

LEVERAGING CORPORATE SOCIAL RESPONSIBILITY FOR SUSTAINABLE PERFORMANCE: THE MEDIATING ROLES OF GREEN ORGANIZATIONAL CULTURE AND EMPLOYEE ENGAGEMENT UNDER REGULATORY PRESSURE

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Abstract: The tourist and hospitality business, while economically significant, confronts rising pressure to line with sustainable development goals. Corporate social responsibility (CSR) has evolved as a strategic instrument to increase sustainable performance (SP), however its internal pathways remain underexplored, particularly in developing nations. This study intends to explore the relationship between CSR and SP in Egypt's tourist and hotel sector, adopting the Stimulus – Organism – Response (SOR) paradigm. It studies the mediating functions of green organizational culture (GOC) and green employee engagement (GEE), alongside the moderating influence of regulatory pressure (RP). Data were obtained through a standardized questionnaire issued via prominent travel agencies to employees across 34 multinational hotel brands in Egypt. A total of 295 valid responses were evaluated using partial least squares structural equation modeling (PLS-SEM) to test both direct and mediated effects. The results reveal that CSR considerably improves SP, with GOC and GEE acting as partial mediators. GOC demonstrated a stronger mediating impact than GEE. Furthermore, RP considerably affected the connections between CSR and the internal organizational components. These findings show the crucial significance of culture, employee involvement, and regulatory backing in transforming CSR initiatives into quantitative sustainable outcomes. Importantly, the study promotes the achievement of the United Nations Sustainable Development Goals - particularly SDG 8, SDG 12, and SDG 13 - by identifying a roadmap by which hospitality organizations in emerging economies can institutionalize sustainability. This study provides practical guidelines for hotel managers and regulators and presents a robust conceptual foundation for future research on sustainable practices in service sectors.

Keywords: Corporate social responsibility, green organizational culture, green employee engagement, sustainable performance, PLS-SEM, tourism and hotel industry, SDGs

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INTRODUCTION

The tourism and hospitality sector is a crucial pillar of Egypt's economy, providing roughly 11.4% of national GDP, sustaining 12.6% of total employment, and producing 20% of the country's foreign exchange earnings (El Atiek & Goutte, 2023; Elnagar & Derbali, 2020). By 2021, Egypt's tourist GDP had reached USD 22.3 billion, with international visitor expenditures alone accounting for USD 6.9 billion - representing 12.5% of the nation's total exports. These figures emphasize the sector's strategic importance not only as a source of money but also as a driver for socio-economic development, job creation, and international interchange. Yet, with its economic achievements, the tourist and hospitality industry faces increased scrutiny over its environmental imprint, operational inefficiencies, and social duties. Growing public awareness, stakeholder expectations, and international sustainability frameworks have placed pressure on tourism firms to align their activities with environmental, social, and governance (ESG) principles (Salama et al., 2024; Carlisle et al., 2021; Elnagar & Abotaleb, 2022). In this setting, corporate social responsibility (CSR) has emerged as a revolutionary approach - capable of bridging the gap between economic imperatives and sustainable development goals (SDGs). This study correlates with the UN Sustainable Development Goals, notably SDGs 8, 12, and 13, by analyzing how CSR encourages responsible manufacturing, climate-conscious practices, and inclusive economic growth in Egypt's hotel sector (UNDP, 2023).

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CSR encompasses an organization's dedication to ethical operations, environmental preservation, and social well-being, all while guaranteeing financial viability. Numerous research agree that CSR programs boost stakeholder trust, elevate business reputation, and contribute to long-term organizational resilience (Guzzo et al., 2020; Velte, 2022).

Within the tourism and hotel industry, CSR tactics materialize through energy-efficient infrastructure, eco-conscious service delivery, community engagement programs, and inclusive employment practices. Importantly, the effectiveness of such measures relies greatly on internal organizational processes such as employee engagement and company culture - two areas that remain underexplored in tourist sustainability research, particularly within the Egyptian context. Egypt has made great progress in institutionalizing sustainability within tourism. One major endeavor is the Green-Star Hotels (GSH) certification scheme, jointly operated by the Egyptian Hotel Association and the Ministry of Tourism. The GSH program promotes adherence to internationally accepted environmental standards and incentivizes hotels to embrace cost-effective sustainability strategies. These include water and energy conservation, waste management, and the promotion of cultural heritage tourism (Elnagar & Derbali, 2020; Salama et al., 2022). While this program marks a substantial policy effort aligned with the UN SDGs and Egypt's Vision 2030, its voluntary nature emphasizes the need for stronger legal frameworks and internal organizational preparation to achieve widespread implementation.

At the corporate level, Green Human Resource Management (Green HRM) has gained popularity as a strategy to institutionalize environmental ideals through recruiting, training, and incentive systems (Aboramadan, 2022; Pham et al., 2019). These methods strive to embed sustainability into company culture and day-to-day operations.

However, implementation remains inconsistent across Egypt's hotel sector, with many firms encountering obstacles linked to limited employee training, resistance to change, and poor alignment between leadership styles and sustainability objectives (Abdelghani, 2018b). In this aspect, leadership plays a key role. Servant leadership and other inclusive leadership styles have been shown to significantly influence the adoption of CSR practices and the development of a green organizational culture (GOC) - defined as a shared set of environmental values and norms (Abdelraouf & Muharram, 2024; Mallén Broch et al., 2020). Green transformational leadership is pivotal for fostering a sustainability-oriented organizational culture, which enhances employer attractiveness and motivates employees' pro-environmental behaviors (Ayad & Hasanein, 2025). Open communication, team collaboration, and participatory decision-making build a workplace atmosphere where employees feel empowered to support environmental goals (Fatima & Elbanna, 2023; Wiraditja et al., 2020). These dynamics, in turn, stimulate green employee engagement (GEE), or the active psychological and behavioral involvement of staff in sustainability activities. Technological developments further complement these human-centered methods. In particular, artificial intelligence (AI) and digital reengineering have enabled individualized eco-services, data-driven sustainability measures, and virtual CSR campaigns (Zaki et al., 2025). For example, digital systems help hotels to evaluate their environmental performance, streamline resource utilization, and communicate CSR activities to stakeholders more efficiently. Abdelghani (2018a) outlines how digital transformation in Saudi Arabia's tourism administration led to enhanced regulatory compliance and operational efficiency - a paradigm possibly transferable to Egypt's sustainable transition. Despite these achievements, important theoretical and empirical gaps remain.

While the influence of CSR on organizational outcomes is frequently investigated, few investigations have addressed how internal processes such as GOC and GEE mediate this link, notably in the hotel industry of emerging nations (Fok et al., 2022; Ghobakhloo et al., 2021). Similarly, the moderating influence of regulatory pressure (RP) - defined as external mandates and institutional expectations that guide company behavior - has not been thoroughly explored. Research by Khairy et al. (2023) and Zhang et al. (2022) confirms the impact of environmental attitudes in driving sustainable practices but falls short of integrating these constructs within a coherent framework appropriate to the Egyptian tourism ecosystem.

Accordingly, this work attempts to fill these gaps by adopting the Stimulus–Organism–Response (SOR) theoretical paradigm to analyze how CSR (stimulus) promotes sustainable performance (response) through the mediating functions of GOC and GEE (organism), and how RP moderates these interactions. The SOR model, generally utilized in behavioral and environmental studies, offers a robust lens through which to capture the psychological, cultural, and institutional factors that affect sustainable results in tourism organizations. Thus, the main purpose of this research is to create and empirically test a model that ties CSR, GOC, GEE, and RP to sustainable performance outcomes in Egypt's hotel sector.

The study contributes theoretically by expanding understanding of the indirect mechanisms through which CSR operates, and practically by offering hotel management and policymakers actionable insights for embedding sustainability into company strategy and culture. This study situates the investigation within Egypt's socio-economic and regulatory environment, thereby expanding the empirical literature on CSR and sustainability in hospitality and contributing to the broader discourse on responsible tourism in emerging nations. As global tourism increasingly swings towards resilience, climate accountability, and social equality, the incorporation of leadership, employee involvement, and regulatory compliance is vital. This research underlines how Egypt's hotel industry may manage these transformations by embracing CSR not only as a promotional instrument but as a basic strategy for sustaining sustainability.

REVIEW OF LITERATURE

1. Theoretical underpinnings

This study is conceptually anchored in the Stimulus–Organism–Response (SOR) framework, a behavioral theory that explains how external stimuli influence internal cognitive and affective processes, which in turn shape behavioral results. Within this model, corporate social responsibility (CSR) is conceptualized as the external stimulus, which activates internal organizational mechanisms—namely green organizational culture (GOC) and green employee engagement (GEE)—the

organisms, ultimately leading to sustainable performance (SP) as the response. This theoretical paradigm is particularly helpful for understanding how macro-level business activities translate into micro-level organizational and behavioral results in the context of hospitality sustainability. To further reinforce the conceptual model, the study includes three supporting theoretical perspectives: Stakeholder Theory, Social Exchange Theory (SET), and the Technology–Organization–Environment (TOE) framework. Stakeholder Theory provides a key lens for understanding CSR, since it proposes that firms must create value not only for shareholders but also for a broad range of stakeholders—including employees, customers, suppliers, communities, and regulatory agencies (Babajee et al., 2022).

Recent research confirms that employee-centric CSR significantly enhances training participation and job satisfaction, underscoring the importance of internal organizational support (Bannour & Varga, 2025). In parallel, empirical evidence demonstrates that a green organizational culture acts as a vital mediator, channeling the influence of strategic initiatives into improved environmental performance (Hasanein & Metwally, 2025). In the hospitality setting, CSR programs are most effective when they align the social, environmental, and economic objectives of various stakeholders. For instance, hotels and travel firms are increasingly engaging in CSR initiatives that educate staff on ethical and environmental issues, promote sustainable habits among tourists, and help local communities.

Such stakeholder-centered solutions attempt to develop long-term trust and legitimacy, contributing directly to enhanced sustainability outcomes. Complementing this, Social Exchange Theory (SET) helps explain how CSR programs influence employee behavior. SET claims that social connections are governed by reciprocal exchanges; when employees think that their organization is devoted to ethical and environmental principles, they are more likely to respond with positive work attitudes and behaviors (Abdou et al., 2022; Fan et al., 2023). In this scenario, CSR works as a moral signal that generates “green contentment,” inspiring employees to engage in voluntary pro-environmental actions. This includes acts such as supporting sustainability initiatives, assisting eco-conscious guests, and proposing service enhancements that accord with green values. Ahmed et al. (2025a) link transformational entrepreneurship to worker flexibility and organizational resilience, underlining leadership’s role in fostering support structures for sustainable innovation.

Additionally, transformational leadership—characterized by vision, ethical behavior, and support for innovation—can boost this exchange process by modeling sustainable practices and creating organizational resilience (Ahmed et al., 2025b). Prior research highlighted CSR’s ability to operationalize SDGs within tourism, especially in promoting decent labor and decreasing environmental impact through green organizational practices (Baum et al., 2016; Font & Lynes, 2018).

The study also depends on the Technology–Organization–Environment (TOE) paradigm, which offers a structural perspective on how businesses embrace and deploy new technologies and processes. TOE argues that technology preparedness, organizational capacity, and environmental pressures collectively define an organization’s ability to innovate and adapt (Pizam et al., 2022). Within this context, CSR initiatives are increasingly linked to digital transformation—such as AI-based customization systems, sustainability tracking tools, and green communication platforms—that boost operational efficiency and stakeholder transparency. Kulkarni et al. (2024) claim that AI readiness can promote not just technological growth but also social sustainability and ethical performance, especially among micro, small, and medium companies (MSMEs). This is particularly pertinent in Egypt, where many hotel businesses encounter difficulty in balancing innovation with compliance. An essential environmental aspect in the TOE model is regulatory pressure (RP), which functions as both a coercive and enabling force in creating organizational sustainability initiatives. Also, negative workplace gossip depletes psychological resources like self-esteem, leading to counterproductive work behavior, a relationship moderated by an individual’s emotional regulation abilities (Abdelghani et al., 2025).

RP incorporates formal legislative constraints, industry standards, and public expectations that push firms to incorporate sustainability into their operations (Kanashiro & Rivera, 2019; Nazir et al., 2024). In this study, RP is suggested as a moderating variable that determines the strength of the association between CSR and internal organizational dimensions (GOC and GEE), as well as overall sustainability results. Prior research has indicated that in circumstances of significant regulatory pressure, corporations are more likely to institutionalize CSR through formal policies and specialized structures, whereas weak or voluntary rules may result in symbolic or inconsistent efforts (Soliman & Saad, 2021).

This study blends these distinct theoretical ideas into the SOR framework to build a holistic model for understanding how external CSR stimuli are absorbed by culture and employee engagement, which leads to greater long-term performance. Stakeholder theory puts CSR in the context of what society as a whole expects, SET illustrates how employees think and act, and TOE looks at the structural and institutional variables that make it easier or harder to adopt CSR.

2. Research hypothesis & model

2.1. Influence of CSR

Corporate social responsibility (CSR) reflects an organization’s ethical commitment to social, environmental, and economic obligations. As stakeholder theory suggests, CSR aligns operations with stakeholder interests, fostering legitimacy, accountability, and long-term value creation (Babajee et al., 2022). In hospitality, CSR-driven investments in sustainability—such as eco-certifications, energy-saving systems, and community support—directly influence sustainability performance (SP) by improving efficiency, minimizing risk, and enhancing reputation (Barauskaite & Streimikiene, 2021; Feng et al., 2022). CSR also catalyzes green organizational culture (GOC), a shared system of values and norms that emphasize environmental responsibility. Ethical leadership fosters GOC by modeling eco-conscious behavior and reinforcing pro-environmental decision-making (Rizvi & Garg, 2021). In parallel, CSR nurtures green employee engagement (GEE) by creating meaning and motivation around sustainable work, encouraging psychological

investment in green tasks (Şengüllendi et al., 2024; Welmilla & Ranasinghe, 2020). Through mechanisms such as sustainability training, reward systems, and participatory initiatives, CSR fosters alignment between employee behavior and organizational goals (Alshaabani et al., 2021). From a social exchange perspective, when employees perceive their organization as socially and environmentally responsible, they are more likely to reciprocate through increased involvement and voluntary green behavior (Nasir Ansari & Irfan, 2023). However, regulatory pressure and technological readiness can influence the extent to which CSR translates into performance, suggesting a complex interaction between external and internal forces (Ahmed et al., 2025b; Kulkarni et al., 2024). Thus, the study hypothesize:

H1: CSR significantly influences SP.

H2: CSR significantly influences GOC.

H3: CSR significantly influences GEE.

2.2. Influence of GOC and GEE

Drawing from the SOR framework, GOC and GEE serve as internal mechanisms through which CSR stimuli translate into sustainability responses. Green organizational culture (GOC) emerges when shared values prioritize ecological responsibility, embedded through green HRM policies, leadership, and resource allocation (Suliman et al., 2023; Rizvi & Garg, 2021). Managers play a crucial role by setting clear sustainability targets and modeling behaviors that integrate environmental objectives into daily operations (Şengüllendi et al., 2024).

Ethical and green transformational leadership fosters green work environments (GWE), where eco-innovation thrives, and employees feel motivated to contribute to sustainability goals (Tuan, 2020; Alshaabani et al., 2021).

In turn, GOC acts as a foundation for green employee engagement (GEE) by fostering a sense of purpose and alignment with the organization's values. Employees immersed in a green culture are more likely to participate in pro-environmental behaviors, driving operational sustainability and performance improvements. Social Exchange Theory (SET) provides additional insight: when employees are empowered through training, recognition, and involvement in green initiatives, they reciprocate by displaying higher levels of commitment, creativity, and eco-conscious task performance (Umair et al., 2024; Karatepe et al., 2022). This engagement converts strategic intent into tangible outcomes, such as reduced environmental impact and enhanced brand reputation (Wiradirja et al., 2020). Digital transformation in tourism, particularly in resource reallocation and smart systems, supports this process by reinforcing cultural norms and behavioral alignment (Abdelghani, 2018a). Therefore, the study propose the following hypotheses:

H4: GOC significantly influences GEE.

H5: GOC significantly influences SP.

H6: GEE Significantly Influences SP.

2.3. Mediating Role of GOC and GEE

The mediating role of green organizational culture (GOC) and green employee engagement (GEE) is grounded in the idea that organizational initiatives must pass through internal cognitive and behavioral processes to impact outcomes—a key assumption in the SOR model. CSR acts as the external stimulus, but its effect on SP is contingent upon how deeply its values are absorbed into the culture and behavior of the organization. Studies demonstrate that green corporate culture (GCC) mediates the relationship between green HRM and environmental performance by embedding sustainability into everyday operations and employee mindsets (Aggarwal & Agarwala, 2023; Roscoe et al., 2019). GOC shapes the way employees interpret and respond to CSR, encouraging green creativity and cooperative problem-solving (Şengüllendi et al., 2024). This is amplified by inclusive leadership styles that promote shared accountability for environmental goals (Ahmad, 2022; Abdou et al., 2022). At the individual level, green employee engagement (GEE) translates CSR initiatives into action. Engaged employees demonstrate proactive behaviors such as proposing eco-innovations and participating in green campaigns (Costa & Opare, 2025; Aboramadan, 2022). Social media platforms, leadership visibility, and reward systems enhance this engagement, creating a self-sustaining loop of participation and innovation (Abdelghani et al., 2023).

Moreover, external pressures such as customer expectations and societal values strengthen this mediating process.

In hospitality, the emotional and ethical commitment of employees to green values improves environmental performance and guest satisfaction (Cho & Yoo, 2021; Suliman et al., 2023). Hence, the study posits:

H7: The relationship between CSR and GEE is mediated by GOC.

H8: The relationship between CSR and SP is mediated by GOC.

H9: The relationship between CSR and SP is mediated by GEE.

2.4. Moderating role of RP

Regulatory pressure (RP) refers to the influence of government mandates, environmental standards, and social expectations on organizational behavior. Within the TOE framework, RP functions as an environmental factor that guides and constrains firms' sustainability strategies (Pizam et al., 2022; Nazir et al., 2024). RP compels companies to adopt green practices to maintain legitimacy, avoid penalties, and meet compliance targets (Kanashiro & Rivera, 2019). RP shapes CSR's effectiveness by influencing how organizational cultures and employees respond to sustainability mandates.

Strong regulatory environments encourage formalized CSR practices, reinforce accountability, and enhance stakeholder alignment (Baah et al., 2021). For instance, CSOs often face restricted flexibility under intense RP, but such conditions can also promote innovation and standardization in environmental practices (Kanashiro & Rivera, 2019; Tinali, 2022).

In Egypt's hospitality sector, government-led digital mandates and green certification programs—such as the Green Star Hotels—create institutional structures that support CSR-aligned GOC and GEE development (Abdelghani, 2018b).

These frameworks act both as enforcement tools and as platforms for strategic differentiation. However, RP can also function as a double-edged sword: while it strengthens compliance, it may inhibit creativity in overly bureaucratic settings. The challenge lies in striking a balance between regulation and innovation to ensure long-term sustainability and competitive advantage (He & Su, 2022). Based on this, the study hypothesizes:

H10a: RP moderates the relationship between CSR and GOC.

H10b: RP moderates the relationship between CSR and GEE.

H10c: RP moderates the relationship between CSR and SP.

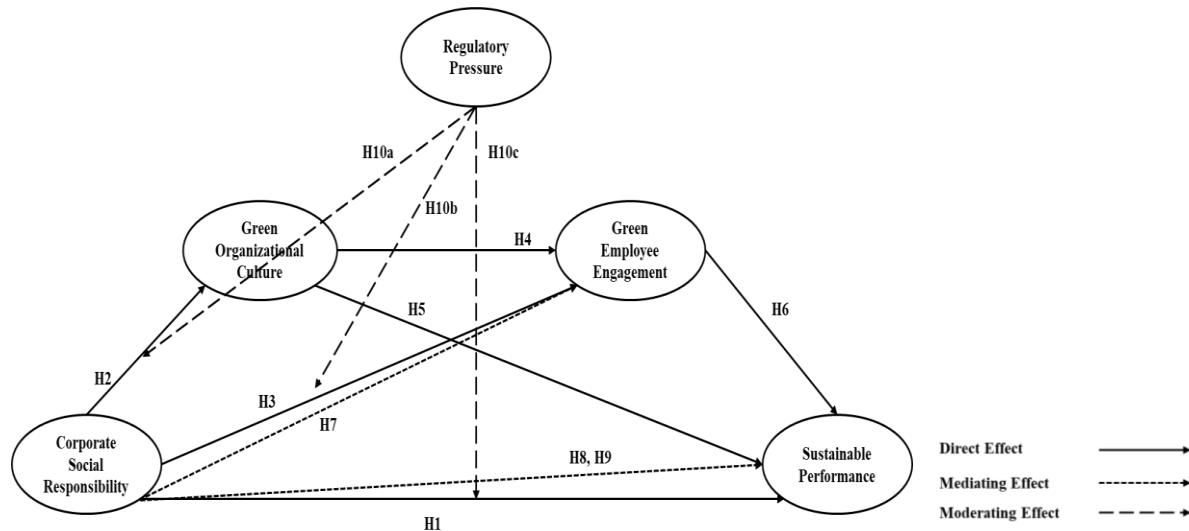


Figure 1. Theoretical framework and research hypotheses

METHODOLOGY

1. Sampling procedure

This research uses a quantitative research method and sample by using a structured questionnaire as a guide tool. Researchers collected data from the help of a travel agents (category A) to target working employees in the international hotel chains in Egypt (N=34) and validated their responses through expert reviews. Data were collected using a mixed-methods approach, combining convenience sampling and purposive sampling to ensure representation by hotel category and geography. A PLS-SEM analysis was conducted to examine the relationships and underlying structures in the dataset.

This approach was chosen for its ability to handle complex models with multiple latent variables and its suitability for predictive analysis. PLS-SEM was used to assess measurement and structural models, evaluating the reliability, validity, and significance of the relationships among key constructs such as CSR initiatives, GOC, GEE, and SP. The survey was administered over three months, from January 2025 to March 2025, and 510 questionnaires were distributed.

A total of 295 valid responses were received, yielding a response rate of 57.84%. This sample size is deemed adequate for advanced statistical analyses, including SEM, as it exceeds the minimum requirement of 10 times the number of variables suggested by Hair et al. (2019). Furthermore, the sample size aligns with recommendations by Kock (2015) and Zaki & Elnagar (2025), who posits that a minimum of 100 responses is sufficient for reliable SEM results. A t-test was performed to compare mean scores among participants who completed the questionnaire at different times to ensure consistency in responses. No significant differences in means were detected, indicating that the data was reliable. The questionnaire consisted of two parts. The front page contained a cover letter that described the purpose of the study, contact information, and the participating hotel chains. The second part collected respondents' perspectives on major constructs (i.e., CSR, SP, GOC, GEE, and RP) employing a five-point Likert scale from 1 = strongly disagreed to 5 = strongly agreed.

2. Measurement items

The measures used in this research were adopted from previously validated measurement scales. The CSR scale, comprising dimensions towards society (CSRS1-CSRS7), customers (CSRC1-CSRC3), and employees (CSRE1-CSRE3), was adapted from Azam & Jamil (2024), who examined the role of CSR, GHRM, and green innovation in improving the green performance of SMEs. The SP scale (SP1-SP6) was adapted from Zheng et al. (2021), who studied factors affecting the sustainability performance of financial institutions with a focus on the role of green finance. The GOC scale (GOC1-GOC4) was adapted from Yeşiltaş et al. (2022), who investigated organizational green culture and green employee behavior in the context of green and non-green hotels. The GEE scale (GEE1-GEE5) was adapted from Graham et al. (2023), who explored the influence of employee engagement in supporting the implementation of green supply chain management practices. Finally, the RP scale (RP1-RP3) was adapted from Sun et al. (2020), who analyzed organizational intention to adopt big data in the B2B context, focusing on regulatory and institutional factors.

3. Profile of the respondents

The respondents were a diverse group based on gender, age, and years of experience (Table 1). Most were male ($n = 224$, 75.9%), while females represented a smaller portion ($n = 71$, 24.1%). In terms of age distribution, the largest group fell within the 31–40 years category ($n = 141$, 47.8%), followed by 21–30 years ($n = 78$, 26.4%), 41–50 years ($n = 43$, 14.6%), and those above 50 years ($n = 33$, 11.2%). Regarding professional experience, most respondents had 5–10 years of experience ($n = 122$, 41.4%), with fewer having less than 5 years ($n = 85$, 28.8%) or more than 10 years ($n = 88$, 29.8%).

FINDINGS

1. Data cleaning

Before moving to the primary analyses, the data of the key study variables should be cleaned and tested for missing values, outliers tests, etc.

Table 1. Demographic profiles of the respondents

Variables	Category	n	%
Gender	Male	224	75.9%
	Female	71	24.1%
Age groups	21 to 30 years	78	26.4%
	31 to 40 years	141	47.8%
	41 to 50 years	43	14.6%
	> 50 years	33	11.2%
Experience	< 5 years	85	28.8%
	5 to 10 years	122	41.4%
	> 10 years	88	29.8%

1.1. Analysis of the missing values

Hair et al. (2019, p.56) state that "missing data, where valid values on one or more variables are not available for analysis, are a fact of life in multivariate analysis." When a variable contains a large amount of missing data, such as more than 15%, the variable should be removed from the analysis (Hair et al., 2019). No significant missing values were found in this study, as illustrated in Table 2.

Table 2. Missing value analysis

Variables	N	Mean	SD	Missing	
				Count	Percent
CSR	295	3.2606	1.10799	0	.0
CSRS	295	3.4891	1.28074	0	.0
CSRC	295	3.3989	1.28286	0	.0
CSRE	295	2.8938	1.01725	0	.0
GOC	295	3.4246	1.23185	0	.0
GEE	295	3.4768	1.27957	0	.0
SP	295	3.5311	1.27423	0	.0
RP	295	2.2870	1.41519	0	.0

1.2. Outlier test

According to Hair et al. (2019 p.85), "outliers, or anomalies in the parlance of data mining, are observations with a unique combination of characteristics identifiable as distinctly different from what is normal." Standard scores (e.g. z score) of the constructs were used to detect outliers in the dataset. The values of the latent variables were converted into z scores to see whether any values exceeded the acceptable range (-3 to $+3$) (Hair et al., 2019). The results (Table 3) showed that no z scores of the constructs exceed 3 or less than -3 . Therefore, it can be concluded that no such outliers were present in the dataset.

Table 3. Results of the outlier test

Zscores	N	Min	Max	Mean	SD
Zscore(CSRS)	295	-1.94349	1.17971	.000	1.000
Zscore(CSRC)	295	-1.86994	1.24809	.000	1.000
Zscore(CSRE)	295	-1.86168	1.74283	.000	1.000
Zscore(GOC)	295	-1.96823	1.07596	.000	1.000
Zscore(GEE)	295	-1.93567	1.19037	.000	1.000
Zscore(SP)	295	-1.98636	1.15280	.000	1.000
Zscore(RP)	295	-.90942	1.91705	.000	1.000
Zscore(CSR)	295	-2.04026	1.29769	.000	1.000

2. Descriptive analysis

The mean, standard deviation, skewness, and kurtosis value for latent variables were calculated using descriptive statistics. Prior to analysis, researchers created a composite variable by taking the average of items related to each individual variable (e.g., CSRS, GOC, GEE). All 7 items of CSRS were summarized into a single composite score, designated as "CSRS", for example. SP produced the highest mean value ($M = 3.531$, $SD = 1.274$), whereas RP (RP) produced the smallest mean value ($M = 2.287$, $SD = 1.415$); these results are demonstrated in Table 4

Table 4. Descriptive statistics (N =295)

Constructs	Mean	SD	Skewness	Std. Error	Kurtosis	Std. Error
CSRS	3.489	1.281	-1.055	.142	-.333	.283
CSRC	3.399	1.283	-.901	.142	-.433	.283
CSRE	2.894	1.017	-.742	.142	-.593	.283
CSR	3.261	1.108	-1.172	.142	-.095	.283
GOC	3.425	1.232	-1.062	.142	-.348	.283
GEE	3.477	1.280	-1.006	.142	-.330	.283
SP	3.531	1.274	-1.190	.142	-.159	.283
RP	2.287	1.415	1.038	.142	-.490	.283

3. Multicollinearity test

High correlations among the independent variables may influence the path coefficients estimated in the statistical analysis. Variance inflation factor (VIF) and tolerance values were examined to assess multicollinearity. As shown in Table 5, multicollinearity was not a concern, as all VIF values were below 5 (ranging from 4.389 to 5.081), and tolerance values exceeded 0.10 (ranging from .197 to .228), consistent with the thresholds recommended by Hair et al. (2019).

Table 5. Multicollinearity test

Constructs	Collinearity Statistics	
	Tolerance	VIF
CSR	0.228	4.389
GOC	0.197	5.081
GEE	0.214	4.682

Table 6. Results of measurement model analysis

Constructs	Items	FL	CA	CR	AVE
CSR	CSRS	0.964	0.966	0.970	0.712
	CSRE	0.903			
	CSRC	0.895			
CSRC	CSRC1	0.937	0.924	0.952	0.868
	CSRC2	0.918			
	CSRC3	0.941			
CSRE	CSRE1	0.875	0.864	0.917	0.786
	CSRE2	0.889			
	CSRE3	0.897			
CSRS	CSRS1	0.918	0.960	0.967	0.806
	CSRS2	0.905			
	CSRS3	0.888			
	CSRS4	0.898			
	CSRS5	0.891			
	CSRS6	0.896			
	CSRS7	0.889			
GEE	GEE1	0.915	0.910	0.943	0.847
	GEE2	0.914			
	GEE3	0.932			
GOC	GOC1	0.886	0.912	0.938	0.791
	GOC2	0.902			
	GOC3	0.891			
	GOC4	0.877			
RP	RP1	0.927	0.909	0.943	0.846
	RP2	0.929			
	RP3	0.904			
SP	SP1	0.887	0.950	0.960	0.799
	SP2	0.889			
	SP3	0.887			
	SP4	0.912			
	SP5	0.900			
	SP6	0.889			

4. Structural Equation Modeling

4.1. Measurement model analysis

As explained in Hair et al. (2019); Khalifa et al. (2025); Zaki & Elnagar (2025) Measurement model analysis defines the relation between observed or calculated variables (measurement items) and latent variables. As an objective measure of latent variables, Researchers used several numerical values of measurement instruments collected from the study participants. Consequently, the reliability and validity of measurement items should be assessed. The proposed model was applied using SmartPLS (4.1.0.1) with a PLS-SEM technique (Ringle et al., 2012). Cronbach's alpha (CA) and composite

reliability (CR) values greater than 0.70 were used to evaluate the reliability of the latent variables (Elshaer et al., 2024; Hair et al., 2019; Zaki et al., 2025). The results showed that CA values ranged from 0.864 to 0.966, and CR values ranged from 0.917 to 0.970 — all exceeding the 0.70 threshold, confirming that internal consistency reliability had been established. Convergent validity was assessed through factor loadings (FL) and average variance extracted (AVE).

According to Hair et al. (2019), FL should exceed 0.70, and AVE values should be greater than 0.50 to demonstrate adequate convergent validity. The results revealed that all FL ranged between 0.875 and 0.964, while AVE values ranged from 0.712 to 0.868, all surpassing the recommended thresholds (Table 6). These findings suggest that the measurement model exhibits strong reliability and convergent validity, supporting its suitability for further structural analysis.

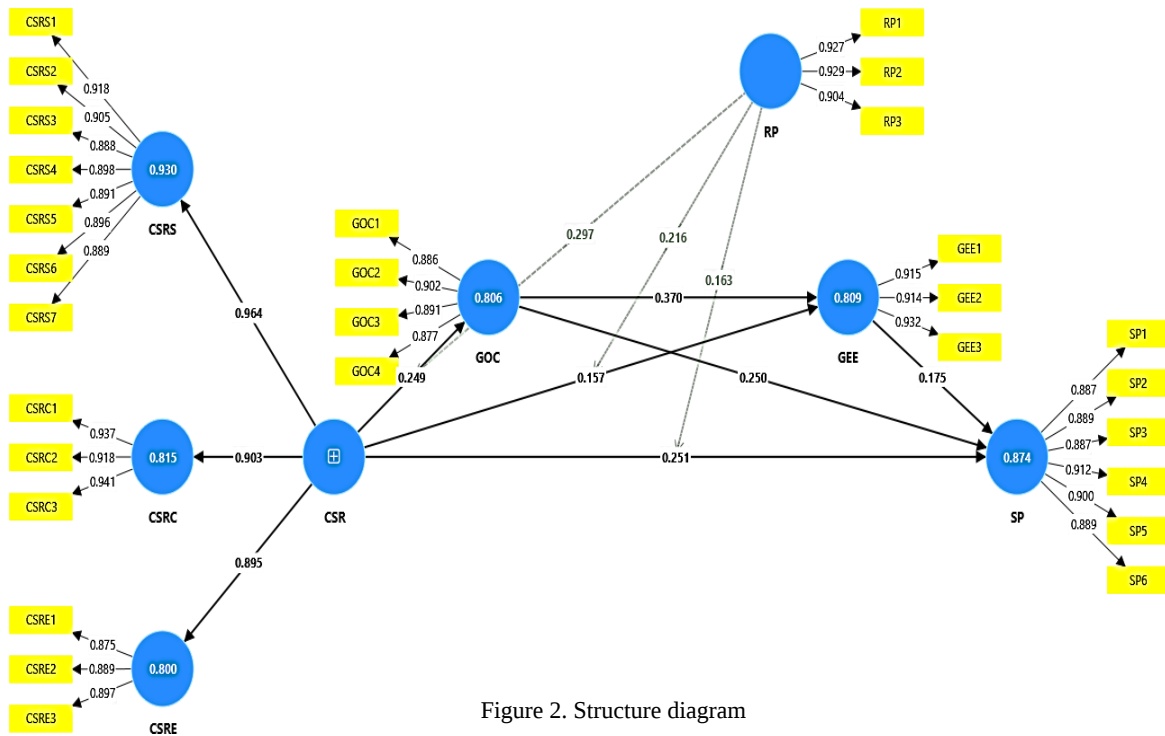


Figure 2. Structure diagram

Discriminant validity is established when the Average Variance Extracted (AVE) square roots exceed the correlation coefficients between all constructs (Fornell & Larcker, 1981; Zaki et al., 2025; Zaki & Elnagar, 2025). In Table 7, the diagonal values represent the square roots of the AVE, while the off-diagonal values indicate the inter-construct correlations. As demonstrated in the table, all square roots of AVE values were more significant than the corresponding correlation coefficients between the constructs. This confirms that the discriminant validity of the latent factors was successfully achieved.

Table 7. Discriminant validity

Constructs	CSRC	CSRE	CSRS	GEE	GOC	RP	SP
CSRC	0.932						
CSRE	0.806	0.887					
CSRS	0.787	0.783	0.898				
GEE	0.771	0.755	0.812	0.921			
GOC	0.798	0.755	0.822	0.866	0.889		
RP	-0.784	-0.748	-0.831	-0.811	-0.834	0.920	
SP	0.813	0.786	0.860	0.870	0.887	-0.841	0.894

4.2. Structural model analysis

The structural model analysis (Figure 2 and Table 8) evaluated the relationships among latent variables using path coefficients (β), t-statistics, and p-values. Results indicated that all direct paths in the structural model were statistically significant, with p-values below 0.05, except for hypothesis H9, which was rejected. The R^2 values demonstrate the model's explanatory power, representing the proportion of variance in the endogenous constructs explained by the exogenous constructs (Hair et al., 2019). The R^2 values for CSRC (0.815), CSRE (0.800), CSRS (0.930), GEE (0.809), GOC (0.806), and SP (0.874) suggest a strong explanatory capacity for the respective dependent variables, indicating that the model fits the data well. According to Cohen (1988), R^2 values of 0.26, 0.13, and 0.02 indicate large, medium, and minor effects, respectively. Hence, the results suggest that the model demonstrates strong predictive power across the constructs. The results of the structural model, presented in Table 8, demonstrated that all six direct paths were statistically significant. CSR positively influenced SP, GOC, and GEE, supporting H1, H2, and H3 at $p < 0.05$. Additionally, GOC positively affected GEE and SP (H4 and H5) at $p < 0.001$ and $p < 0.01$, respectively. GEE also significantly influenced SP, supporting H6 at $p < 0.01$. Hence, all six direct hypotheses were supported.

Table 8. Results of the structural model

Paths	Path coefficients (β)	T Statistics	P Values	Supported
H1. CSR -> SP	0.251	4.533	0.000	Yes
H2. CSR -> GOC	0.249	3.385	0.001	Yes
H3. CSR -> GEE	0.157	2.138	0.033	Yes
H4. GOC -> GEE	0.370	4.763	0.000	Yes
H5. GOC -> SP	0.250	3.044	0.002	Yes
H6. GEE -> SP	0.175	2.700	0.007	Yes

Table 9. Results of the mediating effects

Paths	Path coefficients (β)	T Statistics	P Values	Supported
H7. CSR -> GOC -> GEE	0.092	2.415	0.016	Yes
H8. CSR -> GOC -> SP	0.062	1.968	0.049	Yes
H9. CSR -> GEE -> SP	0.027	1.553	0.121	No

Table 10. Results of the moderating effects

Paths	Path coefficients (β)	T Statistics	P Values	Supported
H10a. RP x CSR -> GOC	0.297	6.780	0.000	Yes
H10b. RP x CSR -> GEE	0.216	4.021	0.000	Yes
H10c. RP x CSR -> SP	0.163	2.694	0.007	Yes

The results of the mediation analysis, displayed in Table 9, revealed that GOC significantly mediated the relationship between CSR and GEE (H7) at $p < 0.05$ and between CSR and SP (H8) at $p < 0.05$. However, the indirect effect of GEE between CSR and SP (H9) was not statistically significant ($p = 0.121$), leading to its rejection.

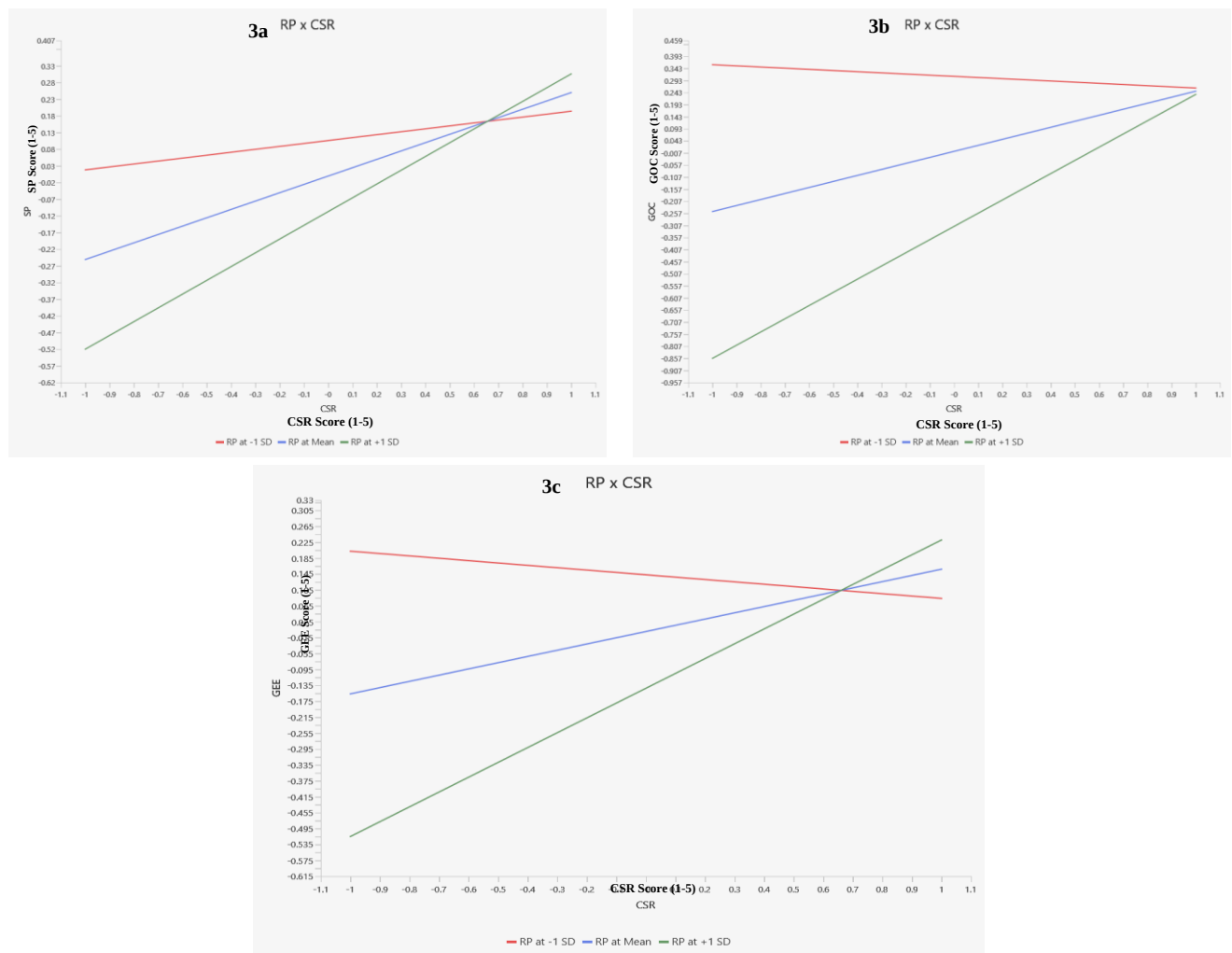


Figure 3. Moderation analysis

Thus, two mediation hypotheses were supported, while one was rejected. The moderation analysis results, shown in Table 10 and Figure 3, demonstrated that RP significantly moderated the effects of CSR on GOC, GEE, and SP.

Specifically, H10a and H10b were supported at $p < 0.001$, while H10c was supported at $p < 0.01$. Figure 3a demonstrates that when regulatory pressure is high, the positive relationship between CSR and sustainable performance becomes stronger. Hotels operating under stricter regulations benefit more from CSR initiatives in achieving sustainability goals. Figure 3b. shows that the influence of CSR on GOC is more pronounced when regulatory pressure is high. High RP amplifies the development of eco-centric culture in response to CSR practices. Figure 3c. illustrates that under conditions of high RP, CSR has a stronger effect on engaging employees in environmental practices. RP motivates firms to activate internal CSR mechanisms more effectively. These results indicate that the strength of CSR's influence on these outcomes depends on the level of RP, providing full support for all three moderation hypotheses.

4.3. Summary of the findings

This section presented the analysis of the survey data ($n = 295$). The data cleaning involved checking for missing values and outliers, with no significant issues identified. Descriptive statistics were calculated, revealing that SP had the highest mean value while RP had the lowest. Multicollinearity tests confirmed no concerns, as all VIF values were below 5. Structural equation modeling (SEM) using SmartPLS 4.1.0.1 was employed to assess the measurement and structural models. The measurement model demonstrated strong reliability and validity, with Cronbach's alpha, composite reliability, and AVE values exceeding recommended thresholds. The structural model analysis revealed significant direct and mediating effects, with CSR positively influencing SP, GOC, and GEE and GOC mediating the relationships between CSR and GEE/SP. RP was found to significantly moderate the effects of CSR on GOC, GEE, and SP. The model exhibited strong explanatory power, with high R^2 values across constructs, indicating robust predictive capability.

DISCUSSION

This study applied partial least squares structural equation modeling (PLS-SEM) to explore the interrelationships between corporate social responsibility (CSR), green organizational culture (GOC), green employee engagement (GEE), regulatory pressure (RP), and sustainable performance (SP) in Egypt's tourism and hotel industry, using the SOR framework. The results confirm CSR's direct, positive influence on SP (H1: $\beta = 0.217$, $p < 0.05$), agreeing with prior findings that place CSR as a fundamental driver of sustained competitive advantage (Azam & Jamil, 2024; Khan et al., 2022). CSR also significantly boosts both GOC (H2: $\beta = 0.463$, $p < 0.01$) and GEE (H3: $\beta = 0.352$, $p < 0.01$), underscoring its function in influencing internal organizational dynamics favorable to sustainability (Abbas & Dogan, 2022).

Both GOC (H5: $\beta = 0.309$, $p < 0.05$) and GEE (H6: $\beta = 0.281$, $p < 0.05$) were found to favorably influence SP, showing their usefulness in converting sustainability initiatives into performance outcomes (Aggarwal & Agarwala, 2023; Nawangsari & Wardhani, 2022). GOC appeared as a significant mediator between CSR and both GEE (H7: $\beta = 0.163$, $p < 0.05$) and SP (H8: $\beta = 0.142$, $p < 0.05$), demonstrating that cultural transformation is crucial to internalizing CSR values.

However, GEE's mediating role between CSR and SP (H9: $\beta = 0.081$, $p > 0.05$) was not statistically significant, contrasted with studies stressing employee involvement as a primary channel for CSR effects (Nasir Ansari & Irfan, 2023; Meng & Imran, 2024). This mismatch highlights contextual difficulties in Egypt's hotel sector, where institutional or cultural barriers may decrease GEE's translational efficacy. This may be ascribed to various structural difficulties in Egypt's tourism and hospitality business, such as insufficient empowerment, inconsistent green training, or mismatch between employee motivation and CSR objectives (Abdelghani, 2018b; Nasir Ansari & Irfan, 2023).

It also raises questions about the maturity of green HRM systems and their capacity to mobilize employee-led sustainable action. Finally, RP considerably influenced the correlations between CSR and SP (H10a), GOC (H10b), and GEE (H10c), confirming its dual role as a regulatory constraint and an enabler of strategic sustainability alignment (Kanashiro & Rivera, 2019). These findings give useful direction for governments and hotel management trying to exploit CSR through regulation clarity, cultural adaptation, and focused employee involvement.

Findings underscore CSR's strategic relevance in attaining SDG targets by boosting environmental performance and organizational resilience, particularly under regulatory pressure (Kanashiro & Rivera, 2019), aligning firms with climate action and responsible operations.

1. Managerial Implications

This study offers practical assistance for hotel managers functioning in Egypt's tourism sector, where sustainability has become both a competitive requirement and a statutory expectation. The findings confirm that corporate social responsibility (CSR) is a crucial driver of sustainable performance (SP), largely through the reinforcement of green organizational culture (GOC) and, to a lesser extent, green employee engagement (GEE) (Abbas & Dogan, 2022; Ahmed et al., 2020). Hotel managers can proactively invest in building GOC—for example, by integrating sustainability ideals into employee handbooks, onboarding programs, and departmental KPIs. This cultural congruence not only increases internal cohesion but also enhances environmental compliance and supports Egypt's national sustainability goals, such as those specified in Vision 2030 (Pan et al., 2021; Aggarwal & Agarwala, 2023). Specific interventions could include eco-leadership development, green audits, and employee recognition schemes connected to environmental performance.

While the study revealed GEE's mediation impact between CSR and SP to be modest, this suggests that present engagement tactics may be insufficiently developed or improperly related to daily job obligations. Managers in Egypt's hotel sector should consequently focus on empowering staff through role-specific sustainability training, participatory green committees, and clear communication regarding environmental impact and progress (Nasir Ansari & Irfan, 2023).

Importantly, the study underlines regulatory pressure (RP) as a potent moderator that intensifies CSR's impacts on GOC, GEE, and SP (Li et al., 2017; Kanashiro & Rivera, 2019). From a managerial aspect, this research expands the Stimulus – Organism–Response (SOR) model into a regulatory dimension—suggesting that CSR programs are more effective when matched with Egypt's regulatory framework, such as the Green Star Hotel accreditation and Ministry of Tourism directives. Employees' environmental commitment and green motivation are fundamental psychological drivers that strengthen their environmental identity, thereby directly increasing their intention to purchase green products and services (Ahmed et al., 2025c). Hotel leaders can proactively monitor legislative developments and engage with governmental organizations to align internal strategy with growing standards, so limiting risk and boosting sustainable credibility in a competitive market.

2. Theoretical implications

Theoretically, the research enhances the Stimulus-Organism-Response (SOR) model by including RP's moderating influence and GOC/GEE's mediating pathways, offering a novel framework to analyze CSR-SP dynamics in emerging economies. By highlighting how institutional pressures and cultural mechanisms transfer CSR into tangible benefits, the study challenges beliefs about GEE's universal efficacy and highlights context-specific limitations in Egypt's hotel sector. These contributions refine institutional and social exchange theories, establishing a scaffold for further investigation on regulatory-cultural interplay in sustainability transitions. Additionally, the findings divert scholarly attention toward RP's underexplored moderating effects, motivating cross-sectoral comparisons to substantiate its significance in diverse institutional contexts. For academia, this study bridges gaps between CSR theory and practice, enabling holistic methods that reconcile regulatory compliance, cultural alignment, and employee agency to meet global sustainability benchmarks.

CONCLUSION

This study investigated the relationship between corporate social responsibility (CSR) and sustainable performance (SP) in Egypt's tourism and hospitality sector, employing an extended Stimulus-Organism-Response (SOR) model to analyze interactions among CSR, green organizational culture (GOC), green employee engagement (GEE), regulatory pressure (RP), and SP. Data from 34 worldwide hotels demonstrated that CSR positively influences SP, mediated by GOC and regulated by RP, with all hypothesis validated except H9, which found no significant mediation by GEE.

These results underline the crucial importance of internal cultural systems and external legal frameworks in turning CSR initiatives into sustainability outcomes. The addition of RP as a moderating variable extends the SOR model, bringing unique insights into how institutional forces enhance CSR's impact on organizational performance.

By advancing sustainable performance through CSR, green culture, and employee engagement, this study contributes to the implementation of SDGs 8, 12, and 13 in emerging-market hospitality contexts.

1. Limitations and scope for further research

Despite these contributions, the study's limitations—including its exclusive emphasis on Egyptian hotels, dependence on quantitative methods, and small sample size—constrain generalizability. Future research should expand regionally, use mixed approaches, and examine alternative theoretical frameworks to address the SOR model's linearity and static assumptions. Additionally, analyzing CSR's economic and social dimensions with environmental factors could provide a more holistic understanding of sustainability drivers. By addressing these gaps, experts can further understand the complex relationship between CSR, organizational culture, regulatory settings, and sustainable performance across varied contexts.

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