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Green Human Resource Management and Organizational Citizenship Behavior towards the Environment in hotels: A Serial Mediation Model of Environmental Knowledge and Environmental Commitment

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MSc in Hospitality and Tourism Management

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Resumo

Embora a Gestão Verde de Recursos Humanos (GVRH) tenha sido reconhecida pelo seu valioso papel na formação do Comportamento de Cidadania Organizacional em relação ao Meio Ambiente (CCOMA), ainda falta literatura que investigue este tópico significativo na indústria hoteleira, o que representa uma lacuna na literatura sobre as práticas de gestão verde na indústria hoteleira. Com base nos efeitos do Conhecimento Ambiental e do Compromisso Ambiental, este estudo testa os efeitos diretos e mediados do GVRH no CCOMA. Foi aplicada uma metodologia quantitativa, tendo sido utilizado um inquérito online a 102 funcionários de hotéis para recolha de dados e teste de cinco hipóteses. Os dados foram coletados por amostragem aleatória de funcionários de hotéis por meio de uma plataforma de distribuição de pesquisas on-line e coletadas respostas de funcionários de qualquer hotel. Os resultados indicam algumas descobertas esperadas e outras inesperadas, incluindo: (i) os efeitos diretos das práticas de GVRH no CCOMA; (ii) o efeito indireto do GVRH no CCOMA através da mediação de Conhecimento Ambiental ou Compromisso Ambiental e (iii) o efeito mediador serial de Conhecimento Ambiental e Compromisso Ambiental na relação entre GVRH e CCOMA. O efeito direto do GVRH no CCOMA não apresentou resultados significativos neste estudo, porém a análise estatística do efeito mediador serial de Conhecimento Ambiental e Compromisso Ambiental mostrou resultados significativos que apoiam a hipótese principal deste estudo.

Palavras-chave: Gestão Verde de Recursos Humanos, Conhecimento Ambiental, Compromisso Ambiental, Comportamento de Cidadania Organizacional em relação ao Meio Ambiente

JEL Classification System: L83, O15, Q57

Abstract

While Green Human Resource Management (GHRM) has been acknowledged for its valuable role in shaping Organizational Citizenship Behavior towards the Environment (OCBE) there is still a lack of literature that has investigated this significant topic in the hospitality industry, which represents a gap in the literature on the green management practices in the hospitality industry. Drawing on the effects of Environmental Knowledge (EK) and Environmental Commitment (EC), this study tests direct and mediated effects of GHRM on OCBE. A quantitative methodology was applied, with an online survey of 102 hotel employees being used for collecting data to test five hypotheses. Data was collected by random sampling of hotel employees through an online survey distribution platform and collected responses from employees of any hotel. The results indicate some expected and some unexpected findings, including: (i) the direct effects of GHRM practices on OCBE; (ii) the indirect effect of GHRM on OCBE through mediation of EK or EC and (iii) the serial mediating effect of EK and EC on the relationship between GHRM and OCBE. The direct effect of GHRM on OCBE showed no significant results when mediations were added, hence EK and EC fully mediated the relationship.

Key words: Green Human Resource Management, Environmental Knowledge, Environmental Commitment, Organizational Citizenship Behavior towards the Environment

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1. Introduction

1.1. Purpose and importance of the study

For organizations to keep up with the ecologically sustainable commitments, they have to adapt and focus on ecological issues from within. One of the ways for organizations to deliver on their ecologically sustainable commitments and promises is to align their people practices with these goals. According to Ren et al. (2018) once an organizations' Human Resource Management (HRM) practices harmonize with environmentally sustainable policies and efforts, an innovated form of Human Resource Management is made, known as Green Human Resource Management (GHRM). It is expected for employees to be engaged in green activities that contribute to the hotels' environmental goals, or Organizational Citizenship Behavior towards the Environment (OCBE) if there are GHRM practices in a hotel (Pham et al., 2019).

Industries are increasingly adapting practices focused on environmental responsibility as a response to pressures imposed by corporate stakeholders as well as environmental regulations (Paillé et al., 2013). As a response to these pressures, as well as acceptance and accomplishment of environmental objectives, organizations began to rely on GHRM practices to help them achieve environmentally sustainable goals (Guerci et al., 2016).

Various industries, with a specific focus on the hotel sector, have undertaken significant environmentally friendly initiatives. Focus on hotel sector comes from the hotels' intensive water usage, energy consumption, solid waste generation and other environmentally disrupting practices (Kasim, 2007). The hotel industry contributes to the environmental issues far less than other tourism sectors such as transport, however a hotel still leaves a significantly larger ecological footprint compared to that of a typical household (Kasim, 2007). The initiatives that are being undertaken in hotels vary from water and energy conservation, waste reduction, addressing food waste, to educating both employees and customers about environmental concerns (Munawar et al., 2022). In order to achieve these goals, effective GHRM practices need to be implemented in hotels with the aim of increasing employees' knowledge about these issues through green training and other GHRM practices (Zaid et al., 2018).

Employees' knowledge about environmental issues is referred to as Environmental Knowledge (EK) (Martins et al., 2021). As already mentioned, hotels are increasingly recognizing the importance of integration of environmentally sustainable practices into their operations, and one way achieve this is by increasing employee EK. It includes awareness about ecological challenges, understanding of sustainable practices, and knowledge about the

environmental goals and policies of the hotel (Ahmad et al., 2023; Munawar et al., 2022). In essence, EK can serve as a foundation on which GHRM goals are achieved, enabling hotels to foster environmentally responsible culture, and employees' commitment to environmentally sustainable goals.

When employees are committed to environmentally sustainable goals of their organization, this is referred to as Environmental Commitment (EC) (Tan Pham et al., 2019). When hotel employees have an understanding of environmental challenges, sustainable practices and impact on the environment from their actions, they are more likely to cultivate EC (Raineri & Paillé, 2016). Additionally, EC is enhanced by implementing GHRM practices in organizations (Ahmad et al., 2023).

This study explores the relationship between GHRM and OCBE through the mediating effect of EK and EC. This study assumes that EK and EC play a significant role in mediating the relationship between GHRM and OCBE. OCBE is achieved through the stimulation of employees to engage in environmental initiatives that go beyond their official job roles, thereby cultivating a workplace environment characterized by a positive social and psychological atmosphere rooted in ecologically sustainable values and actions (Boiral & Paillé, 2012). Such culture can ultimately help the development and implementation of environmentally oriented policies and practices.

1.2. Research questions and objectives

The articles used in this study, identified in the literature, focus on GHRM and OCBE with various direct and mediating factors influencing the relationship between the two. However, none of the identified studies explores the mediating effect of EK and EC, specifically the serial mediating effect of the two variables. Additionally, some articles studied these variables in hospitality industry, whereas some studied these variables in different industries.

To address these gaps, this study aims to find if EK and EC have a serial mediating effect on GHRM and OCBE, specifically in hospitality industry. While this study explores the relationship between GHRM and OCBE it differs from what Meng et al. (2022) and Pham et al. (2019) have found, which is a direct effect of GHRM on OCBE, as this study also looks into the serial mediating effect of EK and EC. Additionally, this study will explore if there is a mediating effect of EK and EC individually.

The goal of studying these variables is to better understand the need of GHRM practices in hotels, and if there is a specific path for hotel employees for achieving OCBE. To fulfill these goals, relevant literature was identified and will be examined to better understand

these variables and their relationships. In addition to this, primary data was collected from hotel employees.

1.3. Structure of the thesis

This dissertation is organized in four main chapters:

1. Introduction: in this chapter, the research problem is contextualized and defined, providing an understanding of its significance within the academic context. Additionally, the research question and objectives are formulated.
2. Literature review and hypotheses development: this chapter is divided into sections introducing each variable relevant in this study, and respectively introducing research hypotheses.
3. Methodology: this chapter shows the methodology used in this study
4. Results: this chapter shows the findings presented in regard to the hypotheses.
5. Discussion and conclusion: this chapter contains the contributions, discussion, as well as the study's limitations and practical implications.

2. Literature Review and Hypotheses Development

2.1.GHRM Practices

In Amrutha and Geetha (2020) systematic review on Green Human Resource Management (GHRM), it is found that GHRM refers to using Human Resources Management (HRM) practices to advance environmentally conscious practices and improve employee's commitment to the issues of environmental sustainability. GHRM aims to equip organizations with environmentally aware, dedicated, and skilled employees which enhance the organization's ability to reduce its carbon footprint through utilizing its current resources (Nejati et al., 2017). GHRM is a concept that refers to understanding relations between organization's actions that have an impact on the environment and how it shapes the development, evolution, implementation, and impact of HRM systems (Ren et al., 2018).

Environmental protection is increasingly becoming a priority for organizations, including hotels. Achieving the goal of environmental sustainability involves implementation of sets of strategies and guidelines for organizations including green recruitment and selection, green training, green performance management, green pay and rewards, and green involvement (Tang et al., 2018). These practices form a holistic approach to implementing environmental concern into traditional HRM practices. When organizations focus on aligning their HRM practices with these green or environmentally sustainable practices, they create a way to harmonize with the hotels' organizational green values.

According to Haldorai et al. (2022) GHRM practices hold the potential to enhance hotels' environmental performance by fostering an alignment between HRM practices and the organizations' core values focused on environmental sustainability. Additionally, this alignment can be facilitated by senior managers who engage mid-level hotel managers in formulating and executing environmental initiatives. In Haldorai et al. (2022) framework, it is further demonstrated that top-level management has the opportunity to create an organizational culture that prioritizes environmental conservation, which encourages employee dedication to realizing environmental objectives of the hotel.

GHRM consists of a set of human resource practices, that have implications for organizations' performance "through green hiring (GH), green training and involvement (GTI), and green performance management and compensation (GPC)" (Zaid et al., 2018, p.3). Green performance management and compensation (GPC) involves creating and implementing effective strategies for promoting ongoing environmental sustainability such as setting environmental performance targets or providing rewards and incentives for achieved

environmental goals (Amrutha & Geetha, 2020). Additionally, green training and involvement (GTI) is defined as a process of on-the-job training and continued education designed to achieve corporate environmental management targets (Daily & Huang, 2001). Lastly, green hiring (GH), also referred to as green recruitment involves hiring employees based on their competencies, expertise, attitudes as well as their conduct concerning environmental sustainability, as per Martins et al. (2021). Organizations recruit environmentally responsible candidates with a focus on environmental knowledge and on environmental motivation (Martins et al., 2021).

As a result of implementing GHRM practices in organizations, employees may be more willing to engage in behaviors that are not a part of their formal job requirements, such as supporting fellow employees' engagement in environmental initiatives, aiding in the resolution of environmental challenges, and fostering collaboration with other departments (Boiral & Paillé, 2012). According to Ma et al. (2013), discrete, not compensated or acknowledged directly or explicitly, important for the efficient operation of an organization types of behaviors are characterized as Organizational Citizenship Behavior (OCB), and it includes any additional efforts by employees to improve the overall performance and productivity of their organization.

2.2.GHRM and OCBE

The definition of OCB was coined by Organ (1988, p. 4) and it is defined as “individual behavior that is discretionary, not directly or explicitly recognized by the formal reward system, and that in the aggregate promotes the effective functioning of the organization.” Previous research has found that implementing effective GHRM policies enhance OCB towards environment, as confirmed by Meng et al. (2022), stating that GHRM positively impacts green OCB.

In Boiral and Paillé's (2012) study it is indicated that OCB can have a positive impact on environmental sustainability, by motivating employees to participate in environmental initiatives extending beyond their formal scopes of work, fostering a positive social and psychological workplace atmosphere rooted in ecologically sustainable values and practices. This culture can lead to forming and executing environmentally focused policies and practices. For instance, employees actively involved in environmental committees or initiatives aimed at waste reduction or improved energy efficiency can contribute to overall organizational ecological sustainability and improve organization's environmental reputation (Boiral & Paillé, 2012).

GHRM can influence OCB towards the Environment (OCBE), by providing employees with the necessary skills, motivation, and opportunities to engage in green activities that contribute to environmental management (Pham et al., 2019). According to Kim et al. (2019) GHRM in hotel generally enhances their commitment to their organizations, their eco-friendly behaviors, and the environmental performance. Additionally, an employee is more likely to make additional environmental efforts when they believe that the organization empowers their supervisor with the autonomy and resources needed to participate in pro-environmental actions (Paillé et al., 2013). Conducting performance appraisals focused on green activities contributes to fostering a sense of belonging and commitment to the organization (Temminck et al., 2015).

Therefore, this study hypothesizes that:

H1. GHRM has a positive effect on OCBE.

2.3. Mediating role of EK and EC in the relationship between GHRM and OCBE

EK refers to a person's understanding of the environment, ecological systems, environmental issues, and environmental management systems. In organizations, it involves knowledge about the environmental impact of the organization, green practices, and eco-performance. EK is essential for employees to participate in environmental sustainability practices and contribute to the organization's environmental goals positively (Martins et al., 2021).

EK of the employees is important for an organization because it allows employees to understand the environmental impact of the organization and the need for environmental sustainability practices. When employees have EK, they can participate in the green culture of the organization, which leads to an increased focus on environmental performance and pro-environmental behavior. Therefore, it is important for the employees to have EK that can assist the organization with determining the employees' commitment to green practices (Raineri & Paillé, 2016)

Employees who have EK tend to exhibit a higher level of engagement in environmentally focused behaviors (Munawar et al., 2022). This engagement is particularly pronounced when employees have the autonomy to apply EK, skills and abilities to execute environmentally oriented tasks. In doing so, they are motivated and cultivate a sense of EC. This synergy between knowledge, autonomy and action drives pro-environmental behaviors and stems from GHRM practices in an organization (Nisar et al., 2021; Rodrigo et al., 2019; Singh et al., 2020). EC of employees has been proven to be improved by implementation of GHRM practices, such as environmental training which positively influences EK of employees

(Amrutha & Geetha, 2020; Martins et al., 2021; Zoogah, 2011). From understanding of the above, the following is hypothesized:

H2. The presence of GHRM in hotels increases employees' EK in hotels.

H3. Employees' EK has a positive effect on employees' EC.

Environmental training, for example, provides employees with the necessary environmental knowledge and assists them in obtaining and incorporating green attitudes and skills, leading to long term sustained EC (Tan Pham et al., 2019). Effective GHRM strategies should take into account employee attitudes since they can yield considerable and beneficial influence on workplace results, including EC (Masri & Jaaron, 2017). By demonstrating commitment to environmental matters through GHRM practices, the organization can improve the commitment of employees, motivating them to embrace greater environmental responsibility and engage more actively in eco-initiatives (Renwick et al., 2013). Voluntary engagement in eco-initiatives with no specific or explicit reward system following the behavior is characterized as OCBE (Organ, 1988). Therefore, the following is hypothesized:

H4. Employees' EC results in their OCBE.

As previously discovered, GHRM plays an important role in fostering EK among employees. Research by Renwick et al. (2013) shows that organizations that focus on prioritizing GHRM often provide environmental education and training, effectively improving employees' understanding of ecological challenges and organizational sustainable and green initiatives. This emphasis on education within GHRM practices contributes to the development of EK within the hotels' employees (Renwick et al., 2013).

The link between EK and EC is important in the path from GHRM to OCBE. EC reflects an employees' dedication to environmentally responsible behavior and the organization's sustainable goals. Employees with higher levels of EK are more likely to exhibit stronger EC, demonstrating a positive relationship between these variables (Ahmad et al., 2023; Tan Pham et al., 2019). EK equips employees with knowledge that they need to understand the significance of environmental sustainability, fostering a sense of responsibility and commitment toward environmentally sustainable behaviors (Ahmad et al., 2023; Munawar et al., 2022).

Overall, it is concluded from previously mentioned studies that GHRM practices contribute to improvement and development of EK among employees, which enhances their EC to environmental issues which ultimately results in their environmentally responsible

behaviors or OCBE. Understanding these relationships leads to hypothesize the final hypothesis of this study:

H5. EK and EC positively mediate the relationship between GHRM and OCBE in the way that GHRM increases EK which in turn increases EC, which results in OCBE.

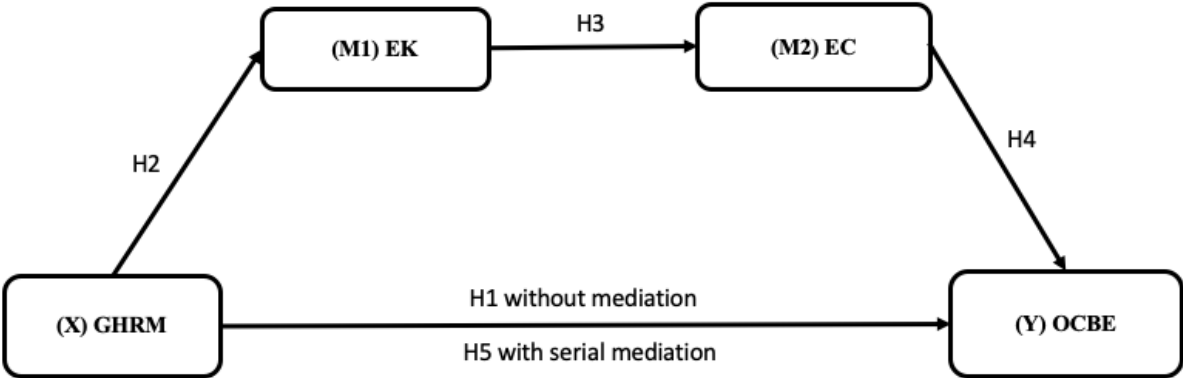


Figure 1- Research Model

3. Methodology

3.1. Research Design and Data Collection

This quantitative study investigates the role of EK and EC in mediating the relationship between GHRM and OCBE. A cross-sectional design was used due to time limitations, however, to compensate for not using a longitudinal study, participants of this study were asked questions about topics other than GHRM, EK, EC and OCBE to create breaks between answering questions about these variables. The following sections will discuss the measures and the survey in more detail.

Due to language limitations and practical time constraints associated with in-person data collection at hotels, an online approach was adopted for data collection in this study. The chosen platform for data collection was Prolific, which was selected due to its efficacy, dependability, and cost-effectiveness. In order to encourage participants' completion of the survey, a unique code was generated within the platform and provided to respondents upon survey completion. The complete dataset comprised 102 responses sourced from the Prolific platform. All participants of this survey were presented with a consent form at the beginning of the survey and asked to agree to participate in the study before responding to questions. The consent form can be found in Annex A.

Once all responses were collected, only survey entries with the status "completed" were retained; this accounted for the entire dataset. Entries marked with a progression score of 100 were retained, which resulted in the exclusion of 47 entries for which this criterion was not met. The user language for all respondents was confirmed to be English, therefore all entries were retained. One entry had an abnormally long duration of 8694 seconds, while the average of all other entries was 230 seconds. This entry was removed from the dataset. Additionally, all entries with the completion time of less than 110 seconds were removed, resulting in the removal of 6 entries. Upon conducting the preliminary data clean-up, 92 valid entries were retained. Additionally, entries with provided answers such as "N/A" or "Prefer not to say" to Job position question were removed. 83 entries were retained after this; therefore, data analysis was conducted on these 83 entries.

3.2.Measures

3.2.1. Independent Variable

Green Human Resource Practices

For the purpose of this study, organizations' GHRM practices were measured using the scale adapted from Guerci et al. (2016) consisting of 11 items measuring GHRM practices. These items were measured on a six-point Likert scale (1 = not implemented; 6 = fully implemented). The scale items were modified to reflect the employee point of view for this study. For example, in the original study the HR professionals were asked "Employee selection is based on environmental criteria" whereas in this study, participants were asked "In your organization, employee selection is based on environmental criteria". Examples of other questions asked in the survey are "In your organization, employee attraction is through environmental commitment" and "In your organization, there is environmental training for employees". The full survey can be found in Annex B. The Cronbach's Alpha for these 11 items was $\alpha = .97$ (Table 3.1).

3.2.2. Mediators

Environmental Knowledge (EK)

EK as the first mediator of this study was measured using a four-item scale employed from Munawar et al. (2022). This set of items was measured on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Some sample items are "In my organization, sharing knowledge

and awareness about environmental issues and solutions with colleagues is a routine matter” and “I have contributed knowledge to this organization”. The full survey is available in Annex B. The Cronbach’s Alpha for these 4 items was measured at $\alpha = .84$ (Table 3.1).

Environmental Commitment (EC)

Seven items developed by Raineri and Paillé (2016) were used to measure employees’ environmental commitment in hotels. Using the seven item-scale, “a sense of attachment and responsibility to environmental concerns” was measured on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree). Examples of questions asked are “I really care about the environmental concern of my organization” and “I would feel guilty about not supporting the environmental efforts of my organization”. All questions can be found in Annex B. The Cronbach’s Alpha for these 7 items was $\alpha = .94$ (Table 3.1).

3.2.3. Dependent Variable

Organizational Citizenship Behavior towards the Environment

Boiral and Paillé (2012) developed items to measure OCBE. Four of these items were employed into this study. A five-point Likert scale (1 = very unlikely; 5 = very likely) was used in measuring the four items (e.g.: “I encourage my colleagues to adopt more environmentally conscious behaviors”, “I volunteer for projects or activities that address environmental issues in my organization”). The Cronbach’s Alpha for these 4 items was $\alpha = .84$ (Table 3.1).

3.2.4. Control Variables

Demographic Variables

Some research suggest that there is a connection between environmental behaviors and demographic characteristics (e.g., Anderson et al., 2011), therefore the following demographic characteristics were controlled: gender (1 = male; 2 = female; 3 = non-binary / third gender; 4 = prefer not to say), age (1 = 18 - 25; 2 = 26 – 35; 3 = 36 – 45; 4 = 46 – 55; 5 = 56+), years of experience in the hotel industry (1 = 0 – 2; 2 = 3 – 5; 3 = 6 – 10; 4 = 10+), size of the hotel they work for (1 = 25 – 49 employees; 2 = 50 – 99 employees; 3 = 100 – 199 employees; 4 = > 200 employees), and job position / department they work for, which was an open ended question.

This study employed a 26-item survey designed to measure GHRM, EK, EC and OCBE. Cronbach's Alpha was utilized to assess the internal reliability of these survey items. The analysis revealed a Cronbach's Alpha coefficient of $\alpha = .96$ (Table 3.1). This result indicates a strong consistency among the survey items, showing the reliability of the survey being 96% which is considered as excellent (Vogt, 1999). Additionally, the analysis concluded that the Cronbach's Alpha would not change significantly if any of the items were removed from the survey.

Table 1 - Cronbach's Alpha of Survey Items

Dimension	No. of Items	Cronbach's Alpha
Green Human Resource Management	11	.97
Environmental Knowledge	4	.84
Environmental Commitment	7	.94
Organizational Citizenship Behavior towards the Environment	4	.84
Total	26	.96

4. Results

This section will delve into the findings of this study's survey, which have been analyzed using various statistical analysis. The software used in the analysis process was IBM SPSS, version 28. The analyses used include Cronbach's Alpha, employed to assess the internal consistency and reliability of scale measurements, correlation analysis to find relationships between variables, and linear regression to probe into those relationships and find if there is significant effect between independent variables, dependent variables and the mediators. Furthermore, Andrew Hayes' Model 6 from the PROCESS macro for SPSS was used to examine the mediation and serial mediation effect of EK and EC in this study. These analyses collectively contributed to finding evidence that supports a portion of hypotheses proposed in this study.

4.1.Respondents Profile

This study analyzed respondents' profiles by collecting demographic information, including gender, age, job position, years of experience within the hotel industry, and the size of the hotel where they work. The analysis shows that 50% of respondents are female, 48.8% are male and 1.2% are non-binary. Additionally, 24.4% of respondents are in 18 – 25 years age group; 34.1% of respondents are in 26 – 35 years age group; 18.3% are in 36 – 45 years age group; 12.2% are in 46 – 55 years age group; and lastly 11% of respondents belong to the 56+ age group. When it comes to years of experience in the hotel industry, 73.2% of respondents have 0-2 years of experience, 15.9% have 3.5 years of experience, 4.9% have 6.10 years of

experience, and 6.1% of respondents have 10+ years of experience in the hotel industry. The analysis also showed that 51.2% of respondents work in a 25 – 49 employee hotel, 25.6% in a 50 – 99 employee hotel, 8.5% in a 100 – 199 employee hotel, and 14.6% of respondents work for hotels of >200 employees.

Table 3.2 shows the categorization of job positions provided by respondents. The main categories identified based on their functional roles within the hotel industry are Front Desk and Customer Service 30.5% respondents; Management and Leadership 17.1% respondents; Administrative, Office and Technical Support 25.6% respondents; Food and Beverage 6.1% respondents; Marketing and Sales 8.5% respondents; Maintenance and Cleaning 8.5% respondents; and Other 3.7% respondents. Within each category, some responses were rephrased in order to fit the response categorization, for example “reception” was categorized as “receptionist”; or “desk attendant” was categorized as “front desk”.

Table 2 - Job Position Categorization

Category	Participant Response	Number of responses
Front Desk and Customer Service	Receptionist	6
	Front Desk	12
	Customer Service	6
	Porter	1
Management and Leadership	Manager	12
	Team Lead/Supervisor	2
Administrative, Office and Technical Support	Administrator/Advisor	8
	Assistant/Secretary/Clerk	5
	Finance/Accounting	4
	IT	2
	Engineer	2
Food and Beverage	Server	3
	Kitchen	2
Marketing and Sales	Marketing	3
	Sales	4
Maintenance and Cleaning	Maintenance	2
	Cleaning/Housekeeping	5
Other	Healthcare	2
	Hospitality	1
Total	-	82

4.2. Testing Correlation Between Items

Testing correlations between variables in this study was done to find the relationships among independent variable, dependent variable and mediators, and to find how strong these relationships are. Correlation analysis provides insights into the strength and direction of relationships between the variables, and potential patterns of covariance. By conducting a correlation analysis, a preliminary understanding of how the variables and mediators may interact with each other was gained. This information helps in refining the subsequent regression and mediation analyses and aids an assessment of the mediating roles of EK and EC in the relationship between GHRM and OCBE.

Table 3.3 shows that there is significant correlation between all GHRM, EK, EC and OCBE items because all the p-values are below 0.01 ($p < 0.01$). Strong correlations were found between GHRM and EK ($r = 0.684$, $p < 0.01$), between GHRM and EC ($r = 0.524$, $p = 0.01$), and between GHRM and OCBE ($r = 0.462$, $p < 0.01$). Additionally, correlations between EK and EC ($r = 0.572$, $p < 0.01$); EK and OCBE ($r = 0.431$, $p < 0.01$), and between EC and OCBE ($r = 0.650$, $p = < 0.01$) all show strong and significant correlations between the Hypotheses variables, therefore suggesting that the variables will be related in mediation model testing.

Table 3 - Correlations Coefficient Table

	Mean	St Dev	1	2	3	4	5	6	7	8
1 Gender	1.52	.53	-							
2 Age	2.51	1.30	.054	-						
3 Years of Experience	1.44	.85	-.024	.368**	-					
4 Hotel size	1.87	1.09	-.005	.138	.279*	-				
5 GHRM	2.45	1.38	-.248*	-.122	.136	.190	-			
6 EK	2.96	.98	-.184	-.139	.105	.129	.684**	-		
7 EC	3.17	.96	-.035	-.074	.153	-.008	.524**	.572**	-	
8 OCBE	3.27	.90	.084	.037	.111	.139	.462**	.431**	.650**	-

Note: N = 82; *p < 0.05; **p < 0.01; ***p < 0.001 (2 – tailed)

4.3.Hypothesis testing

Linear regression analysis provided an understanding of the direct relationships of independent variable, mediators and the dependent variable. Prior to employing Model 6 by Andrew Hayes' PROCESS macro for SPSS for serial mediation analysis, linear regression helps establish the initial impact between the variables. This helps finding which variables have direct effect on the dependent variable, offering insights into potential mediating effects.

In Table 3.4, linear regression models between variables are represented. It is seen that there is a significant positive effect of GHRM on EK ($b = .474$; $p < 0.01$) in Model 1 and therefore Hypothesis 2 is supported. Model 3 shows a significant effect of EK on EC ($b = .393$; $p < 0.05$) which supports Hypothesis 3. Looking at the outcomes in regard to the dependent variable – OCBE, Model 4 shows significant positive effect of GHRM on OCBE ($b = .338$; $p < 0.05$) which supports Hypothesis 1. Additionally, Model 6 shows significant positive effect of EC on OCBE ($b = .531$; $p < .01$) which supports Hypothesis 4.

Table 4 - Linear Regression Analysis

Variables	EK		EC		OCBE		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
	b (SE)	b (SE)	b (SE)	B (SE)	b (SE)	b (SE)	b (SE)
Gender	-.026(.160)	.196(.180)	.206(.169)	.355(.173)	.360(.171)	.250(.147)	.251(.148)
Age	-.055(.070)	-.031(.078)	-.010(.074)	.058(.075)	.069(.075)	.074(.063)	.074(.064)
Years of Experience	.046(.108)	.154(.121)	.135(.114)	.008(.117)	-.002(.116)	-.074(.099)	-.074(.100)
Hotel size	.001(.080)	-.128(.089)	-.128(.084)	.023(.086)	.023(.085)	.091(.073)	.091(.074)
GHRM	.474(.064)**	.387(.071)**	.200(.088)*	.338(.069)**	.237(.089)*	.132(.068)	.131(.079)
EK	-	-	.393(.121)*	-	.212(.122)	-	.004(.112)
EC	-	-	-	-	-	.531(.093)**	.530(.100)**
R-sq	.472	.311	.396	.265	.293	.487	.487

N = 82; *p < .05; **p < .01

4.4. Mediation analysis

In Table 3.4, mediation regression models are represented. Using PROCESS by Andrew F. Hayes macro for SPSS, the outputs are represented in the table.

Model 4 shows a positive direct effect of GHRM on OCBE with $B = .113$, however the p -value = .146 does not meet the conventional threshold of statistical significance at a 95% confidence level. Additionally, Table 3.4 shows no significance in the mediating effect of EK alone ($b = -.005$; 95% CI: $-.149, .147$), whereas the mediating effect of EC alone is significant ($b = .091$; 95% CI: $.010, .194$). The final indirect effect shows that EK and EC ($b = .101$, 95% CI: $.034, .195$) fully mediate the relationship between GHRM and OCBE. Hence, Hypothesis 5 is supported.

Table 5 - Mediation Regression Models

Variables	EK	EC	OCBE	
	Model 1	Model 2	Model 3	Model 4
	b (SE)	b (SE)	b (SE)	b (SE)
GHRM	.486(.058)***	.173(.086)*	.113(.077)	.114(.077)
EK	-	.394(.121)	-	-.011(.112)
EC	-	-	-	.529(.099)***
Probing indirect effects			Point estimate (95% CI)	
GHRM -> EK -> OCBE			-.005 (-.149, .147)	
GHRM -> EC-> OCBE			.091 (.010, .194)	
GHRM -> EK -> EC-> OCBE			.101 (.034, .195)	

Results represented from PROCESS Model 6 Matrix

Note: Standard errors are shown in parenthesis

N = 82; *p < .05; **p < .01; ***P < .001

5. Discussion and Conclusion

The current study examined the relationship between GHRM, EK, EC and OCBE in hotel employees. This study enhances the existing knowledge about this relationship by extending existing research on GHRM and OCBE in hotel employees by investigating the mediating effect of EK and EC on this relationship. The main goal of this study was to investigate the serial mediating effect of EK and EC on the relationship between GHRM and OCBE, which has not been examined in existing literature. This study also examined whether there is a direct relationship between GHRM and OCBE, as well as EK and EC.

The findings of this study suggest that EK and EC mediate the relationship between GHRM and OCBE, which aligns with the expectations of the study. As previous research discovered that GHRM, EK and EC have impact on OCBE, this study adds another layer to that relationship by finding evidence of the mediating effect (Meng et al., 2022; Pham et al., 2019)

Interestingly, no statistical significance was found to support the direct effect of GHRM on OCBE contrary to evidence in existing literature (Meng et al., 2022; Pham et al., 2019). This may be due to the mediating effect of EK and EC employed in this study, and it is suggested by this study that a statistically significant relationship between GHRM and OCBE depends on other variables' mediating effect. As evidence shows EK was proven not to be a significant single mediator on this relationship, however EC alone does mediate the relationship.

Most notably, this study found compelling evidence in favor of the existence of serial mediation with both EK and EC sequentially mediating the relationship between GHRM and OCBE. Their cumulative effect on this relationship shows the pathway for hotels implementing effective GHRM practices triggering an increase in EK in hotel employees which in turn increases EC in said employees, and as a final result of this pathway, OCBE in hotel employees is positively significantly impacted.

There is a significant layer of understanding added to the existing knowledge about GHRM and OCBE in hotel employees. While previous research has proven associations between these variables, the evidence of the serial mediation offers a deeper understanding of the interaction of the variables (Pham et al., 2019; Tan Pham et al., 2019). This offers an understanding for hotels to employ GHRM practices that focus on achieving this pathway in order to reach OCBE in their employees.

Pham et al. (2019) and Meng et al. (2022) showed that GHRM practices have a positive significant effect on OCBE, and this study supports those findings with no mediators introduced to this relationship. What this study adds is that by introducing EK and EC to this relationship,

the direct effect of GHRM on OCBE is no longer significant, in other words, EK and EC fully mediate the relationship between GHRM and OCBE.

5.1.Limitations and future research

Firstly, the limitation of conducting a cross-sectional study to test mediation effects should be noted, as it provides only limited data of relationships between variables at a single point in time. To gain a deeper understanding, future research should consider a longitudinal study or multiple studies to establish and confirm the relationships between these variables over time

One noteworthy limitation of this study is that “individuals might try to present themselves in a more favorable light when asked about topics such as environmental ethics” (Raineri & Paillé, 2016). This may cause a distortion in collected data, considering that survey participants may provide responses that align with societal norms or expectations rather than their own behaviors and beliefs. To address this issue, future studies may implement measures to prompt more authentic responses, such as “incorporating a socially desirable scale in the survey” (Grimm, 2010).

Another limitation of this study was the language barrier encountered when attempting to conduct a survey in Portugal. As a foreign student, I do not speak the language and I had faced challenges approaching local hotels and engaging them in participating in this study by filling out a survey. This triggered a practical limitation concerning the lack of participation from local hotels, despite efforts to engage them in the study. This limitation resulted in adoption of an online approach which affected the study population meaning that random hotel employees filled out the survey rather than targeted hotel employee groups.

Previous studies have shown that there is a difference in data concerning GHRM collected in green hotels and non-green hotels (Kim et al., 2019), and it would be interesting to see whether there is a difference in the mediation model in hotels that are certified as sustainable or green hotels, and in those that are not.

Lastly, the sample size for this study was limited, and future research can test the same hypotheses on a larger sample and in different countries. As there was a limited time available to conduct this study, future research can implement a longitudinal approach to collect more appropriate data.

5.2. Practical Implications

This study's findings carry significant practical implications for organizations aiming to improve their environmental sustainability efforts. Firstly, this study highlights the importance of implementing GHRM practices, as they increase EK. Investing in environmental training programs can enhance EK, which, in turn, positively influences EC. Strengthening initiatives to promote EC is important, as it drives OCBE. Moreover, organizations should recognize the mediating roles of EK and EC in the relationship between GHRM and OCBE, emphasizing that a holistic approach that integrates these variables can foster a culture of environmental responsibility and proactive engagement among employees. In essence, the study highlights the value of GHRM practices, along with employees' EK and EC in achieving employees' OCBE.

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Annex A

Survey consent form

„Dear participant,

The purpose of this research is to better understand the effects of green HRM practices in organizations.

Your participation is **voluntary**, and you have the right to withdraw from the study at any time, during or after the completion of the survey. However, please consider that your participation is essential to the success of the project, so we highly appreciate your help. Your answers will be completely **anonymous** as the data are intended merely for statistical processing and no answer will be analyzed or reported individually.

In the first part, you will find questions which you can answer based on your experience at work. In the second part, we will ask basic demographic questions. This survey should take around 10 minutes to complete. Please read the instructions of each question carefully and be honest in your responses. To answer the questions, it is important that you have working experience.

There are no expected significant risks associated to the participation in the study and if you have any questions about this study, please contact us. If you agree to participate, please click on the box below. „

Annex B

Survey questions

1. Considering the organization that you work in, to what extent the following HRM practices are implemented in your organization (1 = not implemented; 5 = fully implemented):

- In your organization, employee selection is based on environmental criteria.
- In your organization, employee attraction is through environmental commitment.
- In your organization, there is environmental training for employees.
- In your organization, there is environmental training for manager.
- In your organization, job descriptions include environmental responsibilities.
- In your organization, there exists employee involvement on environmental issues.
- In your organization, there are environmental goals for managers.
- In your organization, managers' evaluation includes environmental performance.
- In your organization, employees' evaluation includes environmental performance.
- In your organization, there are non-monetary incentives for environmental performance.
- In your organization, there is variable compensation based on environmental performance.

2. Considering your organization, to what extent do you agree with the following statements? (1 = strongly disagree; 5 = strongly agree)

- In my organization, sharing knowledge and awareness about environmental issues and solutions with colleagues is a routine matter.
- I have contributed knowledge to this organization.
- I have contributed knowledge to other members that resulted in the development of new insights.
- Environmental knowledge and experiences were exchanged on various occasions in different departments.

3. To what extent do you agree with the following statements? (1 = strongly disagree; 5 = strongly agree)

- I really care about the environmental concern of my organization.
- I would feel guilty about not supporting the environmental efforts of my organization.
- The environmental concern of my organization means a lot to me.
- I feel a sense of duty to support the environmental efforts of my organization.
- I really feel as if my organization's environmental problems are my own.
- I feel personally attached to the environmental concern of my organization.
- I strongly value the environmental efforts of my organization.

4. How likely is it that you engage in the following behaviors? (1 = very unlikely; 5 = very likely)

- I encourage my colleagues to adopt more environmentally conscious behaviors.
- I stay informed of my organization's environmental efforts.
- I make suggestions about ways to protect the environment more effectively.
- I volunteer for projects or activities that address environmental issues in my organization.