000). AMO believes that employee behavior is determined by three key factors: ability, motivation and opportunity. In the green development of hotels, the three elements of ability, motivation and opportunity are interrelated and influence each other. Just because employees have the ability to act green does not mean that they will definitely implement green behaviors. They also need to have sufficient motivation and opportunities. Similarly, even if employees have a strong motivation to implement green behaviors, their green behaviors will be difficult to implement effectively if they lack the necessary capabilities and opportunities. Therefore, hotels need to comprehensively consider AMO and use GHRM strategies to comprehensively improve employee ability, stimulate employee motivation, and create good opportunities for employee, thereby promoting employee to actively participate in the green actions.

2.3. Green Human Resource Management (GHRM)

GHRM refers to a management approach that integrates environmental sustainability goals into human resource practices, such as green recruitment, training, performance evaluation, and incentives (Renwick et al., 2013). GHRM practices establish the foundation for the organizational sustainability by motivating employee to adopt the environmentally friendly behaviors at work, thereby advancing the ecological goals of the company (Dumont et al., 2017). In recent years, the importance of GHRM has grown significantly, with studies highlighting its critical role in enhancing both corporate environmental performance and employee environmental behaviors (Lutfi et al., 2024). By fostering green organizational culture and institutionalizing sustainability-oriented

practices, GHRM provides employee with psychological conditions to support environmental protection. GHRM practices such as green recruitment, training, green skills and green knowledge, foster the intrinsic motivation for the environmental sustainability and create the necessary conditions for green practices (Renwick et al., 2013; Jia et al., 2018). For example, green recruitment identifies candidates with strong environmental awareness, while green training equips employees with the skills needed for sustainable practices. Furthermore, green incentives reinforce motivation through rewards and punishments, while structured opportunities, such as participation in green projects, enable employees to translate their intentions into actions (Tsymbaliuk et al., 2022).

According to the theory of AMO, GHRM promotes EGB by enhancing employee ability, stimulating employee motivation, and creating the opportunity for employee (Appelbaum et al., 2000). For example, green recruitment selects candidates with environmental awareness, green training equips employees with essential sustainability skills, and green incentive mechanisms strengthen their behavioral intentions through rewards. These systematic practices collectively create an environment where employees can actively engage in green behaviors in their workplaces (Singh et al., 2020).

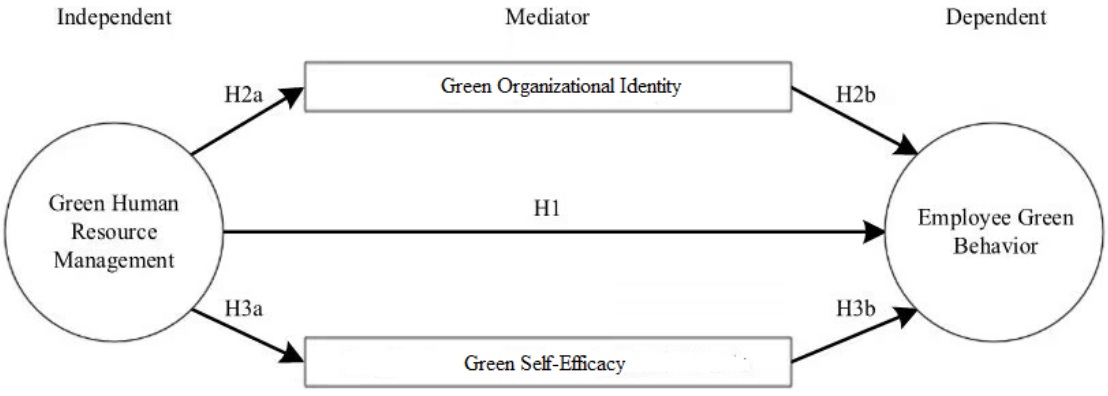
On the basis of SCT and AMO, an integrated framework to reveal how GHRM impacts on EGB through the direct pathways and the mediating variables (GOI and GSE) is developed in this study by bridging the external organizational practices and the internal psychological mechanisms. Throughout the entire study, AMO provides insights into the external resources that facilitate employee behavior, while SCT sheds light on the psychological mechanisms that drive these behaviors. Together, SCT and AMO offer comprehensive lens to understand how the organizations effectively foster EGB.

3. Theoretical Framework

3.1. Research Model

To study the impact mechanism of GHRM on EGB in the hotel industry, a model of GHRM, EGB, GOI and GSE is established based on SCT and AMO, which is shown in Figure 1. In the figure, the green human resource management is taken as the independent variable, while the employee green behavior is taken as the dependent variable. It can be seen from the research model that in addition to the direct impact of GHRM on employee green behavior, it is also mediated by green organization identity and green self-efficacy.

Figure 1: Research Model



3.2. Research Hypothesis between EGB and GHRM

Employees mainly obtain information through the working environment, and individuals will find key clues from all kinds of information obtained, which will provide a reliable basis for them to change their working attitude and take relevant actions. The rules and regulations formulated by the enterprise and various relevant documents convey effective information on organizational management measures to employees. In the process of participating in relevant management practice activities, employees will maintain continuous attention to organizational management intentions and management activities. Through information processing and understanding, employees show matching work attitude and work behavior. EGB encompasses actions taken by employees within the workplace to support environmental protection and sustainability (Norton et al., 2017). GHRM plays a pivotal role in fostering EGB by embedding environmental values into recruitment, training, and performance management practices (Musaddiq et al., 2024). For instance, green training and performance evaluations enhance employees' alignment with organizational environmental goals, encouraging them to adopt the proactive green behaviors (Yong et al., 2019). Moreover, GHRM deeply influences the employees' intrinsic motivation and the sense of the environmental responsibility (Lutfi et al., 2024). Through performance evaluations and reward systems, employees understand how their actions contribute to organizational environmental performance and feel supported by the organization. This combination of recognition and support encourages employees to engage in green practices, aligning their daily work with the organization's sustainability objectives (Yong et al., 2019). Furthermore, GHRM practices such as green recruitment, training, and rewards can influence employees' environmental attitudes through enhancing their environmental motivation, ability, and opportunities. Organizations improve their green consciousness and overall environmental performance by integrating green criteria into talent selection and job descriptions. Based on the above analysis, this study proposes the following hypotheses:

H1: GHRM positively affects EGB.

3.3. Research Hypothesis between EGB and GOI

GOI highlights the extent to which employees internalize an organization's green values as part of their own identity, forming a sense of belonging and responsibility toward the organization (Chen, 2011). The existing research on EGB show that employees are more likely to internalize these goals, strengthening their organizational identification when organizations demonstrate environmental commitments through green practices (Hameed & Siddiqui, 2024). GOI not only heightens the employees' environmental responsibility, but also effectively motivates the employees to engage in the proactive green behaviors (Ali et al., 2022).

In addition, the existing research also further indicates that GOI plays a critical mediating role between organizational practices and employee behaviors (Song et al., 2024). Specifically, the implementation of GHRM fosters the green culture and the communicates environmental values, enhancing the employees' understanding and recognition of the organizational environmental goals (Teixeira et al., 2023). When the employees perceive that their organization prioritizes environmental protection, their identification with the organization strengthens, which serves as a psychological driver encouraging them to adopt the green behaviors in the daily work. Moreover, GOI fosters the sense of belonging

and purpose among the employees, reinforcing the sustainability of their green behavior over time (Lou et al., 2025).

Based on Resource-Based View (RBV) and Social Identity Theory, GOI is regarded as an important psychological resource for linking the strategic green practices to the employee behavioral outcomes (Barney, 1991). By leveraging GHRM practices such as green recruitment, training, and incentives, organizations can strengthen the employees' identification with their green values, indirectly influencing their green behaviors. This mechanism not only provides the theoretical insights into the psychological pathways of green behavior, but also highlights the actionable strategies for enhancing workplace sustainability. As organizations increase green recognition, EGB increase accordingly. It means that GOI stimulates EGB and forms a positive correlation.

According to the above analysis, the following hypothesis is proposed:

H2: GOI plays a mediating role in corporate GHRM and EGB.

H2a: GHRM has a positive relationship with GOI.

H2b: GOI has a positive relationship with EGB.

3.4. Research Hypothesis between EGB and GSE

As a key psychological construct in the context of GHRM, GSE emphasizes that the employee confidence and perception are one of the key factors to achieve the environmental goals (Bandura, 1997). This psychological mechanism is critical in determining whether individuals can translate green values into tangible actions. Most existing research on GSE shows that the GHRM practices such as training, incentives, and organizational support significantly enhance GSE. This psychological mechanism also motivateS employees to adopt much more green behaviors in the workplace (Ali et al., 2022). GSE not only promotes employee confidence in their ability to perform environmental protection behaviors but also equips them to overcome workplace challenges, thereby ensuring the persistence of their green behaviors over time (Nguyen et al., 2023).

GSE is regarded as a pivotal mediator between GHRM and EGB (Gunawan et al., 2024). First, the green training and development practices in the GHRM enhance employees' green skills, strengthening their perceived ability to address the environmental issues and reinforcing their GSE (Song et al., 2024). Second, green incentives and performance feedback bolster employees' positive self-evaluation of their green behaviors, instilling greater confidence to continue engaging in such behaviors in the future (Veerasamy et al., 2023). In addition, GSE significantly increases employees' willingness to actively participate in organizational green initiatives and ensures the sustainability of their green behaviors.

When seeking the solutions to the problems, the people with high self-efficacy tend to attribute the failure to lack of effort, while the people with low self-efficacy tend to attribute the failure to lack of ability. According to the SCT theory, GSE is regarded as a crucial psychological mechanism that translates organizational green management practices into employees' self-directed green behaviors. Furthermore, GSE bridges the organizational support and the individual action by enhancing employees' sense of

competence and accomplishment (Jiménez-Sánchez et al., 2024). In addition, the organizations provide the employees with the psychological resources needed to drive the green actions through the implementation of GHRM, while GSE translates this support into the proactive workplace behaviors.

Based on the above theoretical foundation and empirical insights, the following hypothesis is proposed:

H3: GSE plays a mediating role in corporate GHRM and EGB.

H3a: GHRM has a positive relationship with GSE.

H3b: GSE has a positive relationship with EGB.

4. Methods

4.1. Research Design

The purpose of this study is to deeply explore the impact mechanism of GHRM on EGB in the hotel industry. Specifically, the following key issues should be studied: Is there a direct connection between GHRM practice and EGB? If so, what is the strength and direction of this association? Are there other mediating or moderating variables that affect the relationship between the two? In order to solve these problems, based on research assumptions and research models, this study will take the Dongguan hotel industry in China as an example, systematically analyze the survey data through questionnaires, data collation, regression analysis and other methods, and study the impact mechanism of GHRM on EGB in the hotel industry based on main effect analysis, intermediary effect analysis and hypothesis testing.

4.2. Research Location

Dongguan has a large number of hotels, covering various types from five-star hotels to express hotels. According to the data from China government, Dongguan has 15 five-star hotels, 33 four-star hotels, and 56 three-star hotels. It allows the research to cover the GHRM practices of hotels of different grades and different positioning, and the research results are more universal and representative. The large number of hotels leads to fierce competition in the market, and hotels need to constantly seek differentiated competitive advantages. As an emerging management concept and practice, green human resource management may become an important means for hotels to enhance their competitiveness. Studying the GHRM of Dongguan hotels will help understand how hotels use GHRM to attract and retain talents, improve employee performance and corporate image in a competitive environment. Dongguan has a developed export-oriented economy, with more than 14000 foreign-invested enterprises, and its foreign trade exports have ranked among the top of large and medium-sized cities in the country for many consecutive years. This has brought a large number of business inspection groups and exhibition activities, and has rich business customers. Business travelers have higher requirements for hotel quality and services, and are also paying more and more attention to the hotel's environmental protection and sustainable development image. Therefore, Dongguan hotels have the motivation to implement GHRM to meet the needs of business tourists. It is of practical significance to study their GHRM practice. Dongguan is in the stage of economic transformation and upgrading, and the hotel industry is also facing

pressure and opportunities to transform from a traditional service model to a green and sustainable service model. Studying the GHRM of Dongguan hotels can provide reference and reference for the hotel industry on how to achieve green development during the industrial transformation process.

4.3. Research Population

The survey target populations of the hotel industry in this study mainly include the hotel employees and the hotel managers. The hotel employees cover junior employees, mid-level employees, managers/supervisors, department heads/executives, C-level executives (CEO, CFO, etc.). Employees at different levels have different responsibilities in hotel operations, and have different perceptions, participation and influence on GHRM. For example, junior employees are more executors of GHRM practices, while senior executives are responsible for formulating and promoting GHRM strategies. In addition, the hotel employees also involve front reception department, room service department, catering department, maintenance/engineering department, human resources department, finance/accounting department, marketing/sales department, management/administration department, spa and health department, security department and other departments. The content and nature of each department's work are different, and GHRM has different impacts and requirements on its work. For example, the behavior of housekeeping service staff in saving resources and reducing waste is crucial to hotel green operations, while human resources staff play a key role in promoting GHRM policy implementation. The hotel managers are the makers and promoters of GHRM decisions, and their management concepts and decisions directly affect the implementation effect of GHRM. Studying their perceptions, attitudes and implementation strategies towards GHRM will help understand the implementation of GHRM in hotels and the challenges they face.

4.4. Research Sample

In this study, the employees and managers of the hotel industry in Dongguan City, China are selected as the study group, and the demographic characteristics of the participants are summarized in Table 1.

Table 1: Summary of Demographic Characteristics of the Participants

Items	Description	N	%
Gender	Male	254	43.3
	Female	333	56.7
Age	19-29	255	43.4
	30-39	159	27.1
	40-49	101	17.2
	Over 50	72	12.3
Edu	High school or below	152	25.9
	Associate degree	212	36.1
	Bachelor's degree	144	24.5
	Master's degree	58	9.9
	Doctorate or professional degree	21	3.6
Star	3-star	238	40.5

	4-star	176	30.0
	5-star	126	21.5
	Others	47	8.0
How long	1-5 years	90	15.3
	6-10 years	247	42.1
	11-20 years	171	29.1
	More than 20 years	79	13.5
employees	Less than 100	62	10.6
	101-200	227	38.7
	201-300	203	34.5
	More than 300	95	16.2
Job Position	Entry-level staff	319	54.3
	Mid-level staff	147	25.1
	Manager/Supervisor	56	9.5
	Department head/Executive	47	8.0
	C-Level Executive (CEO, CFO, etc.)	14	2.4
	Other	4	0.7
Department	Front Office/Reception	107	18.2
	Housekeeping	152	25.9
	Food and Beverage	128	21.8
	Maintenance/Engineering	44	7.5
	Human Resources	86	14.7
	Marketing/Sales	43	7.3
	Management/Administration	13	2.2
	Other	14	2.4
Years	Less than 1 year	79	13.5
	1-5 years	199	33.8
	6-10years	186	31.7
	11 15 years	79	13.4
	More than 15 years	44	7.5

The data are collected through a questionnaire survey distributed via a professional online platform. Participants underwent identity verification to ensure the authenticity and reliability of the collected data, mitigating potential biases. A total of 645 questionnaires are distributed, with 615 responses received. Following data cleaning and the exclusion of invalid responses, 587 valid questionnaires are retained, resulting in an effective response rate of 91%. This high response rate, coupled with the diversity of participants, ensures the representativeness of the sample. The sample included employees from various hotel types (e.g., three-star to five-star hotels) and organizational levels (from frontline staff to managers).

To enhance the reliability and applicability of the questionnaire, a pilot survey involving 50 participants is conducted before the formal data collection. The pilot survey provided

valuable feedback that informed refinements to the wording, structure, and overall clarity of the questionnaire, ensuring its suitability for the target population. The final questionnaire consisted of two sections. The first section gathered demographic information about the participants, including gender, job position, and years of service. The second section measured the core variables: GHRM, GOI, GSE, and EGB. All items are rated on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

4.5. Data Analysis

The data analysis is conducted by SPSS 23.0 software and AMOS 23.0 software. The reliability is evaluated with Cronbach's α coefficient, while the Confirmatory Factor Analysis (CFA) is performed in the AMOS assessed convergent and discriminant validity. The descriptive statistics, including means, standard deviations, and correlation coefficients, are calculated in SPSS 23.0 software to explore the relationships among the variables. The data analyses focus on the direct effects of GHRM on EGB and the mediating roles of GOI and GSE. To ensure robustness, the mediating effects are validated using the Bootstrap method with 5,000 resamples. This comprehensive approach confirmed the reliability and validity of the constructs while providing strong support for the hypothesized relationships.

5. Results

5.1. Common Method Bias Test

To examine the potential deviations, Harman's single factor is used to test the data. Based on non-rotating factor analysis, a single factor accounted for 32.15% of the variance, which is below the 40% threshold commonly used to indicate significant deviations. In order to further confirm the analysis results, this study used a confirmatory factor analysis of the data using deviation control factors including common methods. The results of this analysis showed that there is very little change in the model matching index. Where, $\chi^2/df = 0.037$, $\Delta TLI = 0.007$, $\Delta CFI = 0.005$, and $\Delta RMSEA = 0.003$. These results suggest that common method deviations are unlikely to pose a major problem in this study.

To ensure scientific rigor of the measurements, reliability and validity tests are conducted to assess the consistency and accuracy of the structure. The Cronbach alpha coefficients for all variables exceeded 0.70, confirming good internal consistency. After the reliability assessment, validity is checked through the Probative Factor Analysis in AMOS. The four-factor model showed a better matching index than the competing model ($\chi^2/df = 1.816$, TLI = 0.925, CFI = 0.932, RMSEA = 0.045), emphasizing its robustness in terms of capture structure. These results demonstrate that the measurement tool has satisfactory convergence and discrimination effectiveness, ensuring that it is suitable for this study.

5.2. Descriptive Statistics and Correlation Analysis

Descriptive statistics and correlation analysis are performed for the primary variables with results presented in the Table 2, and the results are shown in Table 3. According to the results shown in Table 2 and Table 3, the significant positive correlations are identified between GHRM, EGB, GOI and GSE ($p < 0.01$). These correlations provide strong empirical support for the theoretical foundation of the proposed hypotheses.

Furthermore, the Variance Inflation Factor (VIF) values ranged from 1.381 to 1.548, confirming the absence of multicollinearity issues among the variables.

Table 2: Confirmatory factorial results

Factor Model	CMIN	Df	CMIN/df	RMSEA	CFI	TLT
Four-Factor Model (GHRM, GEB, GOI, GSE)	624.750	344	1.816	0.045	0.932	0.925
Three-Factor Model (GHRM+GOI, GEB, GSE)	688.706	347	1.985	0.049	0.918	0.915
Two-Factor Model (GHRM+GOI, GEB + GSE)	694.616	349	1.990	0.050	0.917	0.911
One-Factor Model (GHRM + GEB + GOI+GSE)	772.854	350	2.208	0.054	0.899	0.891

5.3. Hypothesis Testing

To perform the hypothesis testing, SPSS 23.0 is employed to empirically test the relationship between GHRM and EGB, as well as the mediating effects of GOI and GSE.

5.3.1. Main Effect between GHRM and EGB

To examine the relationship between GHRM and EGB, a regression analysis is conducted by taking GHRM as the independent variable and taking EGB as the dependent variable. In addition, Gender, Age, Education, Star Rating, Job Tenure, Number of Employees, Job Position, and Department are included as control variables. According to the results from the regression analysis in SPSS 23.0 software, the main effect between GHRM and EGB based on the survey data collected from Dongguan, China is presented in Table 4.

Table 4: Main Effect Between GHRM and EGB

		EGB	
		M1	M2
Control Variables	Gender	-0.051	-0.067
	Age	-0.048	0.01
	Edu	0.005	0.006
	Star	-0.038	-0.039
	Howlong	0.024	0.011
	Employees	0.069	0.039
	JobPosition	-0.019	0.002
	Department	-0.001	-0.006
	Years	-0.111**	-0.102**
Independent Variables	GHRM		0.526***
	R2	0.02	0.291
	ΔR^2	0.02	0.271
	F	0.227	23.603***

Note: *, p<0.05;**,p<0.01;***,p<0.001

Table 3: Descriptive Statistics and Correlation Analysis

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1Gender	1.567	0.496	1												
2Age	1.983	1.048	-0.017	1											
3Edu	2.291	1.067	0.039	-0.035	1										
4star	1.969	0.970	-0.067	-0.042	-0.051	1									
5Howlong	2.407	0.905	-0.044	0.016	0.018	.671**	1								
6employees	2.564	0.884	-0.073	-0.028	-0.039	.655**	.465**	1							
7JobPosition	1.811	1.118	.089*	0.054	-0.064	-0.029	0.08	-0.021	1						
8Department	3.172	1.799	-0.027	-0.01	0.02	0.061	0.026	-0.006	-0.002	1					
9Years	2.676	1.100	-.129**	0.019	0.022	.173**	.126**	.081*	-0.037	0.031	1				
10GHRM	3.986	0.795	0.026	-.116**	0.003	0.059	0.046	0.072	-0.043	0.009	-0.014	1			
11GOI	3.913	0.828	0.008	-0.057	-0.04	0.035	0.009	.093*	-0.032	0.024	-0.073	.430**	1		
12GSE	4.113	0.826	-0.043	-0.05	-0.05	-0.023	0.031	0.01	0.006	0.005	0.012	.454**	.281**	1	
13EGB	4.016	0.841	-0.041	-0.051	0.003	0.01	0.017	0.052	-0.021	-0.005	-.103*	.525**	.490**	.474**	1

Malaysian Journal of Social Sciences and Humanities (MJSSH) (e-ISSN : 2504-8562)
2025, Volume 10, Issue 2, e003242
DOI: https://doi.org/10.47405/mjssh.v10i2.3242

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The results indicate that GHRM exerts a significant positive effect on EGB after controlling for relevant variables (β = 0.526, p < 0.001). The M1 model, which includes only control variables (e.g., Gender, Age, and Tenure), explains limited variance in EGB (R^2 = 0.02). In contrast, the M2 model, which incorporates GHRM as an independent variable, significantly improves the explanatory power (R^2 = 0.291), with an R^2 change of 0.271. This substantial improvement highlights the critical role of GHRM in fostering EGB.

Moreover, the F-value of 23.603 in the M2 model is statistically significant at the 0.001 level, confirming the robustness and overall significance of the model. The substantial increase in F-value compared to M1 underscores the contribution of GHRM in explaining the variance in EGB. While most control variables (e.g., Gender, Age) show limited influence, Years of tenure (β = 0.102, p < 0.01) demonstrate a significant negative effect, suggesting that longer tenure may dampen employee engagement in green behaviors. This finding reinforces the necessity of GHRM interventions to mitigate such effects and enhance pro-environmental behavior.

These findings provide strong empirical support for the theoretical assumption that GHRM positively influences EGB. Thus, hypothesis H1, which posits that GHRM positively impacts EGB, is fully supported.

5.3.2. Mediating Role of GOI

According to the results of stepwise regression analysis in SPSS 23.0 software, the mediation analysis results of GOI between GHRM and EGB based on the survey data collected from Dongguan are shown in Table 5.

Table 5: Mediation Analysis Results of GOI Between GHRM and EGB

		EGB		GOI		EGB
		M1	M2	M3	M4	M5
Control Variables	Gender	-0.051	-0.067	0.009	-0.004	-0.066*
	Age	-0.048	0.01	-0.053	-0.005	0.012
	Edu	0.005	0.006	-0.039	-0.038	0.019
	Star	-0.038	-0.039	-0.028	-0.029	-0.03
	Howlong	0.024	0.011	-0.016	-0.027	0.019
	Employees	0.069	0.039	0.122*	0.097	0.008
	JobPosition	-0.019	0.002	-0.032	-0.015	0.007
	Department	-0.001	-0.006	0.029	0.026	-0.014
	Years	-0.111	-0.102**	-0.075	-0.067	-0.08*
Independent Variables	GHRM		0.526***		0.424***	0.391***
Mediator Variable	GOI					0.319***
	R2	0.02	0.291	0.022	0.198	0.372
	ΔR^2	0.02	0.271	0.022	0.176	0.082
	F	0.227	23.603***	1.449	14.194***	31.022***

Note : *, p<0.05;**,p<0.01;***,p<0.001

The stepwise regression analysis reveals that GHRM significantly positively affects EGB. In the M1 model, which includes only control variables (e.g., Gender, Age, and Years), the explanatory power is minimal (R^2 = 0.02). Introducing GHRM in the M2 model substantially improves the model's explanatory power (R^2 = 0.291, ΔR^2 = 0.271, β = 0.526, p < 0.001), confirming GHRM as a critical driver of EGB. In the M4 model, GHRM is shown to significantly enhance Green Organizational Identity (GOI) (β = 0.424, p < 0.001). When both GHRM and GOI are included in the M5 model, the direct effect of GHRM on EGB decreases (β = 0.391, p < 0.001), while GOI exerts a significant positive influence on EGB (β = 0.319, p < 0.001). These findings indicate that GOI partially mediates the relationship between GHRM and EGB.

These findings indicate that GOI plays a partial mediating role in the relationship between GHRM and EGB, providing support for Hypothesis H2.

To further validate the mediation effect, PROCESS Model 4 with 5,000 bootstrap resamples is employed, and the mediation effect of GOI between GHRM and EGB with bootstrap results is shown in Table 6. The results shown in Table 6 confirm that there is a significant indirect effect of GOI on EGB (effect = 0.135, 95% CI [0.094, 0.182]), supporting the robustness of the mediation pathway. The total effect of GHRM on EGB is 0.526, consisting of a direct effect of 0.391 (74.33%) and an indirect effect via GOI of 0.135 (25.67%). These results underscore the importance of GOI as a mechanism through which GHRM enhances EGB, offering empirical support for its partial mediation role. This highlights the pivotal role of organizational identity in translating green HR practices into sustainable employee behaviors.

In conclusion, Hypothesis H2, which posits that GOI mediates the relationship between GHRM and EGB, is fully supported.

Table 6: Mediation Effect of GOI Between GHRM and EGB with Bootstrap Results

	Effect Value	**Boot SE**	**95%Boot CI Lower**	**95%Boot CI Upper**	**Relative Effect Value (%)**
Total Effect	0.526	0.038	0.482	0.63	
Direct Effect	0.391	0.039	0.336	0.490	74.33%
Indirect Effect	0.135	0.023	0.094	0.182	25.67%

5.3.3. Mediating Role of GSE

The mediation analysis results of GSE between GHRM and EGB are shown in Table 7. The analysis results highlight that there is the significant impact of GHRM on EGB. In the M1 model, which incorporates only control variables (e.g., Gender, Age, and Years), the model's explanatory power is minimal (R^2 = 0.02). Adding GHRM as an independent variable in the M2 model substantially increases explanatory power (R^2 = 0.291, ΔR^2 = 0.271, β = 0.526, p < 0.001), identifying GHRM as a critical predictor of EGB. When Green Self-Efficacy (GSE) is introduced in the M4 model, GHRM significantly enhances GSE (β = 0.459, p < 0.001). In the M5 model, which integrates both GHRM and GSE, the direct effect of GHRM on EGB decreases (β = 0.389, p < 0.001), while GSE positively and significantly influences EGB (β = 0.298, p < 0.001). These findings suggest that GSE play a mediating role in the the impact of GHRM on EGB.

These findings indicate that GSE plays a partial mediating role in the relationship between GHRM and EGB, providing support for Hypothesis H3.

Table 7: Mediation Analysis Results of GSE Between GHRM and EGB

		EGB		GSE		EGB
		M1	M2	M3	M4	M5
Control Variables	Gender	-0.051	-0.067	-0.04	-0.055	-0.051
	Age	-0.048	0.01	-0.059	-0.007	0.013
	Edu	0.005	0.006	-0.058	-0.056	0.023
	Star	-0.038	-0.039	-0.123	-0.124*	-0.002
	How long	0.024	0.011	0.093	0.081	-0.014
	employees	0.069	0.039	0.039	0.012	0.035
	Job Position	-0.019	0.002	0.000	0.019	-0.003
	Department	-0.001	-0.006	0.009	0.006	-0.007
	Years	-0.111	-0.102**	0.016	0.024	-0.109**
Independent Variables	GHRM		0.526***		0.459***	0.389***
Mediator Variable	GSE					0.298***
	R2	0.02	0.291	0.014	0.220	0.360
	ΔR^2	0.02	0.271	0.014	0.206	0.069
	F	0.227	23.603***	0.901	16.244***	29.381***

Note : *, p<0.05;**,p<0.01;***,p<0.001

To verify the mediating role of GSE, the PROCESS Model 4 with 5,000 bootstrap resamples is employed, and the results are shown Table 8. The results shown in Table 8 indicate that the indirect effect of GSE on EGB is 0.137, with a 95% confidence interval [0.092, 0.189], confirming the robustness of the mediation effect. The total effect of GHRM on EGB is 0.526, with 73.95% attributed to its direct effect (0.389) and 26.05% to the indirect pathway through GSE (0.137). These results underscore the significance of GSE as a key mechanism by which GHRM fosters EGB, highlighting its role in strengthening employees' belief in their capacity to perform pro-environmental behaviors.

In conclusion, Hypothesis H3, which posits that GSE mediates the relationship between GHRM and EGB, is fully supported.

Table 8: Mediation Effect of GSE Between GHRM and EGB with Bootstrap Results

	Effect Value	Boot SE	95%Boot CI Lower	95%Boot CI Upper	Relative Effect Value (%)
Total Effect	0.526	0.038	0.482	0.63	
Direct Effect	0.389	0.040	0.333	0.490	73.95%
Indirect Effect	0.137	0.025	0.092	0.189	26.05%

6. Discussion

This study explores the direct impact of GHRM on EGB and further examines the mediating roles of GOI and GSE from both theoretical and practical perspectives. The findings not only support existing theories but also provide new insights for organizations aiming to achieve sustainable development goals.

The results of this study confirm that GHRM has a significant direct effect on EGB. It indicates that GHRM practices such as green recruitment, training, incentives, and employee empowerment effectively stimulate green behaviors in the workplace, thereby enhancing organizational environmental performance. The findings of this study are highly consistent with prior empirical research, further underscoring the pivotal role of GHRM as a vital organizational mechanism for achieving the environmental sustainability objectives in the hotel industry (Luu, 2021; Chen et al., 2022). By comprehensively implementing the GHRM practices, the organizations not only directly promote EGB, but also strengthen employees' recognition and support for the organization's environmental mission.

Furthermore, the results of this study reveal that GOI plays a significant mediating role in the relationship between GHRM and EGB, which provide practical reference for the sustainable development of the hotel industry. Based on Social Identity Theory, employees who identify with an organization's green values are more likely to engage in proactive green practices (Nguyen et al., 2023). The results indicate that GHRM fosters employees' sense of belonging and responsibility toward organizational environmental goals by shaping a green culture and disseminating environmental values. This identification internalizes green behavior as a voluntary and sustained action, highlighting the importance of organizational culture in implementing green management practices.

Additionally, GSE also serves as an important mediator between GHRM and EGB. The findings show that GHRM enhances employees' confidence and sense of capability in performing green behaviors through green training and resource support (Usman et al., 2024). GSE not only increases employees' willingness to engage in green practices but also reinforces their perceived ability to complete green tasks, further sustaining green behavior over time. Organizations should focus on capacity-building initiatives and systematic training to inspire employees' intrinsic motivation to actively participate in environmental practices.

In summary, two key managerial implications for organizations' green practices are provided by this study, which reflect in the following aspects. First, fostering a green culture and enhancing psychological identification can align employee behaviors with organizational sustainability goals. Secondly, building employees' capabilities and fostering a sense of accomplishment in environmental domains can promote self-driven green behavior.

While this study discovered the impact relationship between GHRM and EGB in the hotel industry, there are still areas that need further research and the additional research is still needed to further reveal the intrinsic impact mechanism of GHRM on EGB in the hotel industry. In this study, there still are some limitations, which include the following aspects. First, the sample in this study is only collected from Dongguan hotel industry in China. Secondly, the external factors such as policy support and cultural context are not fully considered in this study. Lastly, this study does not comprehensively consider the comprehensive application of AI technology in the data analysis.

Based on the findings of this study, the application of big data and AI technology in the future to study the impact mechanism of GHRM on EGB will further reveal the intrinsic relationship between GHRM and EGB. Combining with the findings of this study, the

adoption of AI technology and the new analysis strategy will provide the hotel industry with more precise management strategies at a deeper level.

7. Conclusion

To explore the direct impact of GHRM on EGB and its indirect effects mediated by GOI and GSE, Dongguan hotel industry in China is taken as an example to empirically study how GHRM affects EGB through GOI and GSE. The findings of this study demonstrate that GHRM not only directly enhances EGB but also indirectly fosters employees' behaviors by strengthening employees' psychological mechanisms through green recruitment, training, and incentives, etc. in the hotel industry. Specifically, GHRM shapes a green organizational culture that deepens employees' identification with environmental goals, encouraging the internalization of pro-environmental values into their daily work practices. Meanwhile, systematic support and capacity building measures not only enhance employees 'confidence in completing green tasks, but also deeply improve employees' ability to work green and further maintain employees 'green behaviors. These findings enrich theoretical frameworks on GHRM by unveiling its dual pathways—direct and mediated—while providing actionable insights for organizational green management.

Despite its contributions, this study has limitations. First, the sample is exclusively drawn from the hotel industry in China, potentially limiting the generalizability of the findings to other sectors or regions. Second, the study did not address the moderating role of external factors such as policy support or cultural context, which may influence the GHRM-EGB relationship. Future research should explore these moderating effects and extend the model to diverse industries and cross-cultural settings to validate its broader applicability. Additionally, investigating the integration of technological advancements, such as artificial intelligence and the Internet of Things, with green management practices could offer new directions for enhancing organizational sustainability efforts.

Based on the findings, organizations are advised to foster a green organizational culture, implement systematic training and incentive programs, and enhance employees' psychological identification and self-efficacy. By aligning employee behaviors with sustainability goals, businesses can achieve synergistic growth in corporate environmental performance and individual green behavior, paving the way for a more sustainable future.

Ethics Approval and Consent to Participate

This research adheres to the ethical standards set by the Research Ethics Committee of the Management and Science University (MSU), Malaysia. All procedures involving human participants are conducted in full compliance with the ethical guidelines outlined by the institutional research ethics board. Informed consent is obtained from all participants before their involvement in the study, following the principles outlined in the Declaration of Helsinki.

Acknowledgement

This article is part of a doctoral thesis submitted to the Management and Science University (MSU), Malaysia. The author extends sincere gratitude to the university for its

academic support and resources and to the participants who contributed their valuable time and insights to this research.

Funding

This study received no funding.

Conflict of Interest

The author declares no conflict of interest concerning the research, authorship, or publication of this article.

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