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Green Human Resource Management in Hospitality: A Two-Decade Bibliometric Mapping of Themes, Trends, and Emerging Frontiers

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Abstract: Green Human Resource Management (GHRM) has become an important mechanism for introducing sustainability in labour intensive service sectors like hospitality where environmental action is strongly influenced by employee behaviours. Despite the rapid growth of scholarly work, GHRM research that focuses on hospitality is conceptually fragmented and insufficiently interpreted using established theoretical frameworks. Addressing this gap, the present study intentionally addresses the intellectual structure and conceptual evolution of the GHRM research in the hospitality industry using an integrated Ability-Motivation-Opportunity (AMO) and Resource-Based View (RBV). A comprehensive bibliometric analysis of 305 publications indexed in Scopus (2008-2025) has been conducted using performance analysis, co-occurrence keyword mapping, thematic mapping, thematic evolution analysis and factorial analysis. The result of these findings shows a clear maturation trajectory in which early studies mainly focused on ability-enhancing mechanisms such as green training, followed by a growing focus on motivational constructs such as green creativity and work engagement, and more recently on opportunity-enhancing mechanisms such as green transformational leadership and psychological green climate, reflecting full AMO system activation. Concurrently, thematic consolidation around sustainability performance, green innovation, and competitive advantage is indicative of the positioning of GHRM as a strategic organisational capability in line with RBV logic. However, the integration of leadership and long-term capability development is relatively under-theorised. By going beyond descriptive science mapping and integrating bibliometric findings into a strong theoretical framework, this research offers a theory-driven synthesis to enhance conceptual understanding and further cumulative knowledge development in sustainable hospitality research.

Keywords: GHRM, Hospitality Industry, Bibliometric Analysis, Sustainability, Environmental Performance.

1. Introduction

1.1 Sustainability and Human Capital in Hospitality

Escalating environmental degradation, increasing regulatory pressures and growing expectations from stakeholders have forced organisations to make sustainability an integral part of their strategic architectures (Bansal & Song, 2017; Khan *et al.*, 2021). In the hospitality industry, sustainability takes on an increased importance because of the high energy use, water use, waste production and carbon emissions (Gössling *et al.*, 2010; Kim *et al.*, 2019). As a labour intensive and service based sector, hospitality differs from capital intensive industries as environmental performance is so much embedded in employee behaviour and frontline service interaction (Luu, 2019; Pham *et al.*, 2019).

Hotels are highly dependent on employees to operationalize sustainability initiatives like waste reduction, energy conservation, sustainable procurement and responsible guest engagement. Frontline staffs not only put internal green policies into practice but also communicates sustainability values directly to guests, shaping the perception of their customers and organisational reputation (Kim *et al.*, 2019; Sobaih *et al.*, 2021). Empirical evidence suggests that the green behaviour and environmental commitment of employees play a significant role in sustainability performance and service quality outcomes (Dumont *et al.*, 2017; Saeed *et al.*, 2019). Moreover,



environmental responsibility is becoming an ever more important strategic differentiator in competitive tourism markets, in favour of brand image, customer satisfaction and long term resilience (Han *et al.*, 2019; Martínez-Martínez *et al.*, 2015).

Given this behavioural centrality, human capital therefore becomes the key means by which environmental strategies are translated into measurable sustainability outcomes in the hospitality organisations. Based on this, the sustainability-focused approach to human resource management is not extraneous, but central to the attainment of sustainable environmental and competitive performance.

1.2 Conceptual Foundations of Green Human Resource Management

Green Human Resource Management (GHRM) emerged as a structured response to the need for aligning HR systems with environmental objectives. Foundational contributions by Jackson *et al.* (2011) and Renwick *et al.* (2013), integrated environmental management principles in strategic human resource management conceptualising GHRM as a coherent bundle of practices comprising: green recruitment and selection, environmental training, sustainability-oriented appraisal systems and eco-based reward mechanisms. These practices are aimed at improving the environmental skills of the employees, motivate the employees and reinforce the sustainability-oriented organisational values.

Subsequent scholarship has solidified GHRM as a notable field of study for sustainability and management research, especially within Scopus-indexed journals such as Journal of Cleaner Production, International Journal of Hospitality Management and Tourism Management (Jabbour & Jabbour, 2016; Roscoe *et al.*, 2019). Within the context of hospitality, GHRM has been empirically associated with psychological green climate, harmonious environmental passion, green innovative behaviour and improved sustainability performance (Choudhary & Datta, 2024; Kim *et al.*, 2019; Srivastava & Dhiman, 2022).

1.3 Empirical Developments and Emerging Fragmentation

Empirical evidence has consistently shown positive links between GHRM practices and employee green behaviour, organisational citizenship behaviour for the environment (OCBE), green creativity and environmental performance (Dumont *et al.*, 2017; Pham *et al.*, 2019; Saeed *et al.*, 2019). In hospitality, where service delivery and the outcome of sustainability are behaviourally mediated, these mechanisms are salient.

Despite the rapid growth in publications, the intellectual framework of hospitality-oriented research in the GHRM field still exists in a silos paradigm. Existing bibliometric and systematic reviews frequently adopts cross-sectoral perspectives, which bring together manufacturing, public sector and service industries (Fachada *et al.*, 2022; Khateeb & Nabi, 2023; Renwick *et al.*, 2013). While these studies offer descriptive insights of publication trends, citation and keyword networks, they do not usually include established behavioural or strategic management theories to interpret theme configurations. Consequently, dominant topics are unveiled, but the conceptual mechanisms to explain the co-occurrence and development of these within the hospitality contexts have been under-theorised.

Furthermore, hospitality research, which is exclusively bibliometric and uses advanced science mapping techniques, such as thematic evolution analysis and factorial analysis, remain limited. This restricts cumulative knowledge consolidation and obscures the latent conceptual dimensions organizing the field.

1.4 Theoretical Framing: Integrating AMO and RBV

To address this theoretical gap, the current research combines the Ability-Motivation-Opportunity (AMO) framework and the Resource-Based View (RBV) as complementary interpretive lenses.

The AMO theory posits that performance outcome among the employees is the result of the interplay of the ability-enhancing mechanisms (e.g., green training), motivation-enhancing mechanisms (e.g., green appraisal and rewards) and opportunity-enhancing mechanisms (e.g., empowerment and participative climate) (Appelbaum *et al.*, 2000; Guest, 2017). Within GHRM scholarship, AMO has been popularly used to describe the discretionary environmental behaviours and green innovative engagement (Dumont *et al.*, 2017; Saeed *et al.*, 2019). AMO presents



a micro-level predictive of clusters that focus on training, leadership, psychological climate and OCBE in hospitality settings.

Complementarily, RBV conceptualises organisations as bundles of valuable, rare, inimitable and socially complex resources that create sustained competitive advantage (Barney, 1991). From this perspective, the environmentally embedded human capital and sustainability-oriented HR systems are strategic capabilities that boost innovation and long-term performance (Jabbour & Jabbour, 2016; Roscoe *et al.*, 2019). In the hospitality industry where quality of service and brand image is dependent on the conduct of frontline staff, GHRM contributes to the creation of intangible strategic assets that helps to build competitive positioning.

While both frameworks are widely used in the empirical hospitality studies, their systematic integration within hospitality-exclusive bibliometric analysis remains underexplored.

1.5 Purpose of the Study

Against this backdrop, the present study conducts a comprehensive bibliometric analysis of 305 Scopus journal indexed publications (between 2008 and March 2025) focusing exclusively on study of Green Human Resource Management within the hospitality sector. By using performance analysis, keyword co-occurrence networks, thematic mapping, thematic evolution analysis, and factorial analysis, the analysis contributes to the theory-driven synthesis of hospitality GHRM scholarship through the integrated AMO-RBV framework.

1.6 Research Objectives

1. To identify and map the intellectual structure of hospitality-focused GHRM research.
2. To analyse the most influential authors, journals, and geographical contributors shaping GHRM scholarship between 2008 and March 2025.
3. To extract latent conceptual dimensions underlying hospitality GHRM research through factorial analysis.
4. To examine the thematic evolution and intellectual configuration of GHRM research in the hospitality industry through an integrated AMO–RBV lens.

1.7 Research Questions

1. What is the intellectual structure of hospitality-focused GHRM research?
2. Who are the most influential authors, journals, and geographical contributors between 2008 and March 2025?
3. What latent conceptual dimensions emerge from hospitality GHRM research through factorial analysis?
4. How has hospitality-focused GHRM research evolved thematically, and how can its intellectual configuration be interpreted through the integrated AMO–RBV framework?

The structure of the paper is as follows. The methodology section describes the systematic procedures adopted to gather, screen and analyse bibliographic data retrieved from Scopus database; incorporating the use of keyword co-occurrence, co-citation analysis, thematic mapping, thematic evolution and factorial analysis to examine the intellectual and conceptual structure of the research works of GHRM in the hotel context. The key findings are presented and discussed in the subsequent sections, and the theoretical and managerial implications, limitations of the study, and directions for future research are presented.

2. Methodology

As recommended by Van Eck and Waltman (2017) and Markoulli *et al.* (2017), the current research uses a bibliometric method to map and analyze conceptual and intellectual framework of the Green Human Resource Management (GHRM) research in the hospitality field. The bibliometric analysis is commonly considered an effective, scientific, and quantitative method of assessing scholarly literature (Bouyssou & Marchant, 2011; Zupic & Čater,



2015). It allows scholars and researchers to track the evolution of the field, recognize the publications and authors, who impacted it, analyze the networks of collaboration, and reveal the themes that have evolved over time.

To achieve the aforementioned objectives of the research, bibliometric data were obtained from Scopus database between 2008 and March 2025. Scopus had been selected based on its broadest journal coverage compared to the other databases, significant indexing quality, and critical research importance to the hospitality and human resource (Falagas *et al.*, 2008; Martín-Martín *et al.*, 2021).

In order to conduct the bibliometric analysis of Green Human Resource Management (GHRM) in a hotel industry, the focused and systematic search strategy was considered. The search phrase was well designed to encompass the conceptual area of GHRM and its implementation in the hotel and hospitality context. The Boolean search query applied in the Scopus database was as follows:

("Green human resource management" OR "GHRM" OR "green HRM" OR "green human resource") AND ("hotel industry" OR "hospitality industry" OR "hotel sector")

The selection of these keywords was based on the recommendations of the human resource management and hospitality scholars as well as prior empirical and conceptual research in GHRM and practical insights drawn from industry observations. The Boolean operators (OR and AND) provided the breadth and specificity (inclusion of the terminological variations of GHRM) at the same time limiting the results to the hospitality and hotel domain.

2.1 Data Collection

The first step was systematic search of publications with a narrow-focused search strategy being applied to a particular keyword (see Table I). The keywords were chosen through references to earlier published literature, suggestions of academicians who have dealt with the same field of study; HRM and hospitality, and practitioners in the hotel/hospitality sector.

The initial search in Scopus database provided 305 publications which indicate that the interest in Green Human Resource Management (GHRM) in the hospitality industry is steady and progressive the growth is indicative of the growing appreciation of sustainability-oriented human resource practices as a strategic requirement in the hospitality management research. The time frame for analysis (2008-2025) was deliberately set in accordance with the conceptualization of the GHRM in academic literature. Though the human resource management (HRM) and the environmental management concept can be dated to the mid-90s, the conceptualization of GHRM as a distinctive research construct has been gaining theoretical clarity and empirical interest around 2008 (Jackson *et al.*, 2011).

Table 1. Initial Search Criteria and Outcomes

Stage	Criteria Applied	Result
Database	Scopus	—
Search Keywords	("green human resource management" OR "GHRM" OR "green HRM" OR "greening HRM" OR "green human resource") AND ("hotel industry" OR "hospitality industry" OR "hotel sector")	—
Time Frame	2008 – March 2025	—
Language	English	—
Document Types	Articles, Reviews, Conference Papers	—
Search Date	March 30, 2025	—
Total Records Retrieved	305 articles	

Source: Authors' elaboration



This is the shift in the context of the fragmented discussion on environmental HR practices to more integrated and systematic GHRM framework.

The following years have seen a significant increase in the research output, especially with in the hospitality context. Empirical validations, sector-specific analysis, and bibliometric evaluations were increasingly added to the literature, which shows the maturity of the field (Fazlurrahman *et al.*, 2021). In this regard, the chosen period enables the consideration of the intellectual development, thematic mixing, and methodological improvement of GHRM studies in the hospitality industry.

To increase transparency, replicability and methodological rigour, the study was based on a systematic review protocol, adhering to the guidelines of PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). During the identification stage, records were only collected from the Scopus database by using predefined keywords related to GHRM and hospitality. In the screening phase, duplicates were excluded and titles, abstracts, and keywords are examined for relevance. At the eligibility stage, studies that did not cover the topic of GHRM in the context of hospitality were excluded. The final inclusion process led to an improved set of research articles, review articles, and conference proceedings, thus providing an extensive coverage of the domain. The stepwise filtration process as well as detailed inclusion and exclusion criteria is presented in Figure 1.

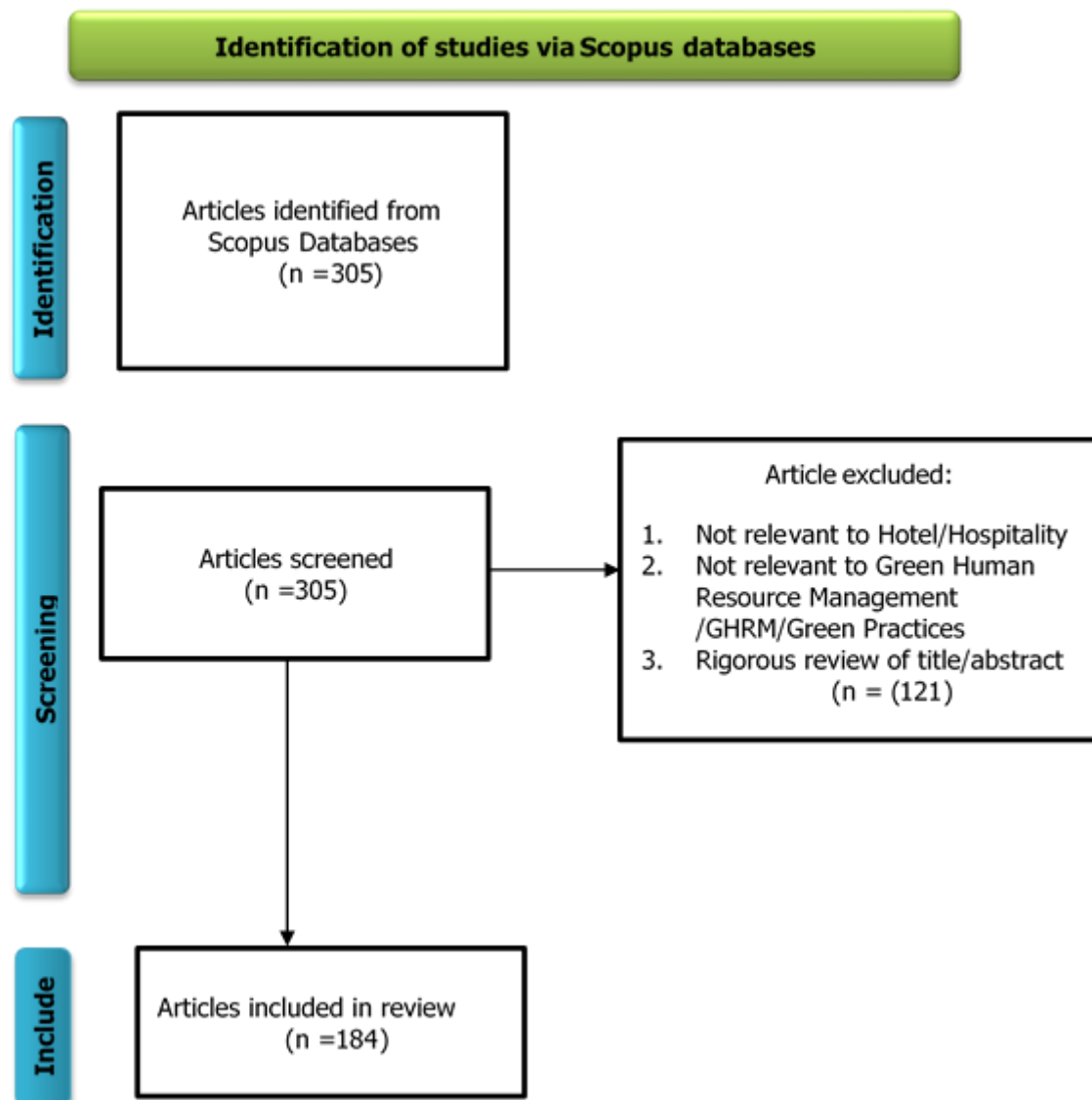


Figure 1. Flowchart for article identification and inclusion process

Source(s): Authors' elaboration

2.2 Analytical Framework

There were four successive steps of the methodological framework:

- 1) Data Collection - Systematic Scopus-indexed publications (2008-2025) in the data collection.
- 2) Pre-processing Data - Standardization, authorship, and institutional affiliations.
- 3) Data Analysis – Execution of bibliometric techniques using Bibliometrix and Biblioshiny.
- 4) Visualization and Interpretation – Construction of knowledge maps and thematic structures

The overall workflow of the bibliometric review process, outlining each analytical stage from data collection to visualization, is presented in Figure 2.

2.3. Data Analysis and Visualization

The retrieved bibliographic data were analyzed using the bibliometrix R-package (Aria & Cuccurullo, 2017) within the R Studio 4.5.0 environment, supported by Biblioshiny, its web-based interface. Bibliometric, R package (version 4.5.0) in R Studio, is a popular tool that supports and promotes various types of network analysis, such as citation networks, co-authorship networks, and keyword co-occurrence. Importantly, it generates visual maps where trends, clustering, and connections can then be used to see different aspects of the research field.

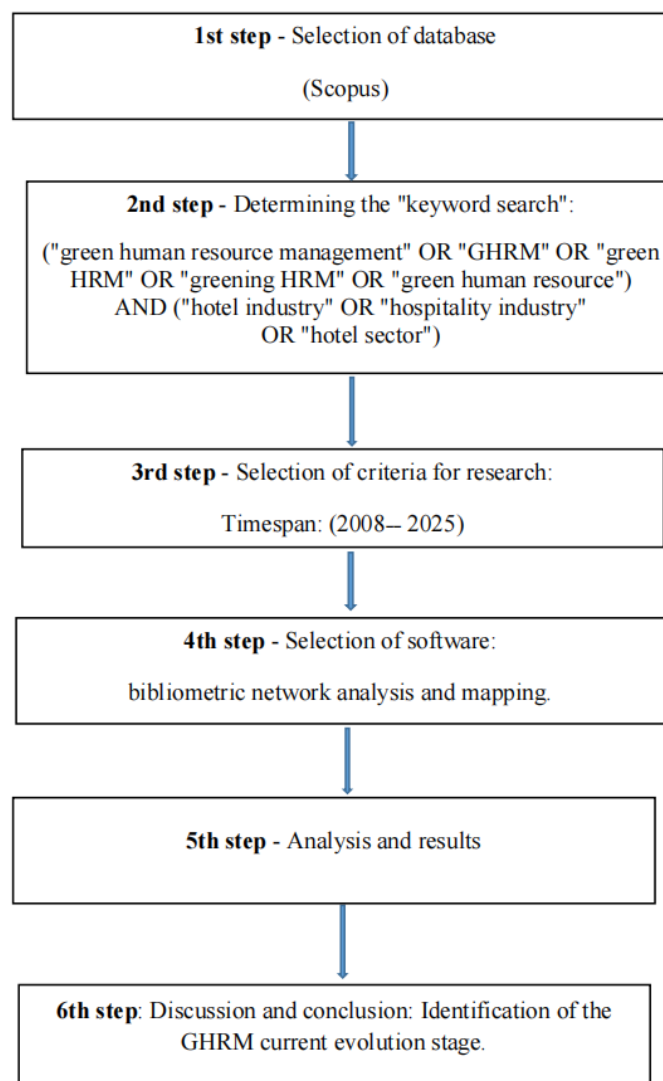


Figure 2. Workflow of the bibliometric analysis.

Source(s): Authors' elaboration

3. Results

The analysis covers the period between 2011-2025 (Table 2) though the process of data collection started in 2008. Records from 2011 were retained because keyword standardization filters excluded earlier entries, whereas 2025 contains publications as of March to introduce the most recent researches. The data set describes 305 papers, which means that the field of GHRM in the hospitality sector has emerged as a significant one. The range of publications rose especially in the years following 2015 as many researchers got interested in the topic, also because the concept of sustainability became more prominent during and after COVID-19. It contains also 374 Keywords Plus, which are automated by Scopus and imply broad thematic coverage of the topics like green training, environmental behaviour, and innovation. The inclusion of 568 authors indicates a great level of academic activity and the increased multi-authored and multi-institutional work, which develops in the domain of hospitality and HRM research.

3.1 Publication trend in GHRM in Hospitality Sector

The trend analysis (Figure 3) indicates that the amount of GHRM research in the hospitality industry is steadily growing, the output has been on the incremental since 2008 but at a significant pace after 2019. This development goes in line with the worldwide trend of sustainability during the post-COVID-19 era and the increased focus on environmental management and resilience in hospitality (Elshaer *et al.*, 2024; Gössling *et al.*, 2021).

Table 2. Summary of Data

Main Information About Data	
Timespan	2011:2025
Total Documents	305
Keywords Plus (ID)	374
Authors	568

Source: Authors' elaboration

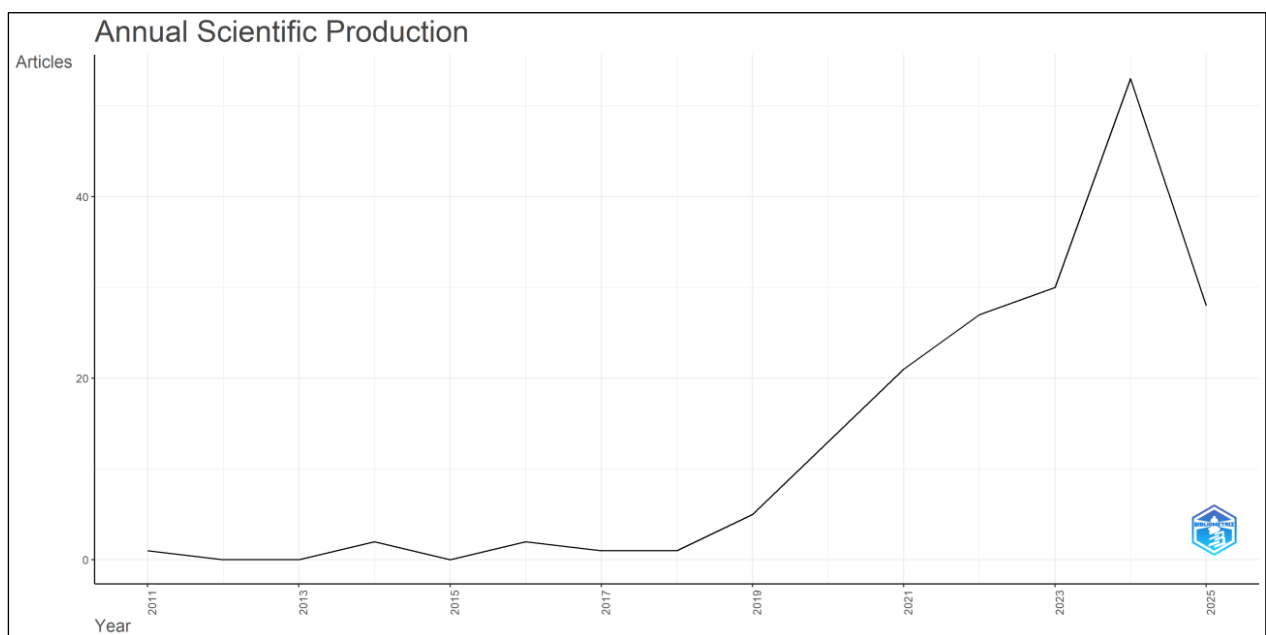


Figure 3. Publication trend in Green Human Resource Management (GHRM) research within the hospitality sector. Source: Authors' Creations

3.2. Citation Analysis

3.2.1. Leading Journals with High Citation Impact in GHRM and Hospitality Research

Influential publications, including Kim *et al.* (2019) and Pham *et al.* (2020b) highlights that Green Human Resource Management (GHRM) practices strengthen socially responsible and pro-environmental behaviors in employees while significantly improving the environmental performance of the organization. These findings strengthen the strategic significance of GHRM in the hospitality industry (see Table 3), showing it can contribute to both behavioral and performance-based sustainability outcomes.

The impact of leading journals such as the International Journal of Hospitality Management (IJHM) and Tourism Management (TM) as outlined in the table of citation linkages between these two journals and the wider research network in GHRM is illustrated by the strength of their citations. Their high citation frequencies and central position in co-citation analyses suggest their intellectual influence in the definition of the discourse. Recurring themes published in these outlets—such as green employee behavior, environmental performance, sustainable leadership, and organizational citizenship behavior for the environment—have guided subsequent scholarly inquiry and theoretical refinement.

Collectively, these journals represent important knowledge centers in the GHRM-hospitality interface and guide researchers towards high-impact contributions while at the same time helping practitioners to bridge the gap between human resource development strategies and environmental sustainability objectives.

3.2.2. Citation Impact by Country in GHRM and Hospitality Research

The United States shows the highest level of citation impact followed by China, Pakistan, and France. Although several Asian countries have significant publications, the citation influence is still relatively low compared with western countries, which indicates the visibility of more research and intellectual dominance of the western academia (Khan *et al.*, 2025; Perano *et al.*, 2025). Emerging contributions from Malaysia and Turkey further reflect emerging global attention to sustainability - HRM linkages in the hospitality sector (see Table 4). Collectively, these patterns suggest: Western scholarship still influences the intellectual direction of GHRM research but rising engagement from emerging research hubs represents an expanding internationalisation and evolving directions in the field.

Table 3. Leading journals with high citation impact in Green Human Resource Management (GHRM) and hospitality research (citations \geq 100)

Source	h_index	Total Citations
International Journal of Hospitality Management	8	1448
Tourism Management	5	1436
International Journal of Contemporary Hospitality Management	7	541
Sustainability (Switzerland)	12	429
Journal of Cleaner Production	4	381
Journal Of Sustainable Tourism	5	372
Global Business Review	2	315
Journal of Hospitality and Tourism Management	3	279
Business Strategy and The Environment	2	214
Corporate Social Responsibility and Environmental Management	3	213
Journal of Business Research	1	204
Journal of Environmental Planning and Management	1	191
International Journal of Manpower	1	168
Journal of Hospitality Marketing and Management	3	132
Journal of Hospitality and Tourism Insights	4	115



Table 4. Most cited countries in Green Human Resource Management (GHRM) research within the hospitality sector

Country	TC	Average Article Citations
USA	1186	237.2
CHINA	1051	35
PAKISTAN	600	46.2
FRANCE	589	294.5
TURKEY	521	65.1
MALAYSIA	497	35.5
UNITED KINGDOM	380	95
KOREA	333	66.6
CZECH REPUBLIC	299	99.7

Source: Author’s elaboration

3.2.3. Most Cited Articles in GHRM and Hospitality Research

The table 5 shows the most mentioned published works of GHRM in the field of hospitality. Kim et al.’s (2019) study has 784 citations and thus can be considered as a foundational contribution to the GHRM–employee behavior–environmental performance relationship. Pham et al. (2019) and Chou (2014) created impact with 515 and 352 citations, respectively, both are published in Tourism Management and focus on sustainability and individual environmental. Haldorai et al. (2022) and Pham et al. (2020b) which emphasize managerial commitment and mediating mechanisms of GHRM. There are also insights by Bohdanowicz et al. (2011) in the *Journal of Sustainable Tourism* and Nisar et al. (2021) in the *Journal of Cleaner Production*, which are notable as building on the discourse across the spectrum of tourism, sustainability, and organisational behaviour (see Table 5 and Figure 4).

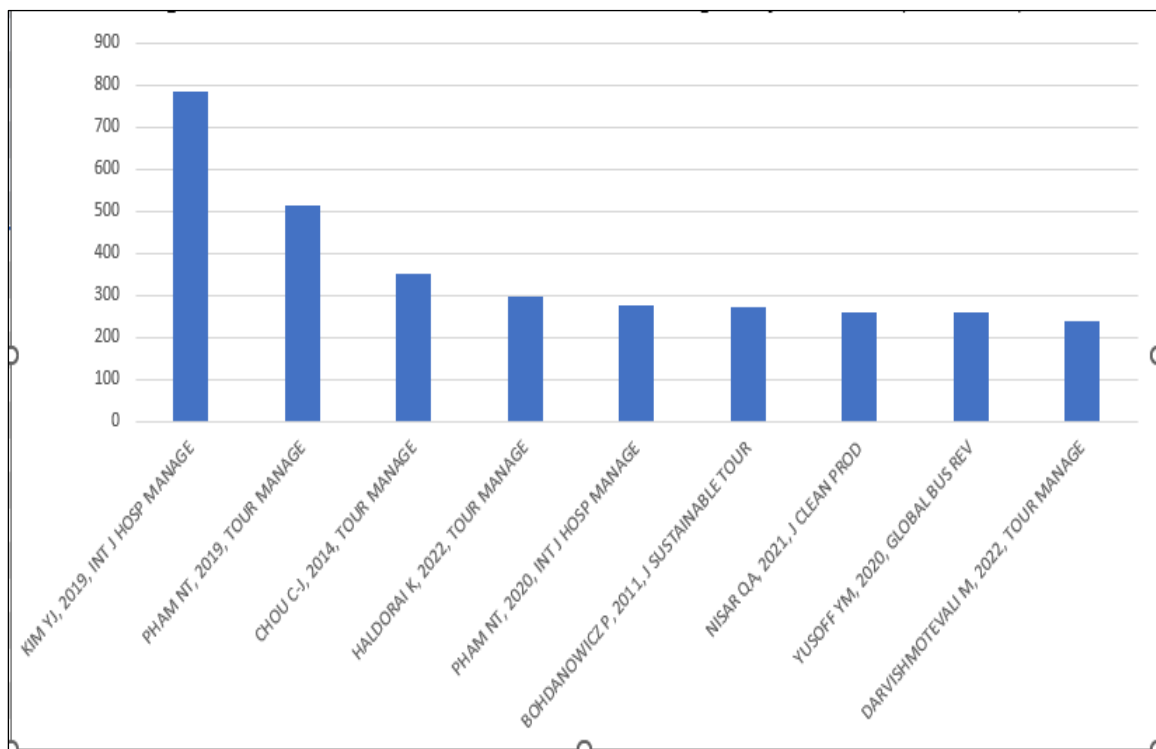


Figure 4. Most cited articles in Green Human Resource Management (GHRM) and hospitality research

Source: Authors’ Creations



Table 5. Most Cited Articles in GHRM and Hospitality Research (2008-2025)

Articles	Total Citations
Kim YJ, 2019, International Journal of Hospitality Management	784
Pham NT, 2019, Tourism Management	515
Chou C-J, 2014, Tourism Management	352
Haldorai K, 2022, Tourism Management	299
Pham NT, 2020, International Journal of Hospitality Management	278
Bohdanowicz P, 2011, Journal of Sustainable Tourism	271
Nisar QA, 2021, Journal of Cleaner Production	259
Yusoff YM, 2020, Journal of Business Research	258
Darvishmotevali M, 2022, Tourism Management	238

Source: Authors' elaboration

3.2.4. Most Influential Authors and Keywords

In this section, the most prominent scholars and conceptual themes that are forming the GHRM research in the hotel industry are identified. It visualizes the intellectual field structure of the discipline, including the key contributors and the common topics that characterize the development and the scholarly orientation of GHRM in the area of hospitality research through the analysis of high-frequency search keywords and authors with high h-index value.

3.2.4.1. Authors of high impact factor

The h-index analysis helps identify the main thought leaders advancing GHRM research in the hotel industry. Nisar QA has the highest impact, followed by Elsaer IA, Karatepe OM, Pham NT, and Yusoff YM, all of whom have shaped the sustainable HRM discourse. Ahmed M. and Chiappetta Jabbour CJ also play key roles in strengthening the HRM–environmental management linkage. Together, these scholars influence both practice and future research directions (see Figure 5).

3.2.4.2. Most Relevant Keywords

The keyword cloud emanating from the bibliometric dataset brings out the primary themes of GHRM research, which are found in the hospitality industry. Concepts like "green HRM" represent the linking of environmental objectives and HR practices (Jackson *et al.*, 2011; Renwick *et al.*, 2013), whereas terms such as "sustainability," "green practices," and "environmental performance" indicate the broader issues dealt with by this sector in going global with the environment (Jabbour & Jabbour, 2016; Pham *et al.*, 2020a). The chart of the scientific papers also indicates how strategic aspects have been driven by GHRM's new objectives to enhance the environmental impact and business performance through the rise of these concepts i.e. "CSR," "organizational performance," and "competitive advantage" (Meng *et al.*, 2024; Tanveer *et al.*, 2023). Further, the primary HR activities of recruitment and employee engagement form the next point of discussion in this paper as these two functions constitute the Ability-Motivation-Opportunity (AMO) framework, the latter being the theoretical base for HRM practices, which in turn exercise GHRM (Iftikar *et al.*, 2022). Through the RVB lens, the rise of green innovation, competitive advantage, and organisational resilience as prominent keywords signals the fields progressive theorization of GHRM as an inimitable strategic capability rather than a compliance-based practice bundle (Barney, 1991; Jabbour & Jabbour, 2016).

In conclusion, bibliometric prominence of terms like green innovation and green behavior denotes the visible transformation of the focus on practice-based studies to the result-focused research paradigm in the GHRM literature.



This shift is an indication of the changing notion of GHRM as not the aggregation of environmentally conscientious HR practices but a strategic driver that influences innovation and initiates pro-environmental employee behaviors (Bugdol et al., 2023). The results of the current study also indicate that GHRM research in hospitality industry is not only becoming more developed than its underdeveloped period but also entering in a more strategic and performance-based period. The current trend in the field is now projecting strategic outcomes, environmental performance, and green innovation capabilities thus highlighting the growing significance of the field to organizational competitiveness as well as environmental sustainability. This scholarly developmental trend, as shown in Figure 6, underscores the increasing maturity of GHRM scholarship as well as its greater alignment to the wider sustainability needs.

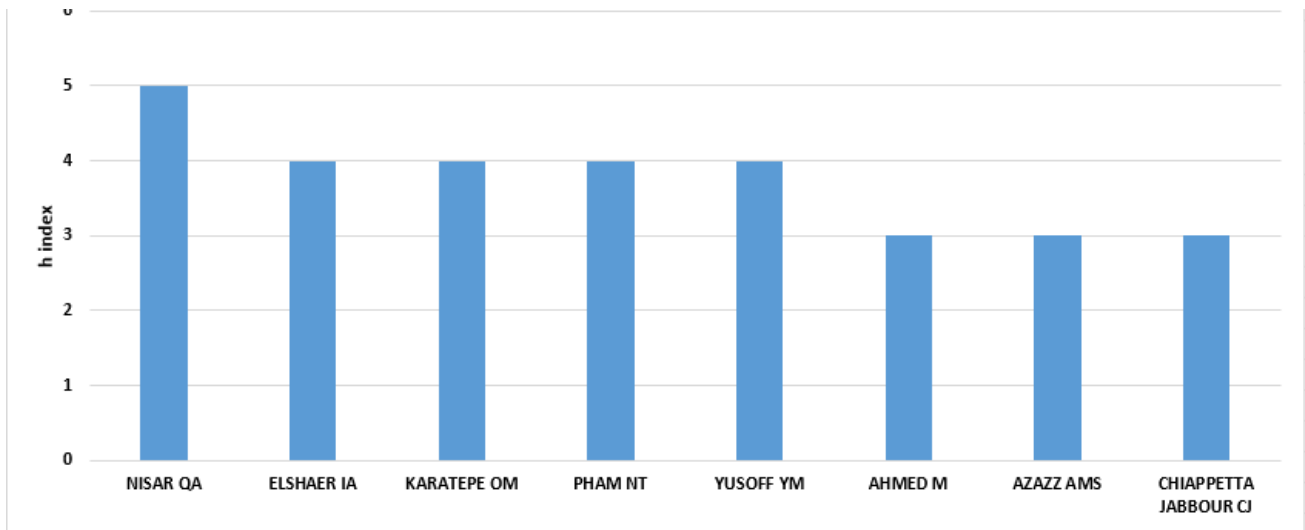


Figure 5. Authors with high impact in Green Human Resource Management (GHRM) and hospitality research.

Source: Authors' Creations



Figure 6. Most relevant keywords in Green Human Resource Management (GHRM) research within the hospitality sector

Source: Authors' Creations



3.2.4.3. Keyword dynamics

The recent trends of key words in GHRM studies show a very clear development of concepts and conceptual principles into strategic and technological applications within the period of 2011 to 2025. At the initial stage (2011–2015), scholarship was focused on such general constructs like green HRM, sustainability, and corporate social responsibility (CSR), and it was the time when the theoretical foundation of the discipline was laid. The direction changed between 2016 and 2019 and became emphasized on the micro-level employee behaviours such as environmental knowledge and green citizenship behaviour. The strategic orientation became more pronounced during the period 2020–2023, with the focus on organisational performance, competitive advantage and green innovation. Most recently (2024–2025), new topics include artificial intelligence (AI), Sustainable Development Goals (SDGs), and green psychological indicate a progressive and integrative research agenda. Taken together, these changing keywords indicate that GHRM is changing into an innovation-driven and strategic force on sustainability within the hospitality industry (see Figure 7).

3.3. Mapping the Intellectual Structure of GHRM

The subsections provided below presents the science mapping output of the bibliometric analysis, each of which is interpreted using the previously mentioned AMO–RBV dual framework. By systematically anchoring the findings within a strong theoretical framework, this structured technique goes beyond merely descriptive visualization and turns empirical mapping results into theoretically grounded insights. In doing so, it clarifies the conceptual framework and traces the intellectual growth of GHRM research in the hospitality sector, emphasizing how thematic advancements correspond with perspectives of resource-based strategic advantage (RBV) and capability enhancement (AMO).

3.3.1. Keyword Co-occurrence Network Analysis

The keyword co-occurrence network provides a factorial representation of the field's conceptual structure by identifying clusters of keywords that appeared together frequently across the 184 documents. Co-occurrence network analysis is a widely adopted science mapping technique that reveals the intellectual architecture of a research domain through the proximity and connectivity of its conceptual nodes (Aria & Cuccurullo, 2017; Van Eck & Waltman, 2010).

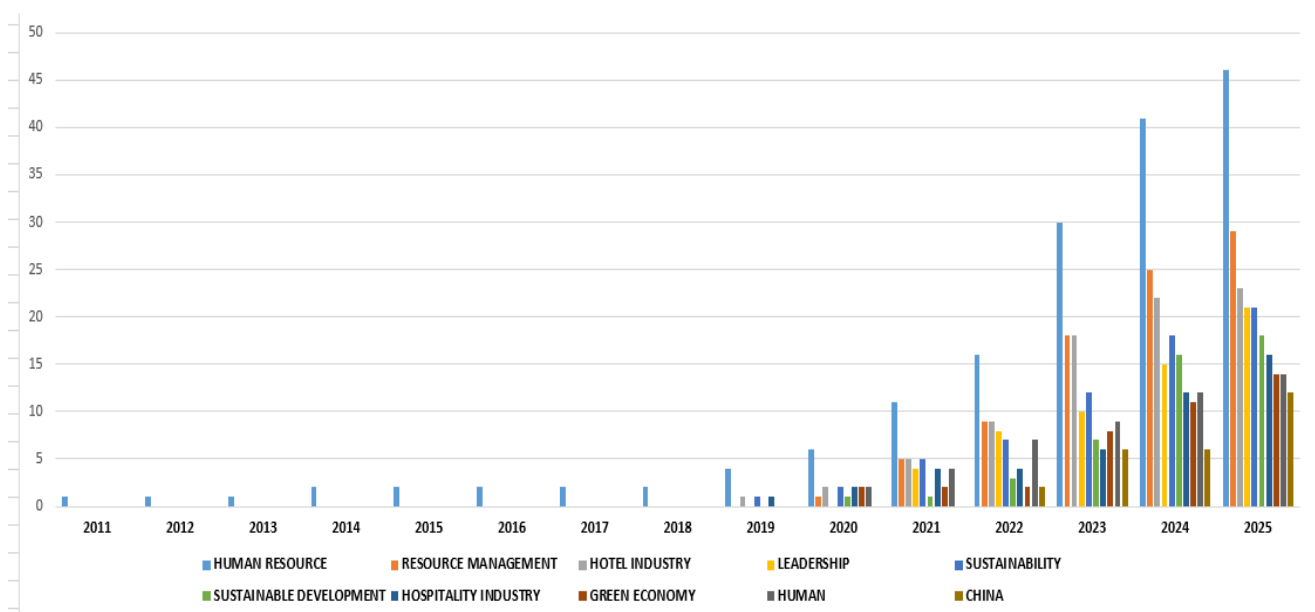


Figure 7. Keyword dynamics in Green Human Resource Management (GHRM) and hospitality research (2011–2025).

Source: Authors' Creations

3.3.2. Thematic Map Analysis

The overall thematic map (Figure 9) categorizes the intellectual landscape of all the periods following the quadrant scheme of Callon *et al.* (1991) in terms of centrality (external relevance) and density (internal development). Interpreted through the AMO-RBV lens, the map allows seeing what elements of the dual framework are theoretically developed and which remain undeveloped.

Motor themes (top-right-RBV core capabilities): Green human resource management, human resource, and hotel industry occupy this quadrant, confirming their status as the field's primary intellectual drivers. Through the RBV lens, their joint prominence reflects the theoretical consolidation of GHRM as an organizationally embedded strategic capability in hospitality. The co-positioning of the hotel industry further supports the assumption that this RBV logic is industry-specific; the service centric nature of hotels and the high visibility of the guests act as boundary conditions that positively influence the value, rarity and inimitable nature of green human capital (Amrutha & Geetha, 2020; Kim *et al.*, 2019).

Niche themes (top-left-AMO: Opportunity, underdeveloped): includes human, leadership, and humans which appears as highly developed yet peripheral constructs. Through the AMO lens, this positioning is theoretically significant: leadership represents the primary organizational mechanism through which opportunity structures are created; it shapes the green psychological climate, models pro-environmental behaviour, and allocates resources for employees' green participation (Robertson & Barling, 2013; Yong *et al.*, 2019). The niche status of leadership suggests that opportunity-enabling mechanisms remain the least-integrated component of the AMO system in hospitality GHRM research, thereby representing a critical theoretical gap.

Emerging/ declining themes (bottom-left: AMO ability strand+ methodological reflexivity): Green hotel, hotel performance, work engagement, systematic literature review, and employee's green behaviour populate this quadrant.

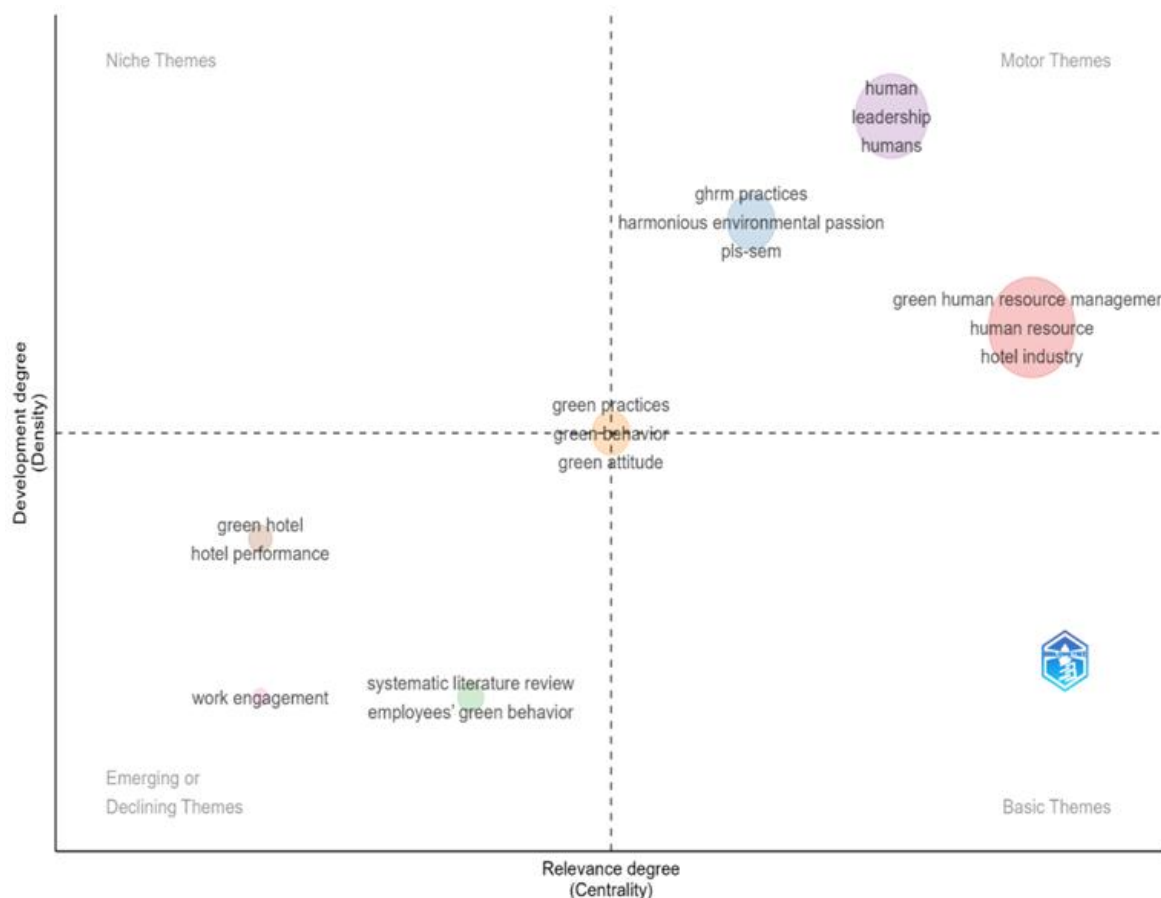


Figure 9. Over all thematic map of GHRM research in the Hospitality Industry (2011-2025)

Source: Authors' Creations



The presence of employee green behaviour-a core of AMO output construct- in the emerging/declining quadrant is noteworthy. It suggests that while behavioural outcomes are theoretically important, they have not yet achieved consistent methodological operationalization across the hospitality GHRM literature (Choudhary & Datta, 2024; Dumont et al., 2017; Miah et al., 2024; Renwick et al., 2013). Green hotel and hotel performance as declining themes signal a shift from property-level performance metrics toward person-centered AMO and RBV aligned constructs.

Basic themes (bottom-right: RBV resource configurations):The relative sparsity of the basic theme quadrant indicates that some foundational constructs of RBV-particularly the organisation capabilities that serve as the substrate for strategic outcomes, remain under theorized. GHRM practices, harmonious environmental passion and PLS-SEM appear near the axis interaction in transitional positions, suggesting that the capability-building dimension of the RBV framework is gaining empirical momentum but has not yet been fully conceptually elaborated within the hospitality context.

3.3.3 Thematic evolution Map Analysis

The thematic evolution map (Figure10) traces the intellectual trajectory of GHRM research in hospitality across four temporal phases. In the nascent phase (2011-2019), the literature was anchored around foundational ability-based constructs, such as green training, environmental performance, and human resource management, reflecting the AMO framework ability component (Renwick et al., 2013). The COVID accelerated growth phase (2020-2022) introduces motivational constructs including green creativity, jobs satisfaction, and AMO theory itself has an explicit keyword, signalling the field’s conscious turn toward a more complete behaviour framework.

By the maturity phase (2023-2024), all three AMO components were simultaneously active, with green transformational leadership and green psychological climate establishing opportunity- enabling structures alongside consolidated RBV outcome’s themes of green competitive advantage and sustainable development (Figure 11). The 2025 projections reinforce the field’s movement toward more integrated, strategy-level sustainability frameworks. Collectively, the thematic evolution confirms a progressive AMO maturation arc, from ability dominant to full AMO activation, alongside the RBV strategy consolidated from practice level to capability level theorization of GHRM in hospitality (Amrutha & Geetha, 2020; Jabbour & Jabbour, 2016).

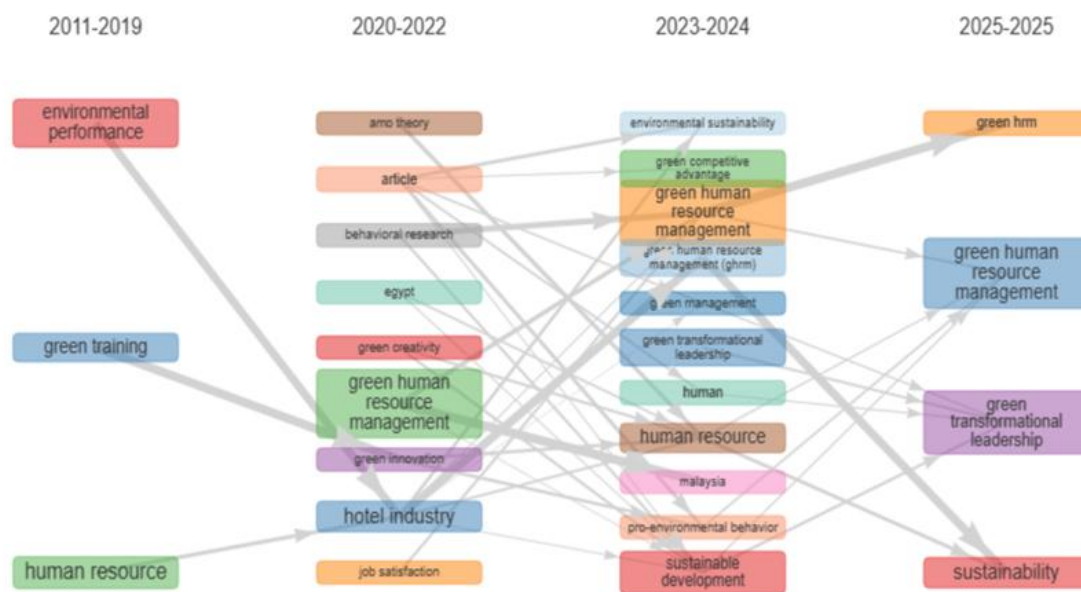


Figure 10. Thematic Evolution Map of GHRM Research in the Hospitality Industry (2011-2025).



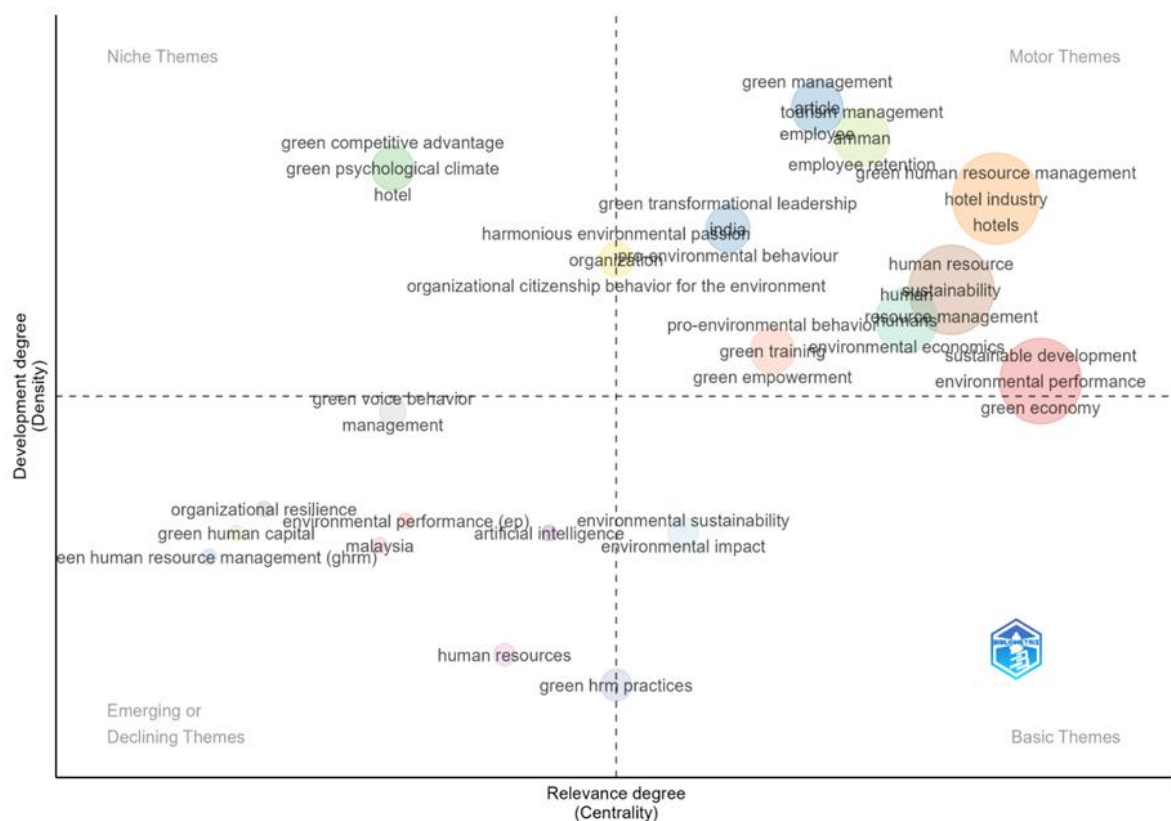


Figure 11. Thematic Map: Maturity Phase (2023-2024)-Motor, Niche, Basic, and Emerging Themes.

3.4. Factorial Analysis (MCA)

The factorial analysis (figure 12), generated through multiple correspondence analysis (MCA), extracts the latent conceptual dimensions underlying GHRM research in hospitality, explaining 73.09% of cumulative variance (dimensions 1: 58.29%; dimensions 2: 14.8%). Dimension 1- represents the AMO constructs at the left pole (green human resource management, green HRM practices, recourse management) with strategically oriented RBV outcome constructs at the right pole (leadership, structural equation modelling, competitive advantage). Dimension 2- distinguishes organizational-level RBV constructs (upper pole: resource allocation, intellectual capital, sustainable development) from individual-level AMO constructs (lower pole: green psychological climate, pro-environmental behaviour, psychology). Together, these two dimensions reveal that the field's primary organizing tensions lies in the practice-to-outcome gap specifically how AMO activating GHRM practices translate into RBV based strategic advantages, which remains the most productive frontier for the future theoretical development (Barney, 1991; Jabbour & Jabbour, 2016).

4. Discussion

This study discussed the intellectual structure and thematic development of Green Human Resource Management (GHRM) research in the hospitality industry using the integrated Ability-Motivation-Opportunity (AMO) and Resource Based View (RBV) lens. The results point to the existence of a discernible maturation trajectory which is both the behavioural system activation and the development of strategic capability.

The early dominance of green training and environmental performance themes reflects an ability-centric orientation consistent with AMO theory (Appelbaum et al., 2000; Guest, 2017). In the hospitality context—characterised by high labour intensity and visible employee–guest interaction—initial research focused on enhancing environmental competencies through training and skill development (Dumont et al., 2017; Renwick et al., 2013). This is consistent with evidence suggesting that green training significantly predicts employee pro-environmental behaviour and environmental performance outcomes (Pham et al., 2019; Saeed et al., 2019).



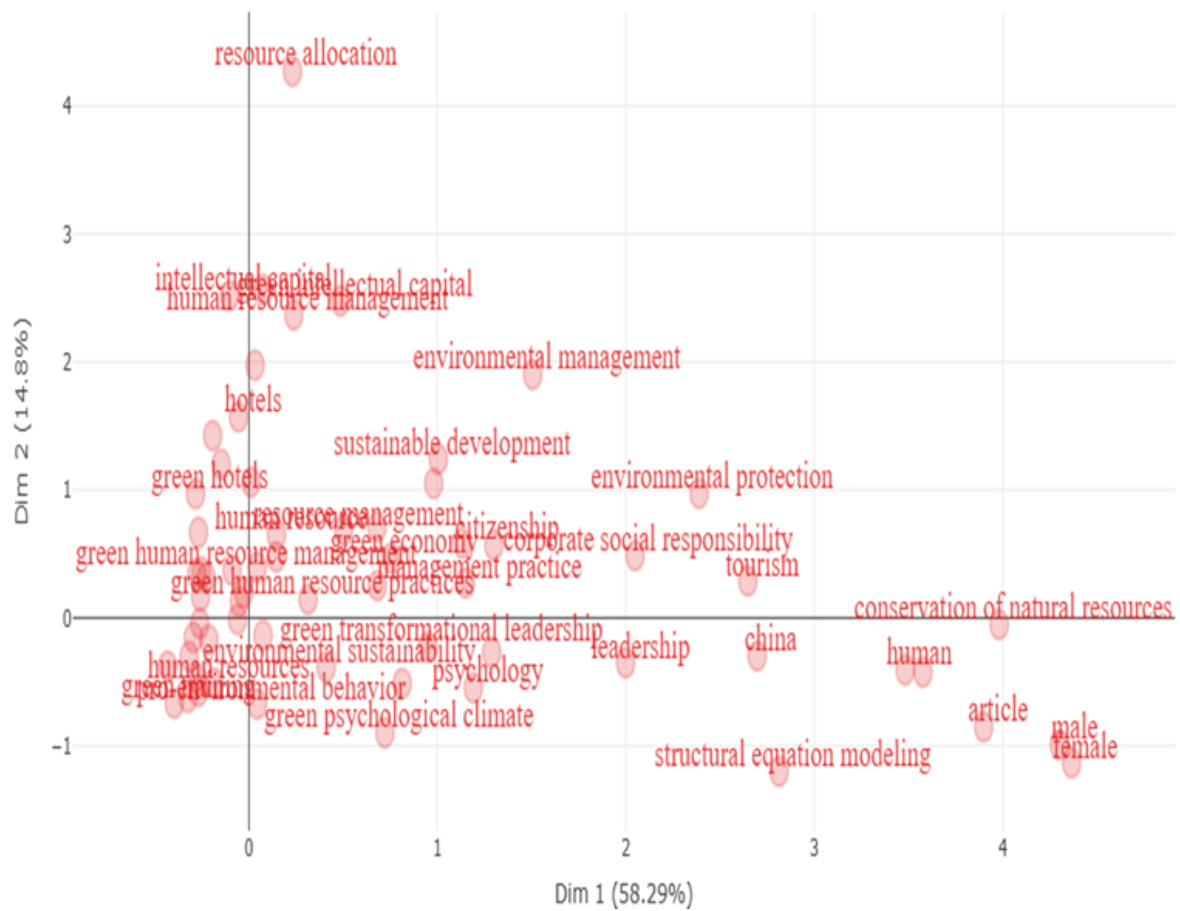


Figure 12. Factorial Analysis (MCA) of GHRM Research in the Hospitality Industry

However, the co-occurrence analysis indicates that ability-enhancing practices were frequently studied in isolation from broader systemic conditions, reflecting early-stage fragmentation in theoretical integration.

The subsequent development of motivational constructs like green creativity, work engagement and environmental commitment is a signal of behavioural deepening of the field. Studies show that green HR practices boost discretionary green behaviours, following psychological processes such as green commitment and organisational identification (Kim *et al.*, 2019; Sobaih *et al.*, 2021). The rise in prominence of these themes, during the Covid-19 time period, may indicate greater organisational focus on resilience, innovation and employee-driven sustainability initiatives (Khan *et al.*, 2022). This shift suggests that the research in hospitality GHRM has shifted from environmental management that focuses on compliance, to proactive innovation-based sustainability.

Opportunity-enhancing mechanisms, such as green transformational leadership and psychological green climate, have been made visible in more recent stage (Robertson & Barling, 2013; Yong *et al.*, 2019). From an AMO perspective this progression implies a partial activation of the full behavioural system. However, thematic mapping situates leadership-related constructs in positions of relatively peripheral rather than motor themes, which may indicate that opportunity structures are still poorly integrated into dominant research streams. These finding points to a conceptual imbalance: while well-established ability and motivation mechanisms are well known, the structural and contextual enablers sustaining green behaviours need to be consolidated from a theoretical perspective.

From an RBV perspective, the increasing theme consolidation of green innovation, sustainability performance and competitive advantage is reflective of the strategic repositioning of GHRM as a valuable, socially complex organisational capability (Barney, 1991; Jabbour & Jabbour, 2016). Empirical research increasingly correlates GHRM bundles to innovation capability and long term competitive positioning in the hospitality firm (Amrutha & Geetha, 2020; Roscoe *et al.*, 2019). The factorial analysis further reveals latent dimensions between behavioural activation

mechanisms (AMO) and capability-building outcomes (RBV) which supports the view that environmentally embedded human capital is a strategic resource.

Geographically, the predominance of Asian scholarship reflects the rapid growth of hospitality sectors in emerging economies and increased regulatory emphasis on environmental governance (Alreahi *et al.*, 2023). However, institutional and cultural variations may shape how GHRM practices are conceptualised and operationalised, limiting cross-contextual generalisability.

Collectively, the findings suggest that hospitality GHRM research has evolved from fragmented practice-based inquiry toward a more integrated behavioural–strategic framework. Yet, opportunity structures, cross-level integration, and longitudinal capability formation remain underdeveloped, indicating fertile ground for future theoretical advancement.

5. Conclusion

This paper has investigated the framework of intellectual and development of the theme of the research on Green Human Resource Management in the hospitality industry in an integrated behavioural and strategic approach. The findings reveal a clear maturation trajectory, moving from an early emphasis on employee ability development toward a more comprehensive system incorporating motivational and opportunity-enhancing mechanisms.

Concurrently, increasing attention to innovation, sustainability performance, and competitive positioning indicates that GHRM is being reconceptualised as a strategic organisational capability rather than a discrete HR practice. Despite this progress, leadership integration, contextual diversification, and long-term capability accumulation remain comparatively underdeveloped. By embedding bibliometric analysis within established theoretical frameworks, this study provides a structured synthesis that strengthens conceptual clarity and supports future advancement in sustainable hospitality research

6. Implications

6.1 Theoretical Implications

This study contributes to sustainable hospitality research by integrating bibliometric research results in an integrated AMO-RBV framework. While previous reviews have been conducted to document the growth of publication and thematic clustering (Alreahi *et al.*, 2023; Molina-Collado *et al.*, 2022), little have been interpreted according to established behavioural and strategic management theories. By connecting micro level behavioural activation (AMO) to macro level capability formation (RBV), this study helps to improve the conceptual coherence and also aids in the cumulative theory formation.

Second, the identification of a maturation trajectory - from ability-centric inquiry to system-level activation - offers a structured road map for future empirical research. Scholars are called upon to use multi-level models to capture cross-level interactions between individual behaviour and organisational capability accumulation.

Third, the relative marginalisation of the structures of leadership and opportunity suggests a need for deeper theorisation of the enabling mechanisms. Future research should probe into the configuration of resources by green leadership to convert HR practices into sustained competitive advantage.

6.2 Managerial and Policy Implications (with Measurable KPIs)

The findings offer actionable guidance for hospitality managers seeking to operationalise GHRM strategically rather than symbolically.

6.2.1. Integrating AMO Mechanisms into HR Systems

Hotels should align ability, motivation, and opportunity mechanisms systematically:

Ability KPIs



- Percentage of employees completing certified environmental training annually
- Training hours per employee dedicated to sustainability
- Post-training behavioural compliance scores
- Motivation KPIs
- Proportion of performance appraisal criteria linked to environmental objectives
- Percentage of employees receiving green performance incentives
- Employee green engagement index (survey-based)
- Opportunity KPIs
- Number of employee-led sustainability initiatives per year
- Participation rate in green suggestion schemes
- Leadership sustainability competency score (360-degree evaluation)

The use of isolated green training programmes cannot produce long-term pro-environmental results, unless performance-based rewards and participative climate mechanism are used to complement the training programmes so that it reinforces the behavioural activations (Dumont *et al.*, 2017; Saeed *et al.*, 2019).

6.2.2. Developing Green Leadership Capability

Given the emerging importance of green transformational leadership (Robertson & Barling, 2013; Yong *et al.*, 2019), there is a need for hospitality firms to:

- Include sustainability modules in leadership training programs
- Assess managers using sustainability integration metrics
- Create cross-departmental green task forces

6.2.3. Strategic Capability Formation

From an RBV perspective GHRM should be considered a long-term intangible asset. Hotels may measure:

- Reduction in energy and water consumption per occupied room
- Improvement in sustainability certification scores
- Increase in green innovation initiatives (e.g. waste reduction programs)
- "ESG rating improvement over time".

Embedding GHRM into recruitment, on boarding and organisational culture helps to promote reputational capital and differentiation in competitive hospitality markets (Jabbour & Jabbour, 2016; Roscoe *et al.*, 2019).

6.2.4. Policy-Level Implications

GHRM indicators can be added to sustainability certification programs by tourism authorities and accreditation bodies, encouraging systemic integration rather than fragmented initiatives.

7. Limitations and Future Research Directions

There are several limitations in this study. First, the dataset is limited to publications indexed in Scopus and excluding relevant studies indexed in other databases. Second, the predominance of Asian contexts has introduced some regional bias, since institutional environments play a role in sustainability adoption patterns. Comparative studies in a variety of cultural and regulatory contexts are therefore warranted.



Third, bibliometric methods identify structural and thematic patterns but do not examine methodological rigor or causal relations within individual studies. Future research may use meta-analysis techniques to assess effect sizes of AMO constructs in the hospitality setting. Fourth, there is need for longitudinal research to focus on how GHRM systems develop into sustained organisational capabilities over time. Finally, emerging areas such as ESG governance, digital sustainability platforms and circular economy integration present promising opportunities for the expansion of AMO-RBV integration in hospitality research.

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Author Contributions

Devashish Pandey: Conceptualization, Methodology, Formal Analysis, Investigation, Writing - Original Draft, Writing - Review & Editing. Jitendra Singh: Writing - Review & Editing, Investigation. Garima Saxena: Writing - Review & Editing, Supervision, Validation. All the authors have read and agreed to the published version of the manuscript.

Does this article screen for similarity?

Yes

Conflict of Interest

The authors have no conflicts of interest to declare. There is also no financial interest to report. The author certifies that the submission is original work and is not under review at any other publication.

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