

EMPLOYEE PRO-ENVIRONMENTAL BEHAVIOR: A BIBLIOMETRIC REVIEW FROM 2000-2024**Rayner Dillon Wibisono¹, Septian Salim^{2*}**

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Keywords	Abstract
bibliometric analysis, employee pro-environmental behavior, hospitality and tourism industry, green human resource management	This study offers a thorough bibliometric analysis of Employee Pro-environmental Behavior (EPB) research from 2000 to 2024. The study used data from the Web of Science (WoS) and tool: VOSviewer to examine 766 articles, aiming to discern prominent research themes and trends in EPB. Narrow down to 55 articles, thematic analysis between four principal clusters were identified: Influential Factors, Workplace Performance, Pro-environmental Adoption, and Employee Outcomes. The bibliometric study indicates an increasing focus on Green Human Resource Management (HRM) and Corporate Social Responsibility (CSR) as essential factors influencing Environmental Performance Behavior (EPB), particularly within the hotel and tourist industries. The review emphasizes historical patterns, prominent writers, prolific publications, and collaborative networks that have influenced the discipline. This study offers an overview of the changing academic scene and suggests avenues for future research, especially in underexamined domains like as digital technology adoption and the influence of spiritual leadership on EPB.

Corresponding Author : Septian Salim
E-mail: septiansalim62@gmail.com**INTRODUCTION**

The concept of Employee Pro-environmental Behaviour (EPB) has garnered heightened scholarly interest, indicative of escalating apprehensions over sustainability in the workplace. Employee Pro-environmental Behaviour (EPB) refers to acts by employees that either promote or hinder environmental sustainability (Tian & Liu, 2022), and is particularly crucial in industries such as hospitality, where environmental effects are substantial. This bibliometric study seeks to deliver a thorough overview of EPB research, pinpointing significant trends, prominent themes, and new research possibilities from 2000 to 2024 (Agarwal et al., 2016).

This study's bibliometric data was obtained from the Web of Science (WoS) database, encompassing high-impact journals in management, business, and hospitality. This study employed sophisticated keyword searches and quantitative bibliometric tools such as

VOSviewer to analyse 766 documents, emphasising publishing patterns, highly cited publications, prominent authors, and notable journals. Utilising co-occurrence and citation analysis, four principal research clusters were discerned: Influential Factors, Workplace Performance, Pro-environmental Adoption, and Employee Outcomes. Each cluster signifies a distinct facet of the manifestation and support of pro-environmental behaviour inside organisations.

The present study aims to clarify the current research environment about EPB by synthesising bibliometric data with thematic content analysis. It analyses the patterns and correlations among the detected clusters, providing insights into their evolution and emphasising both well studied and inadequately examined domains. Significant emphasis has been placed on Green Human Resource Management (Green HRM) and Corporate Social Responsibility (CSR) as catalysts for pro-environmental behaviours, whereas there is a paucity of research addressing the technological factors that promote Environmental Performance Behaviour (EPB), particularly regarding employee technology adoption.

This research enhances the knowledge of the factors affecting EPB by examining these linkages and patterns (Akram et al., 2023; Zientara & Zamojska, 2018). The insights derived from the bibliometric data not only illuminate the changing academic scene but also offer practical implications for organisations aiming to improve their sustainability policies. This study closes by proposing future research avenues that may enhance our comprehension of employee-driven sustainability initiatives, especially in under-explored domains such as digital adoption and spiritual leadership in fostering environmentally conscious behaviours.

METHOD

Bibliometric Analysis Results

For data analysis, this review mainly uses quantitative bibliometric tools like VOSviewer and additional tools like Excel and EndNote. For effectively assessing and analyzing bibliometric data, VOSviewer is a reliable tool (Donthu et al., 2021).

Data Collection

The information was obtained from the Web of Science (WoS) database, which contains the Social Science Citation Index (SSCI). According to Zupic & Cater (2015), WoS is widely accessible online and is frequently used for bibliometric analysis. To see all related journals in the WoS, certain keywords must be entered into the "Advanced Search" function. The keywords are a combination of hospitality (e.g., "hotel(s)", "hospitality", "lodging") and employee pro-environmental behaviour (e.g., "eco-friendly behaviour" and "green behaviour"). Additionally, the following three WoS categories are searched: "Management," "Business," and "Hospitality, Leisure, Sport & Tourism." Lastly, the WoS's advanced search code was TS=("employ*" OR "worker" OR "workers" OR "colleague" OR "colleagues" OR "labo*" OR "staff" OR "staffs" OR "personnel" OR "person" OR "subordinate" OR "crew" OR "crews" OR "attendant" OR "voluntary") AND TS=("hotel" OR "hotels" OR "accommodation" OR "accommodations" OR "hospitality" OR "lodging" OR "hostel" OR "hostels" OR "resort" OR "resorts" OR "motel" OR "inn" OR "inns" OR "restaurant" OR "restaurants" OR "motel" OR "food service") AND TS=("pro-environmental behavio*" OR "eco-friendly behavio*" OR "environmentally behavio*" OR "green behavio*" OR "sustainable behavio*" OR "environmentally conscious behavio*" OR "environmental stewardship" OR "sustainable practice" OR "eco-conscious behavio*" OR "environmental conservation behavio*" OR "employee green behavio*" OR "sustainable workplace" OR "green practice" OR "resource reduction" OR "resource saving" OR "ecolog* behavio*" OR "conservation behavio*" OR "workplace") NOT TS=("resort" OR "catering theory" OR "catering incentive*") AND WC=("business" OR "management" OR "hospitality, leisure, sport & tourism")

English is the only language available in the search option, and the document types are restricted to "articles" and "review articles" (book reviews and proceedings papers are not included). The total number of high-quality, high-impact documents for bibliometric analysis during the search is 766.

RESULT AND DISCUSSION

After conducting the bibliometric analysis, therefore it is discovered that the topic has four (4) cluster which then be analyse using thematic analysis. To do the thematic analysis, 55 papers used for understanding the cluster which discussed as follows:

Influenced Factors

The Influenced Factors cluster focuses on various determinants that affect employee eco-friendly behavior, organizational sustainability efforts, and environmental performance. Key topics in this cluster include the role of Green Human Resource Management (GHRM), corporate social responsibility (CSR), leadership styles, employee engagement, and broader organizational practices. These elements are shown to significantly influence the implementation of green practices, particularly in service industries such as hospitality, tourism, and other sectors with a focus on environmental sustainability. A predominant theme within this cluster is GHRM, which is seen as a critical driver in fostering eco-friendly behavior among employees. Numerous studies have demonstrated that integrating environmental considerations into HR practices—such as hiring, training, performance evaluation, and rewards—creates an organizational culture that encourages sustainable actions. These GHRM practices not only align individual employee behavior with broader corporate environmental goals but also promote a sense of responsibility among employees to engage in eco-friendly practices. The importance of organizational identification is also highlighted, where employees with strong ties to the company's environmental vision are more motivated to exhibit sustainable behavior, thereby enhancing the overall environmental performance of the organization: *the effect of green human resource management on hotel employees' eco-friendly behavior and environmental performance* (Kim et al., 2019) and *The Impact of Green HRM on Employees' Eco-Friendly Behavior: The Mediator Role of Organizational Identification* (Ribeiro et al., 2022) both emphasize the role of HRM in aligning employee actions with sustainability goals. Similarly, *Unlocking Employee's Green Behavior in Fertilizer Industry: The Role of Green HRM Practices and Psychological Ownership* (Waqas et al., 2021) explores how HRM practices can create a sense of ownership among employees, fostering proactive engagement in environmental activities.

Corporate Social Responsibility (CSR) is another vital factor explored in the cluster, emphasizing how a company's ethical responsibilities can directly influence employee behavior and overall sustainability performance. Studies show that CSR initiatives have a significant impact on environmental performance by encouraging employees to engage in pro-environmental behavior. Moreover, altruistic values can act as a moderator, amplifying the influence of CSR on sustainability outcomes, which highlights the importance of aligning corporate values with employee beliefs to maximize the impact of CSR efforts. *Corporate social responsibility and sustainability in the tourism sector: A systematic literature review and future outlook* (Madanaguli et al., 2022) and *Fostering the Environmental Performance of Hotels in Pakistan: A Moderated Mediation Approach From the Perspective of Corporate Social Responsibility* (Ahmed et al., 2022) illustrate how CSR initiatives can enhance environmental performance, especially in sectors like tourism and hospitality.

Leadership styles also play a crucial role in influencing environmental behaviors within organizations. *Environmental Leadership, Green Innovation Practices, Environmental Knowledge Learning, and Firm Performance* (X. Su et al., 2020) shows that effective environmental leadership helps foster an organizational environment conducive to green

practices. This leadership approach motivates employees to incorporate sustainability into their daily activities, thereby reinforcing the organization's commitment to environmental performance. Effective leadership not only inspires employees to adopt green practices but also drives innovation in sustainable processes and behaviors, which is crucial for enhancing overall organizational performance.

Employee engagement, resilience, and psychological ownership are also explored as key mediators that strengthen the relationship between organizational practices and environmental outcomes. Insights from studies such as *Human Resource Management Practices and Service Provider Commitment of Green Hotel Service Providers: Mediating Role of Resilience and Work Engagement* (Arasli et al., 2020) show that high-performance work practices lead to greater employee commitment to environmental initiatives, suggesting that employees who feel engaged and valued are more likely to participate actively in sustainability programs, thereby enhancing their contribution to the organization's environmental goals.

The cluster also examines how factors such as environmental knowledge and employee behavior impact organizational sustainability. Studies like *The Impact of Environmental Knowledge and Environmental Behavior of Hotel Employees on Environmental Performance: A Model Proposal* (Turgut, 2022) indicate that employees with greater environmental knowledge are more likely to exhibit behaviors that positively impact environmental performance. This points to the importance of education and awareness programs within organizations to empower employees with the knowledge and skills necessary to contribute effectively to sustainability goals.

Challenges to implementing these sustainability practices also emerge in the literature. Differences in company ownership and financial constraints can be significant barriers to adopting green practices. For example, *Organizational Practices Promoting Employees' Pro-Environmental Behaviors in a Visegrad Group Country* (Piwowar-Sulej & Kołodziej, 2022) highlights how company ownership can influence the implementation of environmental practices, whereas *MUGHAS: The Integrated Green HRM Model to Improve Business Performance* (Wajdi et al., 2023) discusses the need for comprehensive, integrated HRM strategies to overcome cost-related challenges.

In conclusion, the Influenced Factors cluster emphasizes the multidimensional approach needed to successfully implement green practices in organizations. Key determinants such as GHRM, CSR, leadership, and employee engagement contribute to fostering an organizational culture that supports sustainability. Addressing the challenges, including financial constraints and varying levels of commitment, can further enhance an organization's ability to integrate sustainability into its operations. Ultimately, the studies within this cluster highlight that a strategic, well-rounded approach that incorporates both structural and cultural elements is crucial for advancing organizational sustainability and achieving improved environmental performance.

Cluster #2: Workplace Performance

Workplace performance, particularly in the hospitality industry, is a complex and multifaceted domain influenced by various individual and environmental factors. Several studies have examined the dynamics between workplace stressors, employee well-being, and overall performance outcomes. One significant area of focus is the impact of abusive supervision on employees' behaviors. For instance, the study *Abusive supervision and customer-oriented organizational citizenship behavior: The roles of hostile attribution bias and work engagement* (Lyu et al., 2016) explores how negative supervisory behaviors affect customer-oriented citizenship behaviors among employees. The research identifies that hostile attribution bias and decreased work engagement can mediate the relationship between abusive supervision and the employee's ability to go above and beyond their formal duties.

Another crucial factor impacting workplace performance is the role of workplace ostracism. In *Workplace ostracism and proactive customer service performance: A conservation of resources perspective* (Zhu et al., 2017), the authors examine how social exclusion within the workplace can drain employees' psychological resources, thereby diminishing their proactive service performance. Ostracism is also linked to knowledge hiding behaviors, as investigated in *Workplace ostracism and knowledge hiding in service organizations* (Zhao et al., 2016), where the findings suggest that employees who feel excluded are more likely to withhold critical information, further reducing team effectiveness and performance.

Employee well-being, particularly as it fluctuates daily, is another aspect that significantly influences workplace performance. In *Momentary well-being matters: Daily fluctuations in hotel employees' turnover intention* (Shi et al., 2021), researchers highlight that daily changes in well-being directly correlate with turnover intentions, emphasizing the need for supportive work environments that help stabilize employee morale. Similarly, *Does mindfulness reduce emotional exhaustion? A multilevel analysis of emotional labor among casino employees* (Li et al., 2017) focuses on the potential benefits of mindfulness practices in reducing emotional exhaustion, a common issue for employees engaged in high-contact service roles like casinos and hotels.

The relationship between job insecurity and performance is also explored in *The Effects of Job Insecurity, Emotional Exhaustion, and Met Expectations on Hotel Employees' Pro-Environmental Behaviors* (Karatepe et al., 2023). This study reveals that job insecurity can exacerbate emotional exhaustion, which in turn negatively impacts both the employees' well-being and their willingness to engage in pro-environmental behaviors. Such findings suggest that ensuring job security is a pivotal strategy to enhance not only performance but also sustainability initiatives within hospitality settings.

Another study that delves into the nuances of workplace performance is *Performance Work Practices and Hotel Employee Performance: The Mediation of Work Engagement* (Karatepe, 2013). This research highlights the positive effects of high-performance work practices (HPWPs) such as training, rewards, and empowerment on employee performance. It also identifies work engagement as a key mediator, indicating that engaged employees are more likely to translate HPWPs into improved service quality and performance.

Finally, the resilience of environmentally friendly firms during crises is examined in *Are Environmentally Friendly Firms More Vulnerable During the COVID-19 Pandemic?* (Zhang & Fang, 2022). The study suggests that while eco-friendly firms face unique challenges during economic downturns, they also exhibit a degree of resilience due to stronger internal practices and values that promote sustainability and social responsibility. This resilience not only benefits environmental outcomes but also helps maintain employee performance and morale during challenging times.

Overall, the cluster of studies on workplace performance emphasizes the importance of creating supportive, inclusive, and empowering work environments. Factors like abusive supervision, workplace ostracism, and job insecurity can significantly hinder performance, while positive interventions like mindfulness, high-performance work practices, and fostering a sense of community can greatly enhance it. These insights are crucial for hospitality firms aiming to improve both employee well-being and overall service performance.

Cluster #3: Pro-environmental Adoption

The cluster of Pro-environmental Adoption focuses on understanding the behaviors, practices, and attitudes that promote sustainable actions, particularly in the context of tourism, hospitality, and broader organizational settings. This body of research investigates how individuals and organizations adopt environmentally conscious behaviors, driven by various social, psychological, and organizational factors. One of the critical areas of research is the

influence of consumer behavior on environmental sustainability in tourism and hospitality, exploring the theories and concepts that drive consumer choices towards more sustainable options. Studies like "Consumer behavior and environmental sustainability in tourism and hospitality: A review of theories, concepts, and latest research" (Han, 2021) offer insights into how consumer preferences evolve in response to environmental concerns and the role of hospitality businesses in catering to these demands. Similarly, "*The role of social capital in encouraging residents' pro-environmental behaviors in community-based ecotourism*" (Liu et al., 2014) highlights how community dynamics and social capital foster pro-environmental behavior, emphasizing the importance of local relationships and collective efforts in promoting sustainable tourism.

Adopting green practices at an organizational level is another prominent theme. Research such as "*An Empirical Study of Environmental Practices and Employee Ecological Behavior in the Hotel Industry*" (Chan et al., 2017) and "*The role of green human resource management in driving hotel's environmental performance: Interaction and mediation analysis*" (Pham, 2021) focuses on how environmental practices are implemented within hospitality organizations. These studies examine how internal policies, such as Green Human Resource Management (GHRM), influence employee behavior and contribute to improved environmental performance. The findings indicate that creating a green organizational climate can significantly enhance the likelihood of employees engaging in pro-environmental behavior, as explored in "*Green organizational climates and employee pro-environmental behavior in the hotel industry*" (Zientara & Zamojska, 2018).

The motivations behind pro-environmental behavior also receive considerable attention. For instance, "*What Drives Employees' Intentions to Implement Green Practices in Hotels? The Role of Knowledge, Awareness, Concern and Ecological Behaviour*" (Chan et al., 2014) delves into the psychological factors that encourage employees to participate in sustainability efforts. Knowledge, awareness, and personal concern about environmental issues are shown to be key drivers for ecological behavior. Additionally, studies like "*Does Spiritual Leadership Influence Hotel Employees' Voluntary Eco-Friendly Behavior? The Role of Harmonious Green Passion and Nature Connectedness*" (Sunhaji et al., 2023) explore how leadership styles that emphasize spirituality and connectedness to nature can foster voluntary eco-friendly behaviors among employees.

The cluster also includes research that emphasizes the role of innovative approaches in fostering pro-environmental behavior. For instance, "*A Study on Influence of Eco-Friendly Technologies in Hospitality Industry*" (Xess et al., 2021) investigates how introducing eco-friendly technologies impacts both customer satisfaction and employee commitment to sustainability in the hospitality sector. Another study, "*The Longitudinal Effect of Digitally Administered Feedback on the Eco-Driving Behavior of Company Car Drivers*" (Goedertier et al., 2023), highlights how digital tools and feedback can sustain environmentally friendly driving practices, demonstrating how technology can act as a continuous motivator for pro-environmental behavior.

Furthermore, studies like "*Toward a More Sustainable Environment: Understanding Why and When Green Training Promotes Employees' Eco-Friendly Behaviors Outside of Work*" (Usman et al., 2023) provide a broader perspective by analyzing how workplace training can influence employees' environmental behaviors beyond the workplace. This finding is supported by "*From Green Inclusive Leadership to Green Organizational Citizenship*", which explores how leadership practices that include sustainability aspects can cultivate a culture of environmental stewardship within organizations.

In summary, the Pro-environmental Adoption cluster emphasizes a wide range of factors influencing the adoption of green behaviors, from consumer preferences and community involvement to organizational practices and leadership styles. It underlines the importance of

awareness, motivation, and supportive environments in fostering a sustainable culture. As organizations and individuals strive for greater sustainability, understanding these dynamics can guide more effective interventions and policies that promote ecological responsibility.

Employee Outcomes

The research under "Employee Outcomes" focuses on understanding various factors that influence employees' experiences, satisfaction, and overall well-being within the hospitality industry. A consistent theme across the studies is how workplace attributes, activities, family-work balance, and external perceptions, like corporate social responsibility, impact employee outcomes in both positive and challenging ways. First of all, *Determinants and Impacts of Quality Attributes on Guest Perceptions in Norwegian Green Hotels* (Ali et al., 2023) highlights the importance of quality attributes, not only for customer satisfaction but also in affecting employee morale and outcomes indirectly. By aligning employee practices with guest expectations in green hotels, a favorable work environment is cultivated, contributing to positive employee engagement and well-being. This alignment helps employees derive meaning from their roles, leading to enhanced job satisfaction and commitment to sustainability practices.

Then *Fun activities at work: Do they matter to hospitality employees?* (Becker & Tews, 2016) explores how incorporating fun activities into the work environment positively impacts hospitality employees. The findings show that having enjoyable elements at work can foster a more cohesive and engaged workforce. Such activities contribute to building a positive organizational culture, which enhances employee satisfaction and reduces turnover rates. Employees who enjoy their workplace tend to be more motivated and demonstrate greater loyalty towards their employer.

Then, *Enhancing Work-Family Balance Research in Family Businesses* (Stafford & Tews, 2009) emphasizes the role of work-family balance in shaping employee outcomes, especially in family-owned hospitality businesses. Balancing professional and personal lives is crucial for reducing stress and increasing overall job satisfaction among employees. The study reveals that when employers recognize and support the work-family needs of their staff, employees are more likely to exhibit improved performance and greater loyalty to the company.

After that, *When Distress Hits Home: The Role of Contextual Factors and Psychological Distress in Predicting Employees' Responses to Abusive Supervision* (Restubog et al., 2011) delves into the negative impacts of abusive supervision on employees' mental health and behaviors. Psychological distress, when coupled with an unsupportive work environment, can lead to adverse outcomes such as disengagement, decreased productivity, and negative coping mechanisms. Understanding these factors is essential for organizations aiming to foster a healthy work environment that minimizes stress and prevents detrimental employee outcomes.

Perceived Corporate Social Responsibility's Impact on the Well-being and Supportive Green Behaviors of Hotel Employees (L. Su & Swanson, 2019) examines how employees' perceptions of their organization's commitment to social responsibility influence their own well-being and behaviors. The findings suggest that when employees perceive their organization as being genuinely committed to social and environmental causes, it positively affects their morale, well-being, and propensity to engage in green behaviors. Employees feel a stronger connection to their employer's mission and are motivated to contribute positively to the organization's sustainability efforts.

The studies in this cluster emphasize the multifaceted nature of employee outcomes in the hospitality sector. Positive organizational practices, such as fostering work-family balance, promoting fun activities, and maintaining a commitment to social responsibility, have been shown to significantly improve employee well-being, satisfaction, and loyalty. Conversely, negative experiences, such as abusive supervision, can lead to detrimental effects on employee

health and engagement. Understanding these dynamics is crucial for organizations seeking to create supportive environments that foster positive employee outcomes.

To effectively frame the thematic clusters identified through our bibliometric review of "Employee Pro-environmental Behavior" from 2000 to 2024, the study started by presenting the bibliometric analysis results. The analysis, based on data from the Web of Science (WoS) and utilizing tools, VOSviewer, identified significant trends and influential contributions in the field. The bibliometric analysis reveals a substantial increase in academic interest in topics related to Green Human Resource Management (HRM) and Pro-environmental Behaviors, particularly within the hospitality and tourism sectors. Specifically, the analysis identifies that a significant proportion of the research comes from countries such as the USA and China, which have played a key role in advancing the understanding of employee-driven environmental initiatives. Moreover, prominent institutions such as Hong Kong Polytechnic University and Eastern Mediterranean University are leading in terms of research output, contributing numerous studies that have shaped current practices and knowledge in this domain.

The co-occurrence analysis highlights four main clusters of research themes: Influenced Factors, Workplace Performance, Pro-environmental Adoption, and Employee Outcomes. Each of these clusters represents a significant research focus that has contributed to a nuanced understanding of how employee behavior can support environmental sustainability in organizations, particularly within hospitality settings. Importantly, the thematic focus has evolved over time, with earlier studies predominantly addressing influenced factors and workplace performance, whereas more recent research has emphasized pro-environmental adoption and employee outcomes.

Overall, the bibliometric findings provide a comprehensive overview of the leading journals, authors, institutions, and countries driving the research on employee pro-environmental behavior. Key authors such as Osman M. Karatepe and Heesup Han are frequently cited and have a strong influence in shaping this research area. The analysis also underscores the significant contributions of journals like *International Journal of Hospitality Management* and *Journal of Sustainable Tourism*, which feature a considerable number of publications and citations on the subject.

This bibliometric overview helps establish the broader context in which our thematic discussion is situated. It illustrates how scholarly interest has evolved and identifies the influential contributions that have helped shape the current understanding of employee pro-environmental behavior, especially in service-oriented industries like hospitality and tourism. Moving forward, we will delve deeper into each of these clusters to explore their contributions and implications for both academic research and practical applications.

The discussion integrates the findings from bibliometric analysis and content evaluation to explore the key research themes in employee pro-environmental behavior within the hospitality industry. The bibliometric analysis identified four primary research clusters: (1) Influenced Factors, (2) Workplace Performance, (3) Pro-environmental Adoption, and (4) Employee Outcomes. Detailed content analysis of each cluster further revealed several subthemes within them.

Within the Influenced Factors cluster, subthemes emerged around topics such as the impact of Green Human Resource Management (HRM) on employee eco-friendly behaviors, Corporate Social Responsibility (CSR), and the influence of organizational leadership and environmental policies. These studies focused on how strategic HRM practices and corporate policies drive employee engagement and sustainable behavior. Key subtopics include the role of CSR as a motivational factor, psychological ownership in facilitating green behavior, and the impact of green talent management in boosting environmental performance.

The Workplace Performance cluster revolves around themes like emotional exhaustion, mindfulness, and engagement. Specific subtopics emerged concerning the effects of workplace

conditions, such as abusive supervision, job insecurity, and incivility, on employees' pro-environmental behavior and overall performance. The content analysis highlights the importance of supportive environments in enhancing employee productivity and well-being, which directly impact their capacity to engage in green behaviors. Subtopics also addressed resilience-building and interventions like mindfulness that aim to alleviate stress and improve work engagement.

In the Pro-environmental Adoption cluster, research focused on various dimensions of environmentally friendly practices and their adoption in the hospitality sector. Subthemes included green consumption values, leadership initiatives for sustainability, and organizational climates that foster pro-environmental behaviors. Content analysis highlighted studies on community-based ecotourism, the role of green leadership, and employee ecological behavior as pivotal aspects influencing the adoption of green practices. Specific focus areas also include training initiatives to boost pro-environmental behaviors and the role of green climates in enhancing employee participation in sustainability.

The Employee Outcomes cluster emphasizes the impact of green initiatives on employee well-being and performance. Subthemes include the relationship between CSR and employee well-being, fun activities at work as an engagement strategy, and the importance of work-life balance in enhancing job satisfaction. Detailed analysis shows how green HRM practices contribute to improved employee motivation, well-being, and ecological behavior. Additional subtopics highlight the role of perceived CSR in promoting supportive green behaviors and enhancing employee well-being as part of sustainability efforts.

This comprehensive integration of bibliometric insights into the content analysis of each cluster provides an enriched understanding of the evolving research landscape in the hospitality industry concerning employee pro-environmental behavior. It also emphasizes the growing intersection between green practices and employee performance outcomes, establishing these themes as critical areas of ongoing research.

Bibliometric insights provide an opportunity to explore how different research clusters interconnect. For instance, the analysis reveals a significant relationship between the Workplace Performance and Employee Outcomes clusters. These clusters are increasingly linked through shared citations and co-authorships, indicating that the effect of managerial practices on employee well-being and environmental performance is becoming a prominent research theme. The findings suggest that elements such as abusive supervision, emotional exhaustion, and work engagement have direct implications for employee outcomes, especially when integrated with green HRM practices. This demonstrates a growing academic interest in the intersection of employee wellness and environmental behavior, as evidenced by the interconnectedness in the literature.

Moreover, temporal trends indicate an increasing number of publications related to Pro-environmental Adoption over the past decade. This growing interest is directly aligned with global climate goals and international environmental policies. Bibliometric data shows a surge in keywords like "eco-friendly behavior," "green leadership," and "community involvement," especially in recent years. This trend underlines the hospitality industry's and researchers' response to the global push for sustainability, reflecting how academic attention has pivoted to support broader environmental initiatives.

The bibliometric analysis also helps to highlight key gaps across the clusters, indicating potential areas for future research. One notable gap is the lack of research focused on digital technology adoption among employees, particularly when compared to the extensive coverage of technology adoption by customers. This presents an opportunity to investigate how technology use in the workplace could foster employee pro-environmental behavior, especially in the context of hospitality where operational efficiency is critical.

Additionally, co-occurrence analysis reveals certain emerging terms with limited coverage in current research. For instance, the role of spiritual leadership in promoting eco-friendly behavior among employees is identified as an emerging but underexplored theme. Given the potential impact of leadership styles on employee attitudes toward sustainability, this area warrants further investigation. By focusing on emerging leadership strategies, future studies can add valuable insights into how management can influence pro-environmental behavior.

Another under-researched area is the direct influence of green organizational climates on both employee well-being and customer satisfaction, as indicated by the relatively lower frequency of these keywords. Future research could explore how fostering a green workplace culture might simultaneously enhance employee morale and meet the growing demand for sustainability from customers.

In conclusion, this discussion integrates bibliometric insights to provide a comprehensive understanding of the identified thematic clusters. The bibliometric trends not only helped shape and validate these clusters but also highlighted areas where research is thriving or lacking. The Influenced Factors cluster establishes the foundational role of HRM and CSR in driving sustainability, while Workplace Performance and Employee Outcomes demonstrate the interplay between managerial practices and employee well-being. The Pro-environmental Adoption cluster underscores the ongoing emphasis on sustainability initiatives across industries.

By weaving bibliometric findings into the thematic analysis, the discussion offers a richer, more credible exploration of each research theme. These insights not only validate the significance of each cluster but also guide the future direction of research in this evolving field. This holistic approach ensures that any future research recommendations are well-supported by existing trends and gaps, enhancing the relevance of employee pro-environmental behavior in both academic and practical applications.

CONCLUSION

This study provided a comprehensive analysis of *Employee Pro-environmental Behavior* through a combination of bibliometric and thematic analysis. Four distinct research clusters were identified: *Influenced Factors*, *Workplace Performance*, *Pro-environmental Adoption*, and *Employee Outcomes*. The bibliometric findings revealed significant trends, such as an increasing focus on Green HRM, CSR, and employee well-being, particularly within the hospitality industry. Relationships between clusters, such as those between *Workplace Performance* and *Employee Outcomes*, highlighted the growing interest in managerial practices and their impact on employee behaviors. The trends align with global sustainability goals, underscoring the critical role of leadership, organizational culture, and environmental initiatives. The identified gaps present opportunities for future research, particularly in underexplored areas like technology adoption among employees and the role of spiritual leadership. Overall, the study emphasizes the importance of employee behavior in achieving sustainability goals and highlights areas where both academics and practitioners can focus their efforts to enhance environmental performance.

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