

RESEARCH ARTICLE

Sustainable leadership and work behavior in hotel businesses: The influence of perceived environmental corporate social responsibility

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ABSTRACT

Despite the growing emphasis on sustainability in the hospitality industry, there is a notable gap in understanding how sustainable leadership influences employee work behavior, particularly through the lens of perceived environmental corporate social responsibility (PECSR), an area that has yet to be fully explored in the context of hotel businesses. Therefore, this study aims to examine the impact of sustainable leadership on sustainable work behavior among employees in hotel businesses with a particular focus on perceived environmental corporate social responsibility as a mediator. This study focuses on full-time employees working in five-star hotels in Egypt, with a total of 352 valid responses collected. The data were analyzed using WarpPLS software, a user-friendly tool for the PLS-SEM approach adopted. The findings indicate that sustainable leadership has a positive impact on employees' sustainable work behavior and their perceptions of environmental corporate social responsibility. Additionally, the study shows that PECSR not only positively influences employees' sustainable work behavior but also serves as a mediator in the relationship between sustainable leadership and sustainable work behavior. This study contributes to sustainability and leadership literature in the hospitality industry. It demonstrates that sustainable leadership's impact on employee behavior is partially mediated by employees' perceptions of their organization's environmental responsibility, enriching leadership theories with insights from corporate social responsibility and organizational behavior. Practically, the research offers hotel managers actionable insights on integrating sustainability into leadership practices, emphasizing the importance of transparent communication about CSR initiatives, leadership training, and aligning sustainability with organizational strategies to enhance employee engagement and foster sustainable work behavior.

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Keywords: Sustainable leadership; Sustainable work behavior; Perceived environmental corporate social responsibility; Hotel businesses

1. Introduction

In recent years, the hospitality industry has increasingly recognized the importance of sustainability, not only in terms of environmental impact but also in promoting sustainable practices among employees^[1-4]. Sustainable leadership, which emphasizes long-term organizational goals and values that align with social, environmental, and economic responsibilities, has emerged as a critical factor in shaping employee behavior^[5-7]. In particular, the role of sustainable leadership in fostering employees' sustainable work behavior has garnered attention, as employees' actions are pivotal to the successful implementation of sustainability initiatives within organizations^[8-11].

This study aims to investigate the effect of sustainable leadership on employees' sustainable work behavior within the context of five-star hotels in Egypt. Given the sector's significant role in the global economy and its substantial environmental footprint, understanding the factors that promote sustainable practices among hotel staff is essential for achieving long-term sustainability goals^[12,13]. Moreover, while sustainable leadership has been linked to various positive organizational outcomes, its influence on employees' behaviors remains an area requiring further exploration^[13-15].

While our study focuses on the Egyptian hotel industry, similar research in other regions has also explored the impact of sustainable leadership and CSR on employee behavior. For instance, studies conducted in Europe and North America have shown that CSR initiatives positively influence employee engagement and job satisfaction^[16,17]. However, differences in cultural norms and organizational structures may lead to variations in how these initiatives are perceived and implemented across regions. In contrast, research in Asian countries such as Japan and China has highlighted the importance of collectivist values in shaping employees' attitudes toward CSR, suggesting that CSR initiatives may be more strongly tied to organizational loyalty and group-oriented behavior^[18,19].

A critical component of this investigation is the mediating role of perceived environmental corporate social responsibility (PECSR). PECSR refers to employees' perceptions of their organization's commitment to environmental sustainability, which is believed to influence their own work behavior^[20-22]. By exploring how sustainable leadership impacts employees' sustainable work behavior through the lens of PECSR, this study contributes to a deeper understanding of the mechanisms through which leadership can foster sustainability in the hospitality industry.

A significant research gap exists in understanding how sustainable leadership and perceived environmental corporate social responsibility (PECSR) influence employee sustainable work behavior in the hotel industry. While sustainable leadership and corporate social responsibility (CSR) have been widely studied in various industries, the specific impact of these factors on employees in the hotel sector remains underexplored. Most existing studies focus on the broader hospitality industry without considering the unique challenges hotels face, such as high employee turnover and operational pressures related to sustainability. Additionally, while perceived environmental CSR has been shown to influence organizational outcomes, the way employees perceive and engage with these initiatives to affect their behavior, such as participation in eco-friendly practices, is not well understood^[13,19]. There is also a lack of research examining the mediating factors that influence how sustainable leadership impacts employee behavior, particularly the perceived fairness of CSR efforts. Furthermore, most studies are cross-sectional, leaving a gap in our understanding of the long-term effects of perceived CSR and sustainable leadership on work behavior. This gap highlights the need for more hotel-specific and longitudinal research that examines how sustainable leadership and CSR perceptions shape employees' motivation, engagement, and commitment to sustainability initiatives in the hotel context. Addressing these gaps will provide critical insights for developing effective

leadership practices and sustainability strategies to enhance both employee engagement and sustainable performance in the hotel industry.

In the context of Egypt, where the tourism sector plays a vital role in the economy and the challenges of environmental conservation are significant, this study is particularly timely. The findings are expected to offer valuable insights for hotel managers and policymakers aiming to enhance sustainable practices within the industry and promote a culture of sustainability among hotel employees.

2. Literature review

2.1. Sustainable leadership

Sustainable leadership is a crucial aspect of modern organizational management, especially in the rapidly evolving and intricate business environment^[23]. This leadership style focuses on a leader's ability to balance the needs of various stakeholders—such as employees, customers, shareholders, and the environment—while promoting long-term growth and success^[24]. It is crucial for organizations to sustain their competitiveness and resilience in the face of growing global uncertainty and complexity^[25]. McCann and Sweet^[26] emphasized that effective leaders must effectively manage the intricate interplay of economic, social, and environmental issues to ensure the well-being of both people and the planet.

A central element of sustainable leadership is the ability to nurture a culture of sustainability within an organization^[27,28]. This involves instilling a strong sense of purpose and values that align with the organization's mission and vision, while actively encouraging employees to take ownership of sustainability efforts^[29]. Organizations with a well-established sustainability culture tend to outperform their competitors in areas such as financial performance, employee engagement, and customer satisfaction^[27,30]. A key trait of sustainable leadership is the capacity to make decisions that balance immediate needs with long-term sustainability objectives^[31]. This requires leaders to be adaptable and resilient in the face of uncertainty and change^[32]. Companies that prioritize long-term sustainability are often more successful in the long run, as they are better equipped to handle the challenges of a rapidly evolving business environment^[24].

Sustainable leaders possess several key characteristics, including a strong sense of purpose and values, the ability to inspire and motivate others, effective communication and collaboration skills, a readiness to take calculated risks, and a commitment to continuous learning and development^[33]. Sustainable leadership is crucial for organizations aiming for long-term success and positive impact^[34]. By focusing on the well-being of both people and the planet, leaders can cultivate a sustainability-driven culture that not only enhances business success but also contributes to a more sustainable future for all^[35].

2.2. Sustainable work behavior

Sustainable work behavior has become a crucial element for organizations operating in today's increasingly complex and uncertain global environment^[36]. It refers to the behaviors and habits of employees that contribute not only to their own well-being but also to the well-being of the organization and the environment^[37]. As organizations strive to maintain competitiveness and resilience, sustainable work behavior plays an essential role^[34]. This broad concept includes environmental sustainability, social responsibility, and employee health and well-being^[38]. A significant aspect of sustainable work behavior is environmental sustainability, which involves actions such as reducing energy use, utilizing public transportation, and participating in recycling initiatives^[29]. Employees who engage in environmentally conscious practices often report higher job satisfaction and lower turnover rates^[34].

Social responsibility is another important dimension of sustainable work behavior. It includes behaviors such as volunteering, charitable donations, and community service involvement^[32]. Kim, McGinley^[1] found

that employees who engage in socially responsible activities tend to show higher organizational commitment and greater engagement. Additionally, employee health and well-being are critical to sustainable work behavior^[39]. This includes practices such as taking regular breaks, exercising, maintaining a healthy diet, and focusing on mental health. Tsourvakas and Yfantidou^[17] highlighted that employees who prioritize their well-being tend to be more productive and engaged in their work.

Promoting sustainable work behavior is a priority for organizations, as emphasized in a study by Zhang, Guo^[40] from the Society for Human Resource Management. Zoogah^[41] identified key actions employees can take, including using public transportation or carpooling, reducing energy and paper consumption at work, participating in community service, and engaging in self-care activities during breaks. Organizations play a critical role in supporting sustainable work behavior by providing resources and creating an environment that encourages employees to engage in sustainable practices^[29]. Examples include offering access to public transportation, flexible working arrangements, and providing educational programs on sustainability initiatives.

Sustainable work behavior is an essential component of modern organizations, promoting the well-being of individuals, the organization, and the environment^[42]. Iqbal, Ahmad^[43] emphasized that such behavior is necessary for organizations to thrive in a world marked by uncertainty and complexity. An important aspect of sustainable work behavior is maintaining work-life balance. This includes practices such as taking breaks, engaging in regular physical activity, and maintaining a healthy diet. According to Iqbal, Ahmad^[43], employees who focus on work-life balance tend to experience higher job satisfaction and engagement. Furthermore, prioritizing health and well-being, including managing stress, supporting mental health, and engaging in physical activity, is vital to sustainable work behavior^[19].

2.3. Perceived environmental corporate social responsibility

Perceived environmental corporate social responsibility (ECSR) refers to stakeholders' perceptions of a company's responsibility for the environmental impacts of its operations and products^[44]. Chen and Zhang^[45] suggest that these perceptions can significantly influence consumer purchasing decisions and brand loyalty. Zhang, Xu^[46] further emphasize that as consumers increasingly expect companies to take responsibility for their environmental impact, those that do are more likely to gain and retain customer loyalty.

A key factor shaping stakeholders' perceptions of ECSR is a company's transparency and communication about its environmental practices^[38]. Companies that effectively communicate their environmental policies and initiatives are more likely to be perceived as environmentally responsible^[47]. Another important aspect is a company's commitment to reducing its environmental footprint through sustainable practices^[29]. Palma Serrano, Picón Berjoyo^[48] found that companies that implement sustainable actions, such as reducing energy consumption and waste, are viewed as more environmentally responsible. Additionally, environmental labels and certifications, such as the ISO 14001 environmental management standard, play a role in influencing consumer perceptions of ECSR^[49]. Companies can also leverage social media to promote their environmental efforts and increase transparency, making them appear more environmentally responsible^[50]. In sum, CSR plays a vital role in shaping a company's reputation and brand image, with companies that prioritize environmental responsibility more effectively attracting and retaining customers^[38].

ECSR, which includes both environmental and social responsibility, is critical to a company's reputation and brand image, significantly impacting consumer behavior and purchasing decisions. A growing number of consumers consider a company's environmental and social impact when making purchasing choices^[51]. The transparency of a company's environmental practices and clear communication about them

are essential factors influencing consumers' perceptions of CSR^[38]. Organizations that openly discuss their environmental policies and actions are more likely to be perceived as environmentally responsible^[52]. Another key factor is a company's commitment to reducing its environmental impact through sustainable practices^[29]. Companies that adopt sustainable measures, such as reducing energy consumption and managing waste, are more likely to be perceived as environmentally responsible^[53].

Research suggests that perceived ECSR positively influences the relationship between sustainable leadership and sustainable work behavior, suggesting that leadership behaviors and organizational values significantly influence employees' perceptions of their company's environmental responsibility^[33]. This perception, in turn, influences employee behaviors, particularly in areas related to sustainability and environmental stewardship^[46]. Puspitasari, Sutarto^[54] further explains that ECSR serves as a mediator, linking sustainable leadership to sustainable work behaviors. By fostering a perception of ECSR, sustainable leadership motivates employees to engage in sustainable practices, benefiting both the organization and the environment.

3. Hypotheses development

Sustainable leadership behaviors, such as environmental responsibility and social justice, are linked to increased employee engagement and job satisfaction among leaders^[32]. Research in environmental psychology has shown that employees who perceive their leaders as supportive of sustainable practices are more likely to engage in pro-environmental behaviors^[29]. Moreover, Luo and Bhattacharya^[50] found that sustainable leadership is associated with increased employee motivation and a stronger commitment to organizational sustainability goals. Employees who view their leaders as champions of sustainability are more motivated to contribute to the company's environmental efforts.

Sustainable leadership has also been linked to improved employee well-being and health^[49]. Kotter^[32] found that employees working under sustainable leaders reported higher levels of job satisfaction and overall well-being. Leaders who prioritize diversity and inclusion are more likely to have employees who engage in sustainable practices^[25]. In addition, sustainable leadership fosters positive changes in work behavior, including increased employee engagement, motivation, job satisfaction, well-being, and pro-environmental actions. The growing importance of inclusive leadership has also emerged as a key factor in promoting these outcomes^[32]. Consequently, the following hypothesis is formulated:

H1: Sustainable leadership positively affects sustainable work behavior.

Iqbal and Piwovar-Sulej^[34] found that leaders who demonstrate sustainable leadership behaviors, such as promoting environmental responsibility and social justice, are linked to higher employee perceptions of environmental and social responsibility. Ribeiro and Leitão^[33] also highlighted that employees who perceive their leaders as supportive of sustainable practices are more likely to view their company as environmentally responsible. Similarly, employees working with leaders who exhibit sustainable leadership behaviors are more likely to report stronger perceptions of environmental and social responsibility^[29].

Sustainable leadership is also associated with increased employee trust and loyalty towards the organization. Luo and Bhattacharya^[50] discovered that employees who saw their leaders supporting sustainable practices tended to be more loyal to the organization. Additionally, Peattie^[49] reported that sustainable leadership fosters higher levels of employee engagement and motivation to contribute to sustainability initiatives within the organization. Zhang, Xu^[46] found that employees collaborating with sustainable leaders were more likely to report higher job satisfaction and engagement.

Aguinis and Glavas^[25] emphasized the importance of inclusive leadership in promoting perceptions of social and economic responsibility. Inclusive leaders who value diversity and foster inclusion tend to have employees who view the company as more environmentally responsible.^[42] further suggested that sustainable leadership positively impacts perceptions of social and economic responsibility, including higher levels of environmental responsibility, trust, and loyalty among employees, as well as increased engagement and motivation.

Kotter^[32] reinforced that leaders who exhibit sustainable leadership behaviors, such as advocating for environmental responsibility and social justice, are linked to higher employee perceptions of social and economic responsibility. Employees collaborating with such leaders are more likely to report stronger views of social and economic responsibility^[29]. Furthermore, Luo and Bhattacharya^[50] found that sustainable leadership is associated with increased employee trust and loyalty, while also motivating employees to engage in the organization's sustainability efforts. This leads to higher levels of job satisfaction and engagement^[37,49]. Consequently, the following hypothesis is formulated:

H2: Sustainable leadership positively affects perceived environmental corporate social responsibility.

Zhang, Xu^[46] demonstrated that employees who perceive their company as environmentally responsible are more likely to engage in sustainable behaviors^[29,32]. For instance, one study found that employees who viewed their company as environmentally responsible reported engaging in pro-environmental actions, such as reducing energy consumption and minimizing waste^[29]. Similarly, another study found that employees who saw their organization as environmentally responsible were more likely to reduce their energy use and waste^[32].

Furthermore, employees' perceptions of Environmental Corporate Social Responsibility (ECSR) have been linked to increased motivation and commitment to organizational goals^[50]. Research indicates that employees who perceive their company as environmentally responsible are more motivated to contribute to the organization's sustainability initiatives^[50]. Positive perceptions of ECSR have also been associated with higher levels of employee engagement and job satisfaction^[49]. According to these studies, employees who saw their company as environmentally responsible reported greater job satisfaction and engagement^[49].

Moreover, employee perceptions of ECSR have been connected to increased trust and loyalty toward the organization^[25]. This research found that employees who viewed their company as environmentally responsible were more likely to demonstrate higher trust and loyalty^[25]. Overall, this body of research supports the idea that perceptions of ECSR positively influence sustainable work behaviors, boosting employee engagement, motivation, and job satisfaction.

Chen and Zhang^[45] found that employees who perceived their company as environmentally responsible were more likely to engage in sustainable practices, such as reducing energy consumption and minimizing waste^[29]. Similarly, other studies have shown that employees who view their company as environmentally responsible are more inclined to adopt pro-environmental behaviors, such as managing their energy use and reducing waste^[32].

Additionally, research has shown that positive perceptions of ECSR are linked to greater employee motivation and dedication to organizational goals^[50]. Employees who perceive their company as environmentally conscious are more motivated to support the organization's sustainability initiatives^[50]. Furthermore, positive ECSR perceptions are associated with higher levels of employee engagement and job satisfaction^[49]. Consequently, the following hypothesis is formulated:

H3: Perceived environmental corporate social responsibility positively affects sustainable work behavior.

Research shows sustainable leadership significantly influences employees' perceptions of a company's environmental responsibility, as leaders who prioritize long-term environmental and social impact promote corporate environmental management^[33]. Leaders who model environmentally responsible behaviors and actively promote sustainable practices help create a strong perception of environmental corporate social responsibility (ECSR) among employees^[1]. This perception of ECSR not only enhances trust and loyalty but also aligns employee values with those of the organization, which, in turn, increases job satisfaction and commitment^[25].

Moreover, studies consistently demonstrate that employees who perceive high levels of ECSR are more likely to engage in pro-environmental and sustainable work behaviors. These employees are more inclined to adopt actions that reduce energy consumption, minimize waste, and support their organization's sustainability initiatives^[32]. The perception of ECSR also boosts employee motivation and strengthens commitment to organizational sustainability goals^[50,55].

The indirect influence of sustainable leadership on work behaviors through ECSR is further supported by research on workplace culture. A robust ECSR culture, fostered by sustainable leadership, encourages employees to adopt behaviors that align with organizational values. This alignment not only increases job satisfaction and engagement but also reduces turnover intentions^[1,49]. Employees in organizations with a high perception of ECSR report greater engagement and loyalty, which positively influences their sustainable work behaviors^[25,29].

Overall, these findings underline the role of perceived ECSR as a positive mediator between sustainable leadership and sustainable work behavior. Sustainable leadership shapes employees' perception of ECSR, which, in turn, motivates them to engage in behaviors that align with the organization's environmental and sustainability goals^[53].

Recent research has further highlighted sustainable leadership as a significant driver of employee perceptions of ECSR. Leaders who prioritize environmental responsibility contribute to higher employee alignment with the organization's values, fostering perceptions of environmental stewardship^[1,34]. Sustainable leaders actively shape a workplace culture that promotes sustainability, encouraging employees to view their organization as genuinely committed to environmental goals^[1,25].

The importance of ECSR perception in shaping sustainable work behavior is also strongly supported. Employees who view their company as environmentally responsible are more likely to engage in sustainable practices, such as conserving energy, reducing waste, and supporting sustainability initiatives^[1,34]. Furthermore, ECSR perceptions have been shown to enhance employee motivation, commitment to sustainability objectives, engagement, and job satisfaction, all of which contribute to more consistent sustainable behaviors at work^[39].

Sustainable leadership indirectly influences work behaviors by influencing employees' perceptions of ECSR, fostering pro-environmental behaviors and aligning actions with the organization's sustainability goals. This connection is further strengthened in environments where leaders demonstrate sustainable behaviors themselves, creating a workplace culture that encourages employees to adopt such behaviors^[34]. Consequently, the following hypothesis is formulated:

H4: Perceived environmental corporate social responsibility positively mediates the relationship between sustainable leadership and sustainable work behavior.

The theoretical model of the study and research hypotheses is presented in **Figure 1** below.

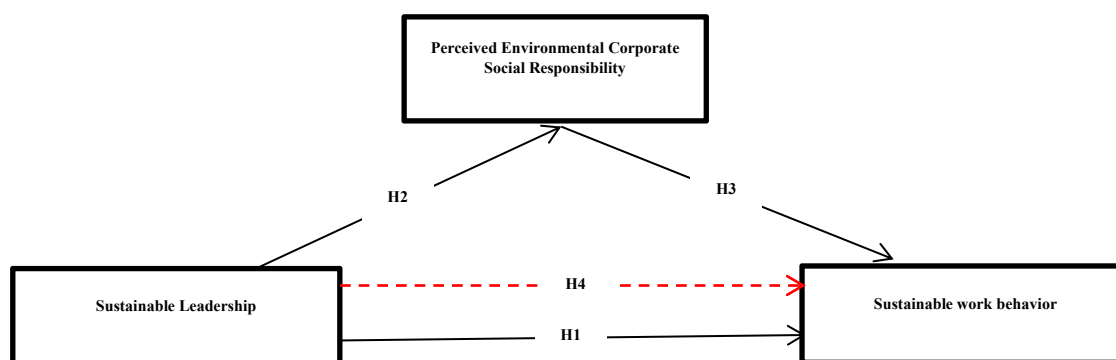


Figure 1. The theoretical model of the study.

4. Research methodology

4.1. Questionnaire design and study measures

The study utilized a structured survey for its quantitative research to explore the impact of sustainable leadership on sustainable work behavior and perceived environmental corporate social responsibility within hotel businesses. The survey was divided into two sections: one focused on employee demographics, and the other employed a five-point Likert scale to assess the three core concepts of the study. The survey was limited to employees with at least one year of work experience, as Morrison^[56] suggested that employees typically understand an organization’s culture and practices within six months of starting a new position.

The variables in question were analyzed using established and validated measurement scales from the existing literature. Sustainable leadership was assessed using a 15-item scale proposed by McCann and Holt^[57]. In addition, sustainable work behavior was measured using a 7-item scale developed by Temminck, Mearns^[58]. Moreover, perceived environmental corporate social responsibility was assessed using a six-item scale adapted from the works of Turker^[59] and Wu, Yu^[60]. The detailed measurement items are provided in Appendix (A).

4.2. Sample and data collection procedures

Employees working full-time in Egypt's five-star hotels are the subject of this study. Five-star hotels typically operate under strict standards for quality and service, making them leaders in the hospitality sector. They are often expected to adopt advanced management practices, including sustainability initiatives, to maintain their status and reputation. In addition, as prominent players in the hospitality industry, five-star hotels have a high level of visibility. Their adoption of sustainable practices can influence not only their employees' behavior but also the broader industry and their customers' perceptions. This makes them a relevant focus for understanding the ripple effects of sustainable leadership.

Due to the large population and limited resources, randomization was not feasible in this study, leading to the use of a convenience sampling method. The Greater Cairo region in Egypt, which has 30 five-star hotels (The Egyptian Ministry of Tourism and Antiquities, 2022), was selected for the study. Permission was obtained from 20 of these hotels to distribute the survey on their premises. A total of 500 questionnaires were administered, and 352 valid responses were collected, yielding a response rate of 70.4%. According to Hair, Black^[61], an appropriate sample size should be based on the number of variables studied, with a recommended minimum ratio of 1:10 (variables to participants). Since 28 items were investigated in this study, the minimum required sample size was 280 respondents, making the actual sample size of 352 sufficient for analysis.

5. Data analysis

To address non-response bias, t-tests were conducted, revealing no statistically significant differences between early and late respondents ($p > 0.05$). Additionally, an assessment of common method bias found no dominant factor explaining more than 50% of the variance in common method variance (CMV).

The proposed study model was tested using the PLS-SEM technique. This method is ideal for exploratory research, helping researchers develop theories and identify relationships in the early stages of investigation. It also does not require the assumption of multivariate normality, making it suitable for datasets that do not meet this criterion, which is common in social science research. The statistical analysis was conducted using WarpPLS software, a user-friendly tool for PLS-SEM.

6. Results

6.1. Participant's profile

Table 1 presents the demographic profile of the 352 participants. Most respondents are male (75%), while females constitute 25%. In terms of age, the largest group is between 40 and 50 years old (28.98%), followed by those aged 30 to under 40 years (27.84%), less than 30 years (22.16%), and over 50 years (21.02%). The majority of participants hold a Bachelor's degree (61.36%), while 26.7% have a high school education, and 11.93% have a Master's or PhD. Regarding tenure, the largest group has been with their organization for 2 to under 5 years (33.81%), followed by 5 to 10 years (27.56%), 1 to under 2 years (19.32%), and over 10 years (19.32%).

Table 1. Participant's profile (N=352).

		Frequency	Percent
Gender	Male	264	75.00
	Female	88	25.00
Age	< 30 years	78	22.16
	30 : < 40 years	98	27.84
	40 : 50 years	102	28.98
	>50	74	21.02
Education	High schools	94	26.70
	Bachelor	216	61.36
	Master/PhD	42	11.93
Tenure	1 < 2 years	68	19.32
	2 to <5 years	119	33.81
	5 to 10 years	97	27.56
	> 10 years	68	19.32

6.2. Measurement model

Kock^[62]'s fifteen model fit indices were used to analyze a three-factor involving sustainable leadership, sustainable work behavior, and perceived environmental corporate social responsibility. Appendix (B) provides a comprehensive evaluation of the model fit and quality indices. The results indicate that all the assessed measures meet the respective criteria, suggesting that the model has a good overall fit and quality. These results collectively indicate that the model has robust predictive and explanatory power, with no issues of multicollinearity or poor fit.

Table 2 presents the results for factor loadings, reliability metrics (Cronbach's alpha, composite reliability [CR]), average variance extracted (AVE), and variance inflation factors (VIFs) for three main constructs: sustainable leadership (SL), sustainable work behavior (SWB), and perceived environmental corporate social responsibility (PECSR). All constructs exhibit strong internal consistency and reliability, with Cronbach's alpha values exceeding 0.90 and composite reliability values above 0.85. The AVE values are all above 0.5, indicating good convergent validity. Additionally, the VIFs are all below 3, showing no issues with multicollinearity. Thus, the table supports the reliability and validity of the measurement model for these constructs.

Table 2. Item loadings, cronbach alpha, CR, AVE, and VIFs.

Factors	Item loading	Cronbach alpha	CR	AVE	VIFs
Sustainable leadership (SL)	-				
SL.1	0.734**				
SL.2	0.681**				
SL.3	0.823**				
SL.4	0.741**				
SL.5	0.771**				
SL.6	0.621**				
SL.7	0.743**	0.942	0.933	0.519	2.293
SL.8	0.720**				
SL.9	0.704**				
SL.10	0.727**				
SL.11	0.773**				
SL.12	0.663**				
SL.13	0.736**				
SL.14	0.684**				
SL.15	0.659**				
Sustainable Work Behavior (SWB)	-				
SWB.1	0.845**				
SWB.2	0.838**				
SWB.3	0.722**	0.918	0.895	0.615	2.809
SWB.4	0.806**				
SWB.5	0.727**				
SWB.6	0.822**				
SWB.7	0.718**				
Perceived Environmental Corporate Social Responsibility (PECSR)	-				
PECSR.1	0.867**	0.904	0.871	0.612	2.425
PECSR.2	0.770**				

Table 2. (Continued)

Factors	Item loading	Cronbach alpha	CR	AVE	VIFs
PECSR.3	0.852**				
PECSR.4	0.680**				
PECSR.5	0.768**				
PECSR.6	0.740**				

Table 3 Shows the discriminant validity results for the three investigated constructs using the Fornell-Larcker Criterion. The discriminant validity is successfully established among the three constructs, as each construct shares more variance with its own items than with the other constructs. This indicates that the constructs are distinct from each other, supporting the validity of the measurement model.

Table 3. Discriminant validity results using the fornell-larcker criterion.

	SL	PECSR	SWB
Sustainable leadership (SL)	0.720	0.670	0.614
Perceived Environmental Corporate Social Responsibility (PECSR)	0.670	0.782	0.742
Sustainable Work Behavior (SWB)	0.614	0.742	0.784

“Off-diagonal elements are correlations and diagonal elements are square roots of AVE”

Table 4 presents the HTMT ratios and corresponding p-values to assess the discriminant validity between the three investigated constructs. The HTMT ratios and corresponding p-values indicate that discriminant validity is well established among the constructs. All HTMT ratios are below the best threshold of 0.85, and the p-values are significantly lower than 0.05, confirming the distinctiveness of the constructs in the model.

Table 4. HTMT (Heterotrait-Monotrait Ratio) for validity.

HTMT ratios (good if < 0.90, best if < 0.85)	SL	PECSR	SWB
Sustainable leadership (SL)			
Perceived Environmental Corporate Social Responsibility (PECSR)	0.746		
Sustainable Work Behavior (SWB)	0.801	0.839	
P values (one-tailed) for HTMT ratios (good if < 0.05)	SL	PECSR	SWB
Sustainable leadership (SL)			
Perceived Environmental Corporate Social Responsibility (PECSR)	<0.001		
Sustainable Work Behavior (SWB)	<0.001	0.001	

6.3. Results of testing hypotheses

The results of the hypothesis testing are illustrated in Figure 2 and detailed in Table 5 and 6. The findings indicate that sustainable leadership significantly enhances sustainable work behavior ($\beta = 0.39, p < 0.01$) and perceived environmental corporate social responsibility ($\beta = 0.70, p < 0.01$). This suggests that an increase in sustainable leadership corresponds to a rise in both sustainable work behavior and perceived environmental corporate social responsibility, thereby supporting hypotheses H1 and H2. Furthermore, sustainable work behavior is positively influenced by perceived environmental corporate social responsibility ($\beta=0.50, p<0.01$). This implies that higher levels of perceived environmental corporate social responsibility are often associated with increased sustainable work behavior, thus confirming hypothesis H3.

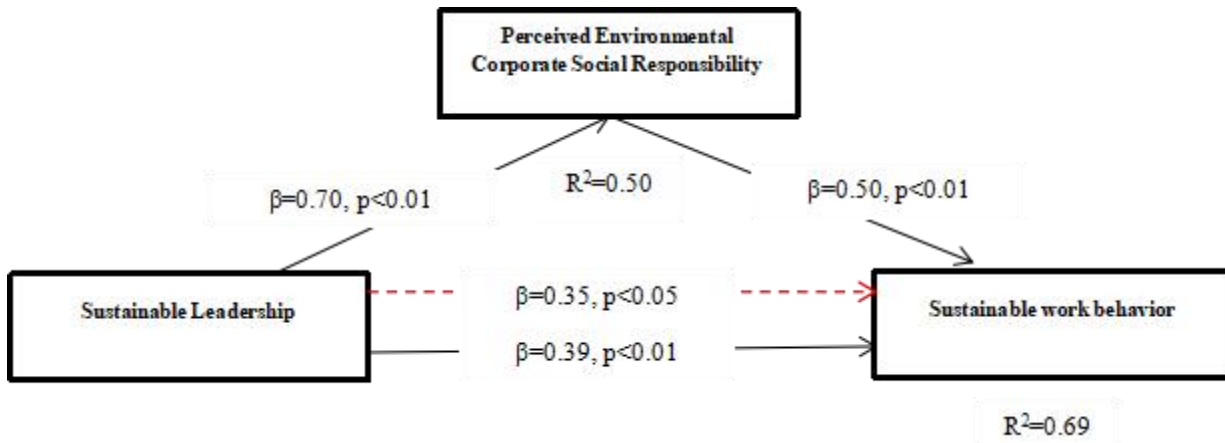


Figure 2. The final model of the study.

Table 5. Direct effects.

Hs	Relationship	Direct effect (β)	Sig.	T ratios for path coefficients	Decision
H1	SL \rightarrow SWB	0.39	P<0.01	7.676	Supported
H2	SL \rightarrow PECSR	0.70	P<0.01	14.634	Supported
H3	PECSR \rightarrow SWB	0.50	P<0.01	9.987	Supported

Finally, the mediation analysis results presented in Table (7) highlight the indirect effect of sustainable leadership on sustainable work behavior through perceived environmental corporate social responsibility utilizing the bootstrapping method for confidence intervals as developed by Preacher and Hayes [63]. Path a (SL \rightarrow PECSR) has a direct effect of 0.700, indicating a strong positive impact of Sustainable Leadership on Perceived Environmental Corporate Social Responsibility, while Path b (PECSR \rightarrow SWB) shows a significant direct effect of 0.500, reflecting a positive effect of PECSR on SWB. The indirect effect of 0.350, with a standard error of 0.036 and a t-value of 9.722, is supported by a bootstrapped confidence interval (95% LL = 0.279, UL = 0.421) that does not include zero, confirming a significant mediation effect. These findings suggest that PECSR significantly mediates the relationship between SL and SWB, supporting H4.

Table 6. Mediation analysis results.

	Path a	Path b	Indirect Effect	SE	t-value	Bootstrapped Confidence Interval		Decision	
						95% LL	95% UL		
H4	SL \rightarrow PECSR \rightarrow SWB	0.700	0.500	0.350	0.036	9.722	0.279	0.421	Mediation

7. Discussion

This study aims to examine the impact of sustainable leadership on sustainable work behavior among employees in hotel businesses with a particular focus on perceived environmental corporate social responsibility as a mediator. Findings revealed that sustainable leadership positively affects employees sustainable work behavior. This finding is consistent with other results of Iqbal, Ahmad^[43] and Iqbal and Piwovar-Sulej^[34] which claimed that leadership can significantly influence employee sustainable work behavior. When leaders demonstrate a strong commitment to environmental and social responsibility, it can inspire and motivate employees to adopt sustainable practices. Leaders play a crucial role in fostering sustainable behaviors within an organization by leading by example. Role modeling sustainable actions, such as reducing energy consumption or recycling, can inspire employees to follow suit^[64]. Demonstrating a

visible and genuine commitment to sustainability motivates employees to take ownership of environmental initiatives^[65]. Clear communication of the organization's sustainability goals, along with how these goals align with individual employee roles, can further inspire and engage employees^[66]. Additionally, storytelling about successful sustainability initiatives helps employees understand the real-world impact of their actions. Empowering employees by granting them decision-making authority in sustainability matters increases their sense of ownership and responsibility, while encouraging a culture of innovation can lead to creative solutions for environmental challenges^[67]. Providing resources and support, such as investing in training programs to equip employees with the necessary knowledge and skills, is essential for implementing sustainable practices. Furthermore, allocating adequate resources to sustainability initiatives demonstrates the organization's commitment to environmental responsibility^[68]. Recognizing and rewarding employees for their sustainable behaviors through incentives or public recognition can motivate them to continue their efforts and inspire others to do the same^[69].

In addition, findings revealed that sustainable leadership positively affects perceived environmental corporate social responsibility among employees. This finding is consistent with other results of Cheema, Afsar^[20] and Suriyankietkaew, Krittayarungroj^[70] which claimed that sustainable leadership can significantly influence employees' perception of their organization's environmental corporate social responsibility (PECSR). When leaders demonstrate a strong commitment to sustainability, it can positively impact employee attitudes and behaviors. Leaders play a pivotal role in promoting sustainability within an organization by leading through visible commitment and role modeling. By actively engaging in eco-friendly behaviors, leaders can inspire their employees to adopt similar practices both personally and professionally^[64]. Effective communication is also crucial; transparent, open communication about the organization's sustainability goals helps employees better understand and support these initiatives^[71]. Leaders can further enhance this understanding by aligning individual contributions with the broader sustainability objectives of the organization^[66]. Employee empowerment is another key strategy, as giving employees decision-making authority in sustainability-related matters increases their sense of ownership and responsibility^[67]. Encouraging innovation by providing opportunities for employees to propose and implement sustainable initiatives can foster a creative and proactive organizational culture. Recognition and rewards are also essential in motivating continued efforts; rewarding employees for their contributions to sustainability can inspire sustained commitment. Linking sustainability performance to career advancement opportunities can further incentivize employees to engage in sustainable practices^[69]. Finally, investing in training and development is vital for equipping employees with the knowledge and skills necessary to effectively implement sustainable practices, ensuring that they are well-prepared to contribute to the organization's sustainability goals.

Lastly, findings revealed that perceived environmental corporate social responsibility positively affects employees' sustainable work behavior and positively mediates the relationship between sustainable leadership and employees' sustainable work behavior. This finding is consistent with other studies which claimed that PECSR can indeed mediate the relationship between sustainable leadership and employees' sustainable work behavior, when employees perceive their organization as being environmentally responsible, they are more likely to engage in sustainable behaviors themselves^[i.e. 20, 60,72-74]. PECSR plays a crucial mediating role in fostering sustainable work behavior within organizations. When employees perceive their organization as environmentally responsible, it heightens their awareness and understanding of environmental issues, encouraging them to reflect on the impact of their own actions. Furthermore, a positive perception of the organization's environmental commitment can strengthen employees' identification with the company^[20], increasing their willingness to contribute to its sustainability goals. This alignment fosters

greater motivation and engagement in sustainability initiatives, as employees are more likely to feel a personal connection to the organization's environmental mission. Additionally, PECSR can reduce resistance to change, making it easier for employees to embrace and adopt new, sustainable practices^[75,76]. To enhance PECSR and foster sustainable work behavior, organizations should focus on transparent communication, ensuring that sustainability goals and initiatives are clearly communicated to all employees. Involving employees in decision-making processes related to sustainability can further enhance their commitment, while recognizing and rewarding their contributions reinforces positive behavior. Training and education programs that focus on sustainability issues and best practices equip employees with the necessary skills and knowledge, while leadership by example ensures that organizational leaders model sustainable behaviors, demonstrating a strong commitment to environmental responsibility.

The current study's findings are consistent with transformational leadership theory, which emphasizes the importance of leaders who inspire and motivate employees by aligning organizational goals with sustainable practices. Transformational leaders who emphasize sustainability can foster an environment where employees are motivated to adopt environmentally responsible behaviors^[77,78]. The current study findings also align with ethical leadership theory, which emphasizes leaders' moral behavior and its influence on employees. Ethical leaders who prioritize environmental sustainability and corporate social responsibility (CSR) can set a strong example for employees, influencing their attitudes and behaviors toward sustainability^[79, 80]. In addition, this research contributes to the sustainable leadership framework, which suggests that leaders must create conditions for long-term organizational and societal well-being^[81]. We find that leaders in the Egyptian hotel industry who prioritize CSR practices have a direct influence on employees' sustainable work behavior, supporting the view that sustainable leadership is crucial for fostering pro-environmental behavior in employees^[82-84]. The integration of CSR into leadership practices in our study aligns with sustainable leadership models, which argue that leadership should focus on both organizational success and positive environmental and social impacts. Our findings suggest that the mediating role of CSR in employees' behavior can be explained through the principles of sustainable leadership, where leaders' commitment to sustainability directly shapes employees' perceptions and actions.

7.1. Theoretical implications

This study has a several theoretical contributions. First, this study contributes to the growing literature on sustainability and leadership in the hospitality industry. By examining the direct and indirect effects of sustainable leadership on sustainable work behavior through the mediating role of perceived environmental corporate social responsibility, the study provides new insights into the mechanisms through which leadership can promote sustainable employee behavior. Second, the study reveals that sustainable leadership's impact on employee behavior extends beyond direct actions and is partially influenced by employees' perceptions of their organization's environmental responsibility commitment. The integration of corporate social responsibility and organizational behavior into leadership theories enhances the theoretical framework for sustainable work practices. Third, the study highlights the significant impact of PECSR on employee outcomes, indicating that employees' perceptions of corporate environmental efforts significantly influence their workplace behaviors. Therefore, the study underscores the significance of perceived corporate responsibility initiatives in influencing employee attitudes and behaviors, thereby enriching the existing literature on CSR. Lastly, the study significantly contributes to hospitality management by utilizing sustainability research concepts in five-star hotels, a unique setting that has been underexplored in this field.

7.2. Practical implications

From a practical standpoint, this research provides practical insights for hotel managers and practitioners aiming to promote workplace sustainability. First, the study indicates that sustainable leadership is vital in promoting the adoption of sustainable work practices among employees. Hotel managers should prioritize environmental sustainability in their leadership, as this can directly influence employees' engagement in sustainable practices. Leadership training programs could incorporate sustainability as a core component, ensuring all levels of leadership are equipped to promote sustainability. Second, perceived environmental corporate social responsibility emphasizes the need for hotels to promote environmentally responsible practices and effectively communicate these efforts to their employees. Regular and transparent communication about environmental initiatives and a clear commitment to corporate social responsibility can boost employees' perceptions of an organization's commitment to sustainability. Lastly, the study underscores the necessity of coordinating leadership strategies with broader sustainability objectives. Hotels should incorporate corporate social responsibility into their strategic planning, ensuring sustainability is integrated into operations, leadership philosophy, and employee engagement strategies. This strategy is expected to enhance environmental outcomes and employee morale, thereby fostering sustainable work behavior and a robust organizational culture of sustainability.

The findings of this study offer several actionable insights for hotel managers and industry stakeholders looking to foster sustainable work behaviors among employees. First, hotel managers should consider adopting sustainable leadership practices that prioritize environmental responsibility, transparency, and employee involvement in sustainability initiatives. This can include incorporating sustainability training programs for all levels of staff, aligning sustainability goals with employee performance metrics, and promoting open communication channels regarding the hotel's environmental goals. Additionally, leaders should actively engage with CSR programs that emphasize environmental sustainability, as employees are more likely to demonstrate sustainable behaviors when they perceive their organization's commitment to environmental responsibility. These recommendations are not limited to the context of Egyptian five-star hotels. In fact, the principles of sustainable leadership and CSR can be applied broadly within the global hospitality sector. For instance, hotels in regions such as Europe, North America, or Asia can benefit from similar practices, as global trends towards environmental sustainability and CSR continue to grow. Hotel managers in these regions can adapt the recommendations based on local regulatory frameworks and cultural contexts, but the core principle of aligning leadership behavior with sustainability goals remains universally applicable. Although this study focused on five-star hotels in Egypt, the underlying principles of sustainable leadership and CSR have global relevance. As sustainability becomes increasingly important in the global hospitality industry, hotel managers across diverse contexts—from Europe to Asia—can implement these findings to foster sustainable work behaviors among their employees. Tailoring the recommendations to different cultural and regulatory environments can enhance their effectiveness, ensuring that sustainable leadership and CSR strategies are both impactful and contextually appropriate. In addition, beyond hotel managers, other stakeholders such as government bodies and CSR organizations can play a crucial role in facilitating the adoption of sustainable leadership practices. Policymakers can introduce incentives for hotels to engage in CSR activities, while CSR organizations can help provide resources and frameworks for implementing environmental initiatives. Such collaborations can further amplify the sustainability efforts of hotels, promoting sustainable work behaviors on a broader scale.

7.3. Limitations

One limitation of this study is its geographical scope. This research focuses exclusively on five-star hotels in Egypt, which may limit the generalizability of the findings to other types of hospitality businesses or countries with different cultural, economic, and regulatory environments. The unique market conditions

and consumer behaviors in Egypt might not reflect global trends in sustainable leadership and corporate social responsibility (CSR) practices. Another limitation is the potential bias introduced by the sample size and selection. Although the study aims to include a broad range of five-star hotels, the sample size and selection method (such as convenience sampling) may not fully capture the diversity of CSR practices across different hotels. Smaller or non-random samples may lead to skewed results, especially if certain hotels are more proactive in implementing CSR initiatives than others, which could impact the findings' representativeness. In addition, the reliance on self-report data is also a limitation. Data gathered from surveys may suffer from social desirability bias, where respondents, particularly hotel employees, might overstate their organization's commitment to sustainability and CSR. This could result in inflated perceptions of the effectiveness of CSR initiatives and the extent to which they influence leadership and employee behavior, potentially affecting the accuracy and reliability of the data. Moreover, the study's cross-sectional design, which captures data at a single point in time, limits the ability to draw causal conclusions. While correlations can be identified, this design does not allow for tracking changes over time or establishing causality between perceived environmental CSR and sustainable leadership or behavior. Furthermore, this study emphasizes the perception of CSR rather than actual CSR practices or their outcomes. While perception is valuable, it may not fully reflect the depth, quality, or impact of CSR activities on leadership and work behavior. Finally, the data collected in this study relies on self-reported measures of sustainable work behavior, perceived environmental CSR, and leadership practices. While this approach is common in organizational behavior research, it may introduce biases such as social desirability or response distortion. Future research could incorporate multiple data sources (e.g., supervisors, peers, or organizational records) to validate self-reported outcomes and reduce potential bias.

7.4. Further research avenues

To build on the findings of this study, future research could expand the scope to compare sustainable leadership and CSR perceptions in hotels across different regions or countries. Such comparative studies could provide insights into whether the relationship between perceived CSR and sustainable work behavior is universal or context-dependent, and whether cultural, economic, or regulatory factors influence these outcomes. In addition, longitudinal research would be another valuable direction for future studies. A longitudinal design could help assess the long-term impact of perceived environmental CSR on sustainable leadership and behavior, offering a more nuanced understanding of how CSR practices and leadership behaviors evolve over time. This approach would also allow researchers to track the sustainability trajectory of hotels as they implement and adjust their CSR strategies. Moreover, future studies could consider incorporating objective CSR metrics rather than relying solely on perceptions. By examining actual CSR practices, such as energy-saving measures, waste reduction programs, or third-party environmental certifications, researchers could gain a clearer understanding of how specific CSR activities influence leadership and employee behavior. Comparing perceived CSR with actual practices could also help identify potential gaps between what is perceived and what is practiced in sustainable hospitality operations. Furthermore, exploring the role of employee engagement in sustainable leadership would also be an important area for further research. Studies could investigate how employees' active involvement in sustainability initiatives, such as green teams or eco-friendly practices, influences their work behavior and organizational commitment. This would deepen understanding of the relationship between employee engagement, sustainable leadership, and CSR in the hotel industry. Additionally, the impact of different leadership styles on the relationship between perceived CSR and sustainable work behavior warrants further investigation. Future studies could explore how leadership styles, such as transformational, servant, or ethical leadership, mediate or moderate the effect of CSR on sustainability outcomes. This would provide more

detailed insights into the role of leadership in fostering sustainable practices within the hospitality sector. Likewise, another important avenue for future research is the cultural context of CSR. Given that CSR initiatives and their perceived effectiveness can vary significantly across different cultural settings, research could examine how cultural differences shape the way CSR is implemented and perceived in the hospitality industry. Understanding these cultural variations could offer a more global perspective on CSR and its role in shaping sustainable leadership and employee behaviors. Finally, further research could explore other organizational factors that may influence the relationship between CSR and sustainable behavior. These factors might include company size, organizational culture, or external regulatory pressures (such as government sustainability policies). By integrating these variables into future research models, scholars could identify additional drivers of sustainable practices and outcomes in the hospitality sector.

8. Conclusion

This study contributes to the growing body of literature on sustainable leadership and its impact on employees' sustainable work behavior within the hospitality sector, specifically in the context of five-star hotels in Egypt. By investigating the mediating role of perceived environmental corporate social responsibility (PECSR), the research highlights the importance of leadership in shaping employees' attitudes and behaviors toward sustainability. The findings suggest that sustainable leadership not only directly influences employees' sustainable work behaviors but also indirectly fosters these behaviors through employees' perceptions of their organization's environmental responsibility. The study provides practical insights for hotel managers and policymakers in Egypt and similar contexts, emphasizing the need to integrate sustainable leadership practices with a clear commitment to environmental CSR. This approach can help hotels enhance their sustainability performance, reduce environmental impact, and foster a culture of sustainability among employees. This research underscores the critical role of sustainable leadership and PECSR in promoting employees' sustainable work behaviors, contributing to the broader goal of sustainability within the hospitality industry. By building on these findings, future research can further enhance our understanding of how leadership can drive sustainability in organizations and the mechanisms through which sustainability practices can be effectively embedded in workplace behavior.

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Conflict of interest

The authors declare no conflict of interest.

References

1. Kim, W.G., et al., Hotels' environmental leadership and employees' organizational citizenship behavior. *International Journal of Hospitality Management*, 2020. 87: p. 102375.
2. Khalil, N., et al., A review of green practices and initiatives from stakeholder's perspectives towards sustainable hotel operations and performance impact. *Journal of Facilities Management*, 2024. 22(4): p. 653-682.
3. Prakash, S., et al., Adopting green and sustainable practices in the hotel industry operations- an analysis of critical performance indicators for improved environmental quality. *Management of Environmental Quality: An International Journal*, 2023. 34(4): p. 1057-1076.
4. Abdulrahman Al Abdulathi, M.A., et al., Catalyzing green innovation in hotel and tourism businesses: leveraging green talent management, green organizational citizenship behavior, and green values. 2024.

5. Gerard, L., J. McMillan, and N. D'Annunzio-Green, Conceptualising sustainable leadership. *Industrial and Commercial Training*, 2017. 49(3): p. 116-126.
6. Iqbal, Q. and N.H. Ahmad, Sustainable development: The colors of sustainable leadership in learning organization. *Sustainable Development*, 2021. 29(1): p. 108-119.
7. Hargreaves, A. and D. Fink, *Sustainable leadership*. 2012: John Wiley & Sons.
8. Unsworth, K.L., et al., Employee green behaviour: How organizations can help the environment. *Current Opinion in Psychology*, 2021. 42: p. 1-6.
9. Ahmed, M., et al., Impact of CSR and environmental triggers on employee green behavior: The mediating effect of employee well-being. *Corporate Social Responsibility and Environmental Management*, 2020. 27(5): p. 2225-2239.
10. Alhemimah, A., et al., Green organizational learning and sustainable work behavior in tourism and hotel enterprises: leveraging green intrinsic motivation and green training. 2024.
11. Salama, W.M., et al., Catalyzing green competitiveness in hotel and tourism businesses: leveraging digital dynamic capability and green creativity. *Environment and Social Psychology*, 2024. 9(9).
12. Asante, K., Hotels' green leadership and employee pro-environmental behaviour, the role of value congruence and moral consciousness: evidence from symmetrical and asymmetrical approaches. *Journal of Sustainable Tourism*, 2024. 32(7): p. 1370-1391.
13. Al-Romeedy, B.S. and H.A. Khairy, Eco-Innovation and Hospitality and Tourism Business Resilience: The Mediating Role of Green Dynamic Capabilities, in *Shifts in Knowledge Sharing and Creativity for Business Tourism*, M.W. Bari, M. Soliman, and E. Alaverdov, Editors. 2024, IGI Global: Hershey, PA, USA. p. 17-36.
14. Olya, H., et al., Catalyzing green change: The impact of tech-savvy leaders on innovative behaviors. *Corporate Social Responsibility and Environmental Management*, 2024. 31(6): p. 5543-5556.
15. Alshehri, N.Z., et al., Green HRM and green competitive advantage in hotel and tourism industry: a mediated moderation model using eco-innovation and green psychological climate. 2024.
16. Barakat, S.R., et al., The influence of corporate social responsibility on employee satisfaction. *Management Decision*, 2016. 54(9): p. 2325-2339.
17. Tsourvakas, G. and I. Yfantidou, Corporate social responsibility influences employee engagement. *Social Responsibility Journal*, 2018. 14(1): p. 123-137.
18. Hu, B., J. Liu, and X. Zhang, The impact of employees' perceived CSR on customer orientation: an integrated perspective of generalized exchange and social identity theory. *International Journal of Contemporary Hospitality Management*, 2020. 32(7): p. 2345-2364.
19. Khairy, H.A., et al., Perceived Environmental Corporate Social Responsibility Effect on Green Perceived Value and Green Attitude in Hospitality and Tourism Industry: The Mediating Role of Environmental Well-Being. *Sustainability*, 2023. 15(6): p. 4746.
20. Cheema, S., B. Afsar, and F. Javed, Employees' corporate social responsibility perceptions and organizational citizenship behaviors for the environment: The mediating roles of organizational identification and environmental orientation fit. *Corporate Social Responsibility and Environmental Management*, 2020. 27(1): p. 9-21.
21. Silva, P., A.C. Moreira, and J. Mota, Employees' perception of corporate social responsibility and performance: the mediating roles of job satisfaction, organizational commitment and organizational trust. *Journal of Strategy and Management*, 2023. 16(1): p. 92-111.
22. Shah, S.H.A., et al., The Impact of Perceived CSR on Employees' Pro-Environmental Behaviors: The Mediating Effects of Environmental Consciousness and Environmental Commitment. *Sustainability*, 2023. 15(5): p. 4350.
23. Avery, G. and H. Bergsteiner, *Sustainable leadership: Honeybee and locust approaches*. 2012: Routledge.
24. Metcalf, L. and S. Benn, *Leadership for Sustainability: An Evolution of Leadership Ability*. *Journal of Business Ethics*, 2013. 112(3): p. 369-384.
25. Aguinis, H. and A. Glavas, On Corporate Social Responsibility, Sensemaking, and the Search for Meaningfulness Through Work. *Journal of Management*, 2020. 45(3): p. 1057-1086.
26. McCann, J. and M. Sweet, The Perceptions of Ethical and Sustainable Leadership. *Journal of Business Ethics*, 2014. 121(3): p. 373-383.
27. Maak, T. and N.M. Pless, Responsible Leadership in a Stakeholder Society – A Relational Perspective. *Journal of Business Ethics*, 2006. 66(1): p. 99-115.
28. Sousa, M. and D. van Dierendonck, Servant Leadership and the Effect of the Interaction Between Humility, Action, and Hierarchical Power on Follower Engagement. *Journal of Business Ethics*, 2017. 141(1): p. 13-25.
29. Galpin, T., J.L. Whittington, and G. Bell, Is your sustainability strategy sustainable? Creating a culture of sustainability. *Corporate Governance*, 2015. 15(1): p. 1-17.

30. Ghorbani, A., et al., Reconceptualizing Customer Perceived Value in Hotel Management in Turbulent Times: A Case Study of Isfahan Metropolis Five-Star Hotels during the COVID-19 Pandemic. *Sustainability*, 2023. 15(8): p. 7022.
31. D'amato, A. and N. Roome, Leadership of organizational change toward an integrated model of leadership for corporate responsibility and sustainable development: A process model of corporate responsibility beyond management innovation. 2009, ULB--Universite Libre de Bruxelles.
32. Kotter, J.P., *Accelerate: Building strategic agility for a faster-moving world*. 2014: Harvard Business Review Press.
33. Ribeiro, G. and J.C. Leitão, Sustainable leadership and sustainable entrepreneurship: a systematic literature review. *Discover Sustainability*, 2024. 5.
34. Iqbal, Q. and K. Piwowar-Sulej, Sustainable leadership and heterogeneous knowledge sharing: the model for frugal innovation. *European Journal of Innovation Management*, 2023. 26(7): p. 655-673.
35. Sunthonpagasit, J. and B. Hanson, Developing Sustainable Leadership Practices to Improve Employee Engagement through ODI: A Case Study of Thai Family-Owned Business. *ABAC ODI Journal Vision. Action. Outcome*, 2019. 6(1): p. 40.
36. Liao, Z. and M. Zhang, The influence of responsible leadership on environmental innovation and environmental performance: The moderating role of managerial discretion. *Corporate Social Responsibility and Environmental Management*, 2020. 27(5): p. 2016-2027.
37. Ogiemwonyi, O., M.N. Alam, and H.S. Alotaibi, Pathways toward environmental performance: Link between green human resource management, green innovation, and green behavior at work in manufacturing companies. *Journal of Cleaner Production*, 2023. 425: p. 138949.
38. Wong, A.K.F., S. Kim, and Y. Hwang, Effects of Perceived Corporate Social Responsibility (CSR) Performance on Hotel Employees' Behavior. *International Journal of Hospitality & Tourism Administration*, 2022. 23(6): p. 1145-1173.
39. Putri, A. and Z. Q., The Effect Of Green Organizational Culture And Green Reward On Organizational Citizenship Behavior With Organizational Commitment As Intervening Variables. *Devotion : Journal of Community Service*, 2022. 3: p. 298-312.
40. Zhang, Y., et al., Antecedents and outcomes of authentic leadership across culture: A meta-analytic review. *Asia Pacific Journal of Management*, 2022. 39(4): p. 1399-1435.
41. Zoogah, D.B., High-performance organizing, environmental management, and organizational performance: An evolutionary economics perspective. *Human Resource Management*, 2018. 57(1): p. 159-175.
42. Luu, T.T., Integrating green strategy and green human resource practices to trigger individual and organizational green performance: the role of environmentally-specific servant leadership. *Journal of Sustainable Tourism*, 2020. 28(8): p. 1193-1222.
43. Iqbal, Q., et al., A moderated-mediation analysis of psychological empowerment: Sustainable leadership and sustainable performance. *Journal of Cleaner Production*, 2020. 262: p. 121429.
44. Katz, I., et al., Employee Green Behavior: A Meta-Analysis. *Corporate Social Responsibility and Environmental Management*, 2022.
45. Chen, J. and A. Zhang, Exploring How and When Environmental Corporate Social Responsibility Impacts Employees' Green Innovative Work Behavior: The Mediating Role of Creative Self-Efficacy and Environmental Commitment. *Sustainability*, 2024. 16(1): p. 234.
46. Zhang, W., et al., How Environmental Knowledge Management Promotes Employee Green Behavior: An Empirical Study. *International Journal of Environmental Research and Public Health*, 2021. 18(9): p. 4738.
47. Tian, H. and A. Wang, Sustainable Leadership, Knowledge Sharing, and Frugal Innovation: The Moderating Role of Organizational Innovation Climate. *Sage Open*, 2023. 13(4): p. 21582440231200946.
48. Palma Serrano, M., A. Picón Berjoyo, and A. Calvo de Mora Schmidt, Business and sustainable development goals (SDGs): a bibliometric analysis [Dataset]. 2022.
49. Peattie, K., Towards Sustainability: The Third Age of Green Marketing. *The Marketing Review*, 2001. 2: p. 129-146.
50. Luo, X. and C.B. Bhattacharya, Corporate Social Responsibility, Customer Satisfaction, and Market Value. *Journal of Marketing*, 2006. 70(4): p. 1-18.
51. Gao, Y., D. Zhang, and Y. Huo, Corporate social responsibility and work engagement: testing a moderated mediation model. *Journal of Business and Psychology*, 2018. 33(5): p. 661-673.
52. Serrano Archimi, C., et al., How Perceived Corporate Social Responsibility Affects Employee Cynicism: The Mediating Role of Organizational Trust. *Journal of Business Ethics*, 2018. 151(4): p. 907-921.

53. Singh, S.K., et al., Top management knowledge value, knowledge sharing practices, open innovation and organizational performance. *Journal of Business Research*, 2021. 128: p. 788-798.
54. Puspitasari, J., et al., Teacher Performance in the 21st Century: Examining the Roles of Leadership, Self-Efficacy, Compensation, and Job Satisfaction. *Journal of Ecohumanism*, 2024. 3(7): p. 3719-3747.
55. Wu, H., et al., Fostering Urban Inclusive Green Growth: Does Corporate Social Responsibility (CSR) Matter? *Journal of Business Ethics*, 2024. 189(4): p. 677-698.
56. Morrison, E.W., Newcomer Information Seeking: Exploring Types, Modes, Sources, and Outcomes. *Academy of Management Journal*, 1993. 36(3): p. 557-589.
57. McCann, J.T. and R.A. Holt, Servant and sustainable leadership: an analysis in the manufacturing environment. *International Journal of Management Practice*, 2010. 4(2): p. 134-148.
58. Temminck, E., K. Mearns, and L. Fruhen, Motivating Employees towards Sustainable Behaviour. *Business Strategy and the Environment*, 2015. 24(6): p. 402-412.
59. Turker, D., Measuring Corporate Social Responsibility: A Scale Development Study. *Journal of Business Ethics*, 2009. 85(4): p. 411-427.
60. Wu, W., et al., Perceived Environmental Corporate Social Responsibility and Employees' Innovative Behavior: A Stimulus–Organism–Response Perspective. *Frontiers in Psychology*, 2022. 12.
61. Hair, J.F., et al., *Multivariate Data Analysis*. New Jersey: PrenticeHall. 2011, Inc.
62. Kock, N., *WarpPLS user manual: Version 6.0*. ScriptWarp Systems: Laredo, TX, USA, 2017. 141: p. 47-60.
63. Preacher, K.J. and A.F. Hayes, Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 2008. 40(3): p. 879-891.
64. Ahuja, J., M. Yadav, and R.P. Sergio, Green leadership and pro-environmental behaviour: a moderated mediation model with rewards, self-efficacy and training. *International Journal of Ethics and Systems*, 2023. 39(2): p. 481-501.
65. Ren, S., K. Jiang, and G. Tang, Leveraging green HRM for firm performance: The joint effects of CEO environmental belief and external pollution severity and the mediating role of employee environmental commitment. *Human Resource Management*, 2022. 61(1): p. 75-90.
66. Udin, U., Transformational leadership and organizational learning culture in the health sector: The mediating and moderating role of intrinsic work motivation. *WORK*, 2023. 77(4): p. 1125-1134.
67. Murray, W.C. and M.R. Holmes, Impacts of Employee Empowerment and Organizational Commitment on Workforce Sustainability. *Sustainability*, 2021. 13(6): p. 3163.
68. Wong, C.W.Y., C.Y. Wong, and S. Boon-itt, Environmental management systems, practices and outcomes: Differences in resource allocation between small and large firms. *International Journal of Production Economics*, 2020. 228: p. 107734.
69. Amjad, F., et al., Effect of green human resource management practices on organizational sustainability: the mediating role of environmental and employee performance. *Environmental Science and Pollution Research*, 2021. 28(22): p. 28191-28206.
70. Suriyankietkaew, S., K. Krittayaruangroj, and N. Iamsawan, Sustainable Leadership Practices and Competencies of SMEs for Sustainability and Resilience: A Community-Based Social Enterprise Study. *Sustainability*, 2022. 14(10): p. 5762.
71. Bilderback, S., Integrating training for organizational sustainability: the application of Sustainable Development Goals globally. *European Journal of Training and Development*, 2024. 48(7/8): p. 730-748.
72. Molnár, E., et al., The Interplay between Corporate Social Responsibility at Employee Level, Ethical Leadership, Quality of Work Life and Employee Pro-Environmental Behavior: The Case of Healthcare Organizations. *International Journal of Environmental Research and Public Health*, 2021. 18(9): p. 4521.
73. Sabokro, M., M.M. Masud, and A. Kayedian, The effect of green human resources management on corporate social responsibility, green psychological climate and employees' green behavior. *Journal of Cleaner Production*, 2021. 313: p. 127963.
74. Shah, S.H.A., et al., Perceived corporate social responsibility and pro-environmental behaviors: The role of organizational identification and coworker pro-environmental advocacy. *Corporate Social Responsibility and Environmental Management*, 2021. 28(1): p. 366-377.
75. Diaz-Iglesias, S., et al., Theoretical framework for sustainability, corporate social responsibility and change management. *J. Sustain. Sci. Manag*, 2021. 16: p. 315-332.
76. Rehman, N., et al., The Psychology of Resistance to Change: The Antidotal Effect of Organizational Justice, Support and Leader-Member Exchange. *Frontiers in Psychology*, 2021. 12.

77. Bass, B.M. and R.E. Riggio, Transformational leadership. 2006: Psychology press.
78. Korejan, M.M. and H. Shahbazi, An analysis of the transformational leadership theory. *Journal of fundamental and applied sciences*, 2016. 8(3): p. 452-461.
79. Brown, M.E. and L.K. Treviño, Ethical leadership: A review and future directions. *The Leadership Quarterly*, 2006. 17(6): p. 595-616.
80. Ahmad, I., Y. Gao, and S.M. Hali, A review of ethical leadership and other ethics-related leadership theories. *European Scientific Journal*, 2017. 13(29): p. 10-23.
81. Kantabutra, S. and G. Avery, Sustainable leadership: honeybee practices at a leading Asian industrial conglomerate. *Asia-Pacific Journal of Business Administration*, 2013. 5(1): p. 36-56.
82. Farrukh, M., et al., Fostering employee's pro-environmental behavior through green transformational leadership, green human resource management and environmental knowledge. *Technological Forecasting and Social Change*, 2022. 179: p. 121643.
83. Ren, Q., W. Li, and C. Mavros, Transformational Leadership and Sustainable Practices: How Leadership Style Shapes Employee Pro-Environmental Behavior. *Sustainability*, 2024. 16(15): p. 6499.
84. Al-Romeedy, B.S., M.F. El-bardan, and H.E. Badwy, How is employee performance affected by employer branding in tourism businesses? Mediation analysis. *Journal of Hospitality and Tourism Insights*, 2024. ahead-of-print(ahead-of-print).

Appendix (A): Detailed Measurement Scales

Perceived Environmental Corporate Social Responsibility

PECSR1: "I can feel our hotel implements special programs to minimize its negative impact on the natural environment."

PECSR2: "I can feel our hotel participates in activities which aim to protect and improve the quality of the natural environment."

PECSR3: "I can feel our hotel has the necessary equipment to reduce its negative environmental impact."

PECSR4: "I can feel our hotel makes well-planned investments to avoid environmental degradation."

PECSR5: "I can feel our hotel targets sustainable growth which considers future generations."

PECSR6: "I can feel our hotel makes investment to create a better life for future generations."

Sustainable work behavior

I make environmental suggestions to improve work procedures.

I make suggestions to improve the organization's environmental performance.

I try to draw management's attention to potentially environmentally unfriendly activities.

I try to make innovative environmental suggestions to improve the organization.

I inform management of potentially environmentally irresponsible policies and practices.

I am willing to speak up when policy or rules do not contribute to the achievement of the organization's environmental goals.

I suggest revisions to work practices to achieve the organization's environmental objectives.

Sustainable leadership: 15-items

My leader acts in a sustainable socially responsible manner.

My leader acts in a sustainable environmentally responsible manner.

My leader acts in a sustainable ethically responsible manner.

My leader's decisions are made while considering the entire organization.

My leader's management officially recognizes when a mistake is made that affects sustainability.

My leader is willing to correct mistakes that affect sustainability.

My leader attempts to use unique innovative methods to resolve sustainability issues.

My leader attempts to create wealth through sustainable efforts.

My leader puts purpose before profit.

My leader balances sustainable social responsibility with profits.

My leader demonstrates sustainability by persevering through all types of change.

My leader is concerned how sustainability affects employees.

My leader communicates sustainability decisions to all involved.

My leader attempts to build a culture of sustainability through its communication efforts.

My leader has plan to demonstrate sustainability when hiring, promoting employees and replacing leaders.

Appendix (B) Model fit and quality indices

Measures	Assessment	Criterion	Result
Average path coefficient (APC)	0.529, P<0.001	P<0.05	Yes
Average R-squared (ARS)	0.594, P<0.001	P<0.05	Yes
Average adjusted R-squared (AARS)	0.592, P<0.001	P<0.05	Yes
Average block VIF (AVIF)	2.495	Acceptable if ≤ 5 , ideally ≤ 3.3	Yes
Average full collinearity VIF (AFVIF)	2.509	Acceptable if ≤ 5 , ideally ≤ 3.3	Yes
Tenenhaus GoF (GoF)	0.588	Small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36	Yes
Sympson's paradox ratio (SPR)	1.000	Acceptable if ≥ 0.7 , ideally = 1	Yes
R-squared contribution ratio (RSCR)	1.000	Acceptable if ≥ 0.9 , ideally = 1	Yes
Statistical suppression ratio (SSR)	1.000	Acceptable if ≥ 0.7	Yes
Nonlinear bivariate causality direction ratio (NLBCDR)	1.000	Acceptable if ≥ 0.7	Yes
Standardized root mean squared residual (SRMR)	0.097	Acceptable if ≤ 0.1	Yes
Standardized mean absolute residual (SMAR)	0.076	Acceptable if ≤ 0.1	Yes
Standardized chi-squared with 377 degrees of freedom (SChS)	8.395, P<0.001	P<0.05	Yes
Standardized threshold difference count ratio (STDCCR)	0.950	Acceptable if ≥ 0.7 , ideally = 1	Yes
Standardized threshold difference sum ratio (STDSR)	0.844	Acceptable if ≥ 0.7 , ideally = 1	Yes