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# Green inclusive leadership and employee green behaviors in the hotel industry: Does perceived green organizational support matter?

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ABSTRACT

Building on theories of social exchange, social identity, social learning, and organizational support, this study examines the impact of green inclusive leadership (GIL) on employees' green behaviors in the hotel industry. These behaviors were green innovative work behavior (GIWB), green service recovery performance, and green knowledge sharing behavior. Among the links proposed, perceived green organizational support (GOS) was employed as a mediating variable. Data in this study were collected from 436 hotel direct supervisors and employee dyads. Using structural equation modelling, the results suggest that GIL predicted GIWB, green service recovery performance, and green knowledge sharing behavior. Furthermore, perceived GOS was found to mediate the proposed relationships. Finally, implications for theory and practice are discussed in this study.

## 1. Introduction

As societies progress towards global decarbonization efforts, and governments impose targets, each sector will have a responsibility to build sustainable business practices. Hotels are not exempt (Carbonbrief, 2018; Lenzen et al., 2018). Consumer decisions are increasingly influenced by corporate social responsibility, including the environment (Yadav et al., 2019). Recently, and in response to this, hotels have started to promote green practices as part of their operations and management practices (Kim et al., 2020). For example, recent research suggests that hotels embracing environmentally-friendly practices have higher market share, sales profit, and customer satisfaction (Aboelmaged, 2018). Thus, there is a growing need to understand what leaders can do to enable successful green management practices within the hospitality sector. This study is significant as a foundational enabler for hoteliers seeking to understand effective methods to build green organizational behaviors among their staff through leadership development, particularly within jurisdictions that emphasize or mandate decarbonizing or lower carbon emissions. In this regard, green employee behavior – developed through positive leadership – can enable progressive green management initiatives (Dumont et al., 2017; Luu, 2018a), and thus, understanding the factors that drive such green behavioral outcomes becomes crucial.

In general, the nascent green behavior literature has begun to create a nomological network for the concept, including green innovation and creativity (Arici and Uysal, 2022; Gürlek and Koseoglu, 2021), green human resources management (Tanova and Bayighomog, 2022; Aboramadan et al., 2021a; Luu, 2019a), green brand equity (Ishaq et al., 2021), perceived corporate social responsibility (Tian and Robertson, 2019), organizational policy (Norton et al., 2014), and leadership practices (Jang et al., 2017).

In hospitality, although environmental-specific leadership practices have started to receive scholarly attention as a potential enabler of green outcomes among employees, hospitality research on green-specific leadership styles within this net remains limited, with most studies emphasizing traditional leadership styles, particularly servant leadership (Aboramadan et al., 2021b; Darvishmotevali & Atlinay, 2022; Luu, 2019b), and other green-specific leadership styles such as green transformational leadership (Kim et al., 2020; Mittal and Dhar, 2016), and green charismatic leadership (Luu, 2019c). These studies have typically been applied to the hospitality context, offering a unique and valuable landscape to expand our scholarly understanding of how other green

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forms of leadership affect green behaviors.

In this research, we examine green inclusive leadership (GIL) as a core antecedent concept for green employee behavior, expanding on the only known study discussing this concept (Bhutto et al., 2021), regarding its relationship with green creativity. Given the limited evidence on the effect of GIL on employees' green behavioral outcomes, there is a strong need to further investigate this form of leadership. This is important because, unlike other green-oriented leadership styles such as green servant leadership or green transformational leadership, this type of leadership is defined from the perspective of a social influencing mechanism whereby "emergent coordination and change are constructed and produced" (Uhl-Bien, 2006, p. 668). GIL, therefore, enables sustainable outcomes through a socially-involved approach to leadership, building trust and integrity through open, sincere, and morally sound actions.

To this end, we propose and empirically validate a theoretical model for GIL as the key antecedent to GIWB, green service recovery performance, and green knowledge sharing behavior. In this model, we employ perceived green organizational support (GOS) as a mediating variable (Fig. 1). Thus, this research is established on a key problem statement: pro-environmentally inclusive leadership practices are underdeveloped within the hospitality context, and their outcomes equally lack understanding. Thus, we propose the following research question:

**Research question.** *To what extent does GIL predict green work-related outcomes?*

In addressing this research question, our research is significant and offers an original contribution to the literature in three explicit ways. First, examining GIL will help hoteliers and managers understand whether targeted leadership development can influence their sustainable outcomes at the employee's level. This gap in the research – the synergy between green forms of leadership and green organizational behavior – is a key focus of this study. Furthermore, in developing a clearer understanding of when green forms of leadership do and do not apply, we begin to establish GIL within the organizational leadership and hospitality management disciplines. This is critical as GIL becomes more established in postulating and testing for predictivity validity; that is in developing a foundational understanding of the predictive effect of GIL. This will allow future researchers to test the relative strength of the concept against more established leadership theory, particularly within the hospitality sector.

Second, we expand the nomological network of employees' green behaviors (Luu, 2017) as a key foundation to enabling organizational sustainability. It has been documented that a limited number of studies in the hospitality literature were conducted to examine employees' green environmental outcomes (Karatepe et. al, 2021; Darban et al., 2022). This is surprising, since service employees in the hospitality industry are the pillars of the implementation of pro-environmental initiatives and the agents in enabling successful eco-friendly practices (Aboramadan et al., 2021b: Aboramadan and Karatepe, 2021). In addition, a recent scholarly call has also suggested shifting attention from examining the antecedents of green organizational outcomes towards the antecedents of employees' green behaviors (Luu, 2017). Therefore, we enrich the hospitality research on specific employee-level green outcomes, namely, GIWB, green service recovery performance, and green knowledge sharing behavior: specific green variables which have received very limited attention (see Aboramadan et al., 2021b; Karatepe et al., 2022; Aboramadan et al., 2021a; Luu, 2018b).

Third, we examine perceived GOS as a mediator between employee-level green outcomes. Perceived GOS, or the green-oriented manifestation of perceived organizational support, reflects employees' beliefs and perceptions regarding how their organization values their environmental contributions in the workplace (Lamm et al., 2015). In previous research, perceived GOS was related to organizational citizenship for the environment (Lamm et al., 2015), green voice behavior (Aboramadan et al., 2021a), and green creativity (Hameed et al., 2021). Continuing to understand the importance of GOS is critical to building and stabilizing sustainable businesses in an increasingly environmentally-conscious society. Fifth, we also contribute to hospitality research by utilizing perceived GOS as a mechanism through which GIL can influence green behavioral outcomes.

To address the research question, we begin this study by proposing eight theory-driven hypotheses, and discuss the method of this study. We then continue to present the findings, and discuss these in the context of the broader literature. We conclude with practical and research implications, as well as exploring the strengths and limitations of this study.

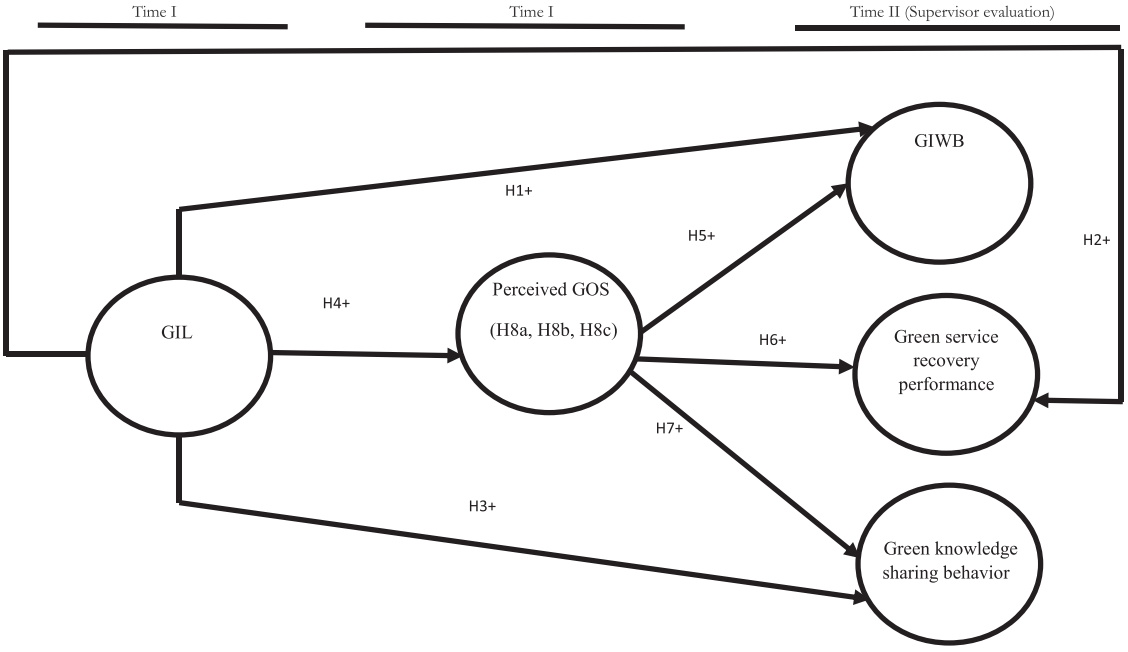



**Fig. 1.** Proposed research model.

## 2. Theory and hypotheses

### 2.1. Green inclusive leadership (GIL) and green innovative work behavior (GIWB)

Inclusive leadership reflects a leadership style which is characterized by openness, accessibility, and availability of leaders to their employees (Carmeli et al., 2010). In this leadership style, leaders embrace inclusion (Bourke and Espedido, 2019; Hollander, 2012), work closely with employees, and encourage them in decision-making processes (Nembhard and Edmondson, 2006). Based on these concepts, GIL, which is a specific manifestation of inclusive leadership, has been defined as leadership practices characterized by openness, accessibility, and availability toward achieving environmental objectives (Bhutto et al., 2021).

Innovative work behavior takes place when an employee introduces, generates, and implements new ideas, solutions, or procedures (Scott and Bruce, 1994). Under the umbrella of green management, green innovative work behavior (GIWB) has been conceptualized as employee behavior which concerns the identification, introduction, and implementation of novel, green-related ideas or solutions (Aboramadan, 2020). In general, innovative work behavior is fundamental behavior for survival for hospitality organizations (Lee and Hyun, 2016). Moreover, employees in hospitality and tourism organizations need to continuously demonstrate innovation in order to meet customers' expectations and satisfy their constantly changing needs (Bani-Melhem et al., 2018). Since hospitality organizations face demands from customers, governments, and society on environmental issues, it is necessary to examine what drives GIWB to overcome environmental challenges and to meet those demands.

In this research, we expect that GIL will depict a positive relationship with GIWB, for the following reasons. Inclusive leadership promotes open communication with followers (Javed et al., 2020), which would ultimately generate trust in leaders and stimulate employees to display innovative behaviors (Carmeli et al., 2010). This is because employees will feel free to discuss and speak up, since inclusive leaders are open to employees' ideas and initiatives (Javed et al., 2019; Shakil et al., 2021). Second, inclusive leaders show a great level of interest in employees' feelings and expectations (Carmeli et al., 2010; Choi et al., 2015); employees, therefore, demonstrate high levels of commitment and energy to their leaders through displaying innovative behavior because they feel obliged to reciprocate the inclusive leader behaviors. With this in mind, it can be assumed that social exchange theory (Blau, 1964) can serve as a framework to justify such exchanges between the inclusive leader and the follower. Based on this theory, we can propose that a leader's inclusiveness, openness, accessibility, and availability will be positively perceived by employees, which will ultimately generate a desire among employees to pay back the leader through engaging in innovative behaviors. Therefore, applying these arguments to the GIL-GIWB link, we argue that when the leader is open, available, and accessible to his followers to discuss environmental concerns, these employees, in turn, will reciprocate by exhibiting innovative behaviors which tackle environmental concerns. In summary, the green inclusive leader creates a culture of open communication and trust, and this culture enables individuals to create and innovate. Given the above arguments, we advance the following:

**Hypothesis 1**. GIL exerts a positive influence on GIWB.

### 2.2. Green inclusive leadership and green service recovery performance

Luu (2018b) defined green service recovery performance as the ability of employees to resolve environmental problems related to customers' complaints. Such behavior usually includes identification of the problem, apologizing, and offering solutions to customers (e.g., Patterson et al., 2006; Prasongsukarn and Patterson, 2012). In this research, we expect that GIL will exert a positive impact on employees' environmental service recovery performance, for the following reasons. First, research demonstrates that management commitment to green practices significantly contributes to employees' green behaviors (Erdogan et al., 2015). GIL demonstrates such commitment by exhibiting openness, availability, and accessibility to employees on environmental issues. Second, social identity theory (Tajfel and Turner, 1985) provides a foundation to explain the effect of GIL and its outcomes. According to this theory, leaders' behaviors can affect employees' self-identity, and consequently their behaviors, through satisfying their needs for belongingness and affiliation (Zhu et al., 2015). Since inclusive leaders behave equally with all employees, encourage their participation, and appreciate their contributions (Nembhard and Edmondson, 2006; Ryan, 2006; Pless and Maak, 2004), this, in turn, will help to stimulate employees' belongingness (Randel et al., 2018). On the other hand, employees fulfill their need for affiliation, as inclusive leaders create a trust-based relationship with employees, satisfy their needs, and show continuous availability and accessibility to these employees (Carmeli et al., 2010; Hollander, 2009; Nembhard and Edmondson, 2006). In line with this argument, environmentally responsible leaders affect followers' self-identity through the behaviors of availability, openness, and accessibility to environmentally-related issues. Finally, we argue that the identity of the leader (green inclusive leader) can institutionalize green values, and also redefine employees' self-identity (Chen et al., 2015). In line with the argument rooted in Steffens et al. (2014) shared social identity viewpoint, environmentally-positioned leaders can create, develop, and instill among employees a shared identity, and thus contribute to green-related concerns and needs. This shared identity transforms employees from being followers to being partners with the leader in achieving pro-environmental objectives. This implies that such an identity can motivate employees to go beyond what is required, and not merely engage in simple pro-environmental activities. Therefore, we propose the following:

**Hypothesis 2**. GIL exerts a positive influence on green service recovery performance.

### 2.3. Green inclusive leadership and green knowledge sharing behavior

Green knowledge sharing behavior has been defined as an employee's behavior of sharing green-related information and experiences with peers and colleagues in the workplace (Aboramadan et al., 2021a). In general, knowledge sharing behavior is a fundamental factor for the success of hospitality organizations, as it fosters organizational performance (Kim et al., 2013), service innovation (Ogunmokun et al., 2020), and product development (Chowdhury et al., 2020). In this research, we argue that GIL will stimulate environmental knowledge sharing behavior. GIL can enable sustainable outcomes through a socially involved approach to leadership that builds trust and integrity through open, sincere, and morally sound action (e.g., Crawford et al., 2020). Furthermore, inclusive leaders are those who are open in their invitation for input from others, and appreciate with sincerity such views. These individuals create rapport through forming a psychologically safe environment, within which employees feel comfortable expressing themselves (Carmeli et al., 2010). This link can also be justified from the perspective of social learning theory (Bandura, 1977), in which employees learn to behave in accordance with the behaviors and the values of others (i.e., leaders). In this way, employees will observe the behaviors of their green inclusive leaders of openness, accessibility, and open communication, and perceive them as role models. Ultimately, observing these behaviors under GIL, employees are inclined to share green-related knowledge and information. Based on what we have discussed above, the following hypothesis is advanced:

**Hypothesis 3**. GIL exerts a positive influence on green knowledge sharing behavior.

### 2.4. Green inclusive leadership and perceived green organizational support (GOS)

In general, perceived organizational support reflects employees' perceptions and beliefs regarding how much their employers appreciate their contributions and show an interest in their well-being (Rhoades et al., 2001). Perceived GOS, which is a specific type of organizational support, reflects employees' perceptions of how much the organization values their contributions towards environmental activities and initiatives (Lamm et al., 2015). Perceived GOS has started to receive increasing attention from several researchers. This is because perceived GOS has been demonstrated to influence employees' green behaviors (see Aboramadan et al., 2021a; Hameed et al., 2021) and non-green positive outcomes (see Aboramadan and Karatepe, 2021).

In this study, we argue that GIL encourages positive perceptions of employees concerning perceived GOS. Perceived OS theory suggests that when employees perceive positive treatment from their supervisors, this will increase their perceived OS (Rhoades and Eisenberger, 2002). Wayne et al. (1997) suggested that leaders play a significant role in stimulating employees' perceived organizational support, since they provide organizational resources which are considered as an important source of perceived organizational support. This is evident in several studies which demonstrate that leadership influences employees' perceived OS levels (see Bobbio et al., 2012; Huning et al., 2020). Another specific piece of empirical evidence also suggests that inclusive leadership behaviors increase perceived organizational support in the Chinese context (see. Qi et al., 2019). Therefore, we propose that when employees perceive their leaders as available, open, and accessible to address environmental issues, such perceptions will be considered as positive green work experiences, which would ultimately encourage their perceived GOS. Given the above, we propose:

**Hypothesis 4**. GIL will be positively associated with perceived GOS.

### 2.5. Perceived green organizational support and green outcomes

Research on perceived OS in hospitality has shown the positive effects of this construct on employee outcomes. For instance, Karatepe (2012), in a study of hotel employees in Cameroon, found that perceived OS has a positive effect on career satisfaction. Others, such as Akgunduz and Sanli (2017), found that perceived organizational support significantly influences employees' job embeddedness among hotel employees in Turkey. These results suggest that when employees feel that the organization/supervisor values their contributions and their well-being, employees' socioemotional needs are fulfilled (Tan et al., 2019). Consistent with the norm of reciprocity embedded in social exchange theory, this, in turn, will generate a feeling among employees that they need to pay back the organization through engaging in favorable work-related outcomes (Eisenberger et al., 1997). The same applies to the link between perceived GOS and employees' green outcomes. When employees feel that their organizations value their environmental contributions, they sense a trusting and quality relationship, which would ultimately encourage them to become involved with in-role and extra-role green behaviors. Empirically speaking, Aboramadan et al. (2021a) found that perceived GOS positively influences green voice behavior, green helping behavior, and green knowledge sharing behavior. Lamm et al. (2015) demonstrated that perceived GOS influences psychological empowerment, job satisfaction, and organizational citizenship behavior towards the environment. Finally, in a hospitality setting, Aboramadan and Karatepe (2021) found that perceived GOS depicted a positive relationship with non-green behavioral outcomes such as job performance and organizational citizenship behavior among employees in Palestinian hotels. Given those arguments, we posit the following:

**Hypothesis 5**. Perceived GOS exerts a positive influence on GIWB.

Frontline employees are generally the first staff to encounter service challenges in the hospitality sector. The extant literature demonstrates that the presence of organizational support has a positive impact on employees' efficiency in handling customer complaints (Boshoff and Allen, 2000). Studies show that if employees feel empowered, their service recovery performance is likely to increase; for instance, research conducted by Yavas et al. (2010) found that the empowerment of frontline employees has a positive impact on service recovery performance. Another piece of empirical evidence indicates that empowering frontline hotel staff improves service recovery performance (Karatepe and Karadas, 2012). Luu's (2018a) study of the travel industry in Vietnam showed that employee environmental commitment partly mediated the association between green human resource practices (e.g., empowerment) and green recovery performance. Based on the aforementioned studies, we assert that this can also apply to green service recovery performance. In other words, when frontline employees encounter sustainable service issues, their ability to demonstrate green recovery behavior will be based on the degree to which their organization supports them. Building on the theoretical arguments embedded in social exchange theory, we expect that when organizations offer their support for environmental responses, in exchange for such perceived support employees will outperform when responding to those challenges. Hence we posit the following:

**Hypothesis 6**. Perceived GOS exerts a positive influence on green service recovery performance.

Past studies show that POS has positive influences on the behaviors of employees, such as employee performance (Chen et al., 2020), job satisfaction (Zumrah and Boyle, 2015), employee engagement, and organizational commitment (Ahmed and Nawaz, 2015). It is also empirically reported that the knowledge sharing behavior of employees can be an outcome when they feel supported by their organizations (Lin, 2006). Quintessentially, POS is regarded as an exchange relationship between an organization and its employees. The reciprocity norm, which binds employees to reciprocate the value and assistance given by an organization, underlies exchange relationships. Therefore, it is anticipated that employees will engage in sharing their knowledge when they feel supported by their organization, and this creates a pivotal foundation to demonstrate organizational knowledge sharing. Through the lens of social exchange theory, we argue that these exchange relationships apply to relevant green issues within organizations. This means that when organizations provide direct support for environmental issues, employees, in turn, demonstrate pro-environmental behaviors. The POS literature supports this proposition by suggesting that if employees' efforts towards sustainability are valued and supported by their organization, they are likely to improve their green performance (Renwick et al., 2013). In a study by Hameed et al. (2021), it was demonstrated that there is a positive relationship between GOS and the green creativity of employees. Another research study, conducted by Aboramadan et al. (2020a), found that perceived GOS positively influences green voice behavior, green helping behavior, and green knowledge sharing behavior. Thus, in light of these arguments and connections, we posit the following:

**Hypothesis 7**. Perceived GOS exerts a positive influence on green knowledge sharing behavior.

Recent studies suggest that perceived GOS is an effective intervening mechanism between organizational resources related to the environment and green outcomes. For instance, perceived GOS was found to mediate the relationship between GHRM and green creativity in Pakistani food and grocery organizations (see. Hameed et al., 2021). Aboramadan et al. (2021a) found that perceived GOS mediated the positive effect of green human resources management on green behavioral outcomes among employees working in the nonprofit sector. In another study, in a hospital context, Paillé et al. (2020) confirmed the findings of these two studies by demonstrating the significant mediating

role of perceived OS towards the environment between aggregated green human resources practices and individual environmental performance. In hospitality, O.M. Karatepe et al.,(2022) found that perceived GOS and work engagement mediated the effect of GHRM on green and non-green outcomes in a sample of Taiwanese hotels. Although perceived GOS has been shown to serve as an effective intervening variable between green organizational resources and green behavioral outcomes, we still have no evidence on whether perceived GOS significantly mediates the effect between GIL and employees' green outcomes. Nevertheless, we posit that when an inclusive leader addresses environmental issues by exhibiting availability, accessibility, and openness, this sends signals to employees about the organization's commitment towards environmental issues. Under such an arrangement, perceived GOS will be enhanced, because employees are more likely to form positive perceptions of how much the organization appreciates their green contributions. As a consequence, employees will reciprocate such favorable treatment from the organization through displaying positive green behaviors, due to their increased perception of OS toward the environment (Hameed et al., 2021). Therefore, we advance the next hypothesis:

**Hypothesis 8**. Perceived GOS mediates the positive link between (a) GIL and GIWB, (b) GIL and green service recovery performance, and (c) GIL and green knowledge sharing behavior.

### 2.6. Methods

The study included customer contact employees and their immediate supervisors from the 3-star hotel sector in the northern part of Italy. Convenience sampling was utilized to reach these employees and their supervisors. Although this approach has its own limitations when it comes to the generalizability of the results, the researcher utilized this sampling technique for the following two reasons. First, it is simple, cost-effective, and not too time-consuming (Stratton, 2021), especially when there is a lack of a defined population list. Second, this approach has been widely used in hospitality research (see Aboramadan et al., 2021a; Albashiti et al., 2021). In order to avoid the biases associated with this sampling approach, the researcher followed the recommendations suggested by Stratton (2021) to improve the dependability of this sampling technique. For instance, vague and complex study objectives were avoided. Also, a validated questionnaire and reliable study measures were utilized. Furthermore, the researcher tried to recruit as many participants as possible to the study to represent the population, through three measures: use of the drop-off and pick-up method, since this increases the response rate and minimizes non-response bias. (Allred and Ross-Davis, 2011). Other measures included to minimize non-response bias were encouraging respondents to participate in the study by making the questionnaire easy to read, short, and respondent-friendly (Churchill and Iacobucci, 2002; McDaniel and Gates, 1991). Furthermore, refusal rates were minimized through follow up and promising that the participants would receive a copy of the descriptive results of the study.

Before distributing the survey, approval from the top management of the hotels was obtained to allow staff to participate in the study. The questionnaires – translated into Italian and piloted with 35 participants – were distributed to employees and their supervisors using a paper-and-pencil method in Summer 2020, after the lockdown was eased in the country. Each questionnaire was attached to a cover letter which clarified the objectives of the study, assuring confidentiality, and completed surveys were inserted into a sealed envelope. In the first wave of the data collection, 800 questionnaires were distributed to employees, from which the researcher was able to obtain 450 questionnaires. These employees' questionnaires included questions on their demographic data and the scales of GIL and perceived green organizational support. From these questionnaires, 14 were removed due to missing information. Hence, Wave 1 resulted in the collection of 436 questionnaires. Table 1 presents the demographic profile of the respondents. Three weeks later, the supervisors of these employees received a questionnaire which included demographic information and scales of GIWB, green service recovery performance, and green knowledge sharing behavior. All 436 supervisor questionnaires were completed by 87 supervisors, leaving a final sample of 436 dyads.

**Table 1**
Respondents Profile

| Variable | Frequency | Percentage |
|---|---|---|
| **Gender** | | |
| Male | 262 | 60.09 |
| Female | 174 | 39.91 |
| **Age** | | |
| 20–25 | 63 | 14.45 |
| 26–30 | 117 | 26.83 |
| 31–35 | 96 | 22.02 |
| 36–40 | 76 | 17.43 |
| Over 40 | 84 | 19.27 |
| **Education** | | |
| Diploma | 39 | 8.94 |
| BA | 300 | 68.81 |
| Master | 97 | 22.25 |
| **Experience** | | |
| 1–5 | 208 | 47.71 |
| 6–10 | 97 | 22.25 |
| 11–15 | 86 | 19.72 |
| Over 15 | 45 | 10.32 |
| **Total** | 436 | 100.0 |

### 2.7. Common method bias

In this study, the researcher has followed the recommendation provided by Podsakoff et al. (2003) to mitigate common method bias. First, the data were collected in two waves and complemented with supervisory evaluations. First, respondents were assured that there were no right or wrong responses, and they were asked to complete their surveys with high levels of honesty. Second, the questionnaire was kept short. to avoid fatigue or boredom from the side of respondents while completing the questionnaire (Hinkin, 1998). Statistically, a Harman's single factor was calculated, in which the results indicated that a single factor was not sufficient to explain most of the variance (36.4%). This was acceptable, given it was below 50% (Podsakoff et al., 2003). Second, we utilized the unmeasured latent method factor (ULMF) as per the suggestions of (Podsakoff et al., 2003). In this technique, we fixed the correlation between ULMF and other factors to 0, in which the items of the five-factor CFA model were freed to load on their corresponding factors and the ULMF. The fit indices of the ULMF were as follows (CFI = 0.901; TLI = 0.900; RMSEA = 0.064; and SRMR = 0.081). Comparing the fit indices of ULMF with those of the CFA measurement model suggests that the differences between these indices are below 0.05 (Bagozzi and Yi, 1990). Given these results, common method bias may not be an issue in this research.

### 2.8. Measures

All our scales were unidimensional and were assessed on a five-point scale ("1 = strongly disagree", "5 = strongly agree"). The green inclusive leadership scale (α = 0.929) was gauged using the adapted version of the 9 items developed by Carmeli et al. (2010). The adapted version was also utilized by Bhutto et al. (2021) to measure GIL. A sample item includes "The supervisor is open to hearing new environmental and green ideas". The perceived green organizational support scale (α = 0.891) was assessed using 7 items adapted from Eisenberger et al. (1986). These 7 items were also utilized in previous studies in the hotel sector (see Aboramadan and Karatepe, 2021). A sample item was "Our hotel values extra effort from me on green management issues". The GIWB scale (α = 0.898) was measured using the 6-item scale originated by Scott and

Bruce (1994) and modified by Aboramadan (2020). A sample item was "This employee develops adequate plans and schedules for the implementation of new green ideas".

The green service recovery performance scale (α = 0.871) was measured using the 5-item scale developed by Boshoff and Allen (2000) and validated by Luu (2018b). A sample item was "This employee doesn't mind dealing with customers with environmental complaints". The green knowledge sharing behavior scale (α = 0.849) was used to assess employees' green knowledge sharing behavior using 4 items adapted from Lin (2007). A sample item was "This employee shares his ideas about environmental issues with his co-workers". The control variables for this study ''education and experience'' were controlled for to see their effects on the intervening and dependent variables.

### 2.9. Data analysis

We have followed the two-step analytical approach (confirmatory factor analysis followed by structural equation model) as suggested by Anderson and Gerbing (1988). This is consistent with previous studies in hospitality and management literature (see Karatepe et al., 2020; Kaya and Karatepe, 2020). Confirmatory factor analysis was used to assess convergent and discriminant validity (Fornell and Larcker, 1981), in which the following fit statistics were used to assess the model fit: $\chi^2$ = Chi-square, CFI = Comparative Fit Index; TLI = Tucker Lewis index; RMSEA = Root Mean Square Error of Approximation; and SRMR = Standardized Root Mean Square Residual (Crawford and Kelder, 2019). The above analyses were conducted via a covariance-based matrix using R software (the Lavaan package). Finally, mediating effects were checked using the 5000-bootstrapping technique with a confidence interval of 95%.

## 3. Findings

### 3.1. Measurement model

Using the maximum likelihood approach and a covariance matrix, we have run confirmatory factor analysis for our five-factor hypothesized model. The results were satisfactory, and the model produced acceptable fit: $\chi^2 = 1238.49$; df = 402; $\chi^2$/df = 3.079; CFI = 0.914; TLI = 0.900; RMSEA = 0.069; SRMR = 0.084. Based on the outcome of the confirmatory factor analysis (see Table 2), loading for the items was significant ($p < 0.01$), ranging between 0.51 and 0.87. We further checked for the convergent validity and relability of the scales by estimating the average variance extracted (AVE) and composite reliability (CR) for our constructs. According to Fornell and Larcker (1981), when AVEs are higher than 0.50 and CRs are higher than 0.70, the convergent validity and relability conditions are confirmed. The results reported in Table 2 suggest that AVE and CR values were higher than 0.50 and 0.70, respectively. These results lend support for the convergent validity and relability of our study's variables.

On another note, we have checked the discriminant validity through three techniques. First, several models were compared with the five-factor hypothesized model. The results reported in Table 3 suggest that our model is superior to other models which showed poor fit indices: Model 2 ($\chi^2 = 2679.44$; df= 428; $\chi^2$/df = 6.260; CFI = 0.769; TLI = 0.749; RMSEA = 0.109; SRMR = 0.107), Model 3 ($\chi^2 = 3351.95$; df = 431; $\chi^2$/df = 7.777; CFI = 0.699; TLI = 0.676; RMSEA = 0.125; SRMR = 0.108), and Model 4 ($\chi^2 = 4838.03$; df = 434; $\chi^2$/df = 11.148; CFI = 0.547; TLI = 0.515; RMSEA = 0.152; SRMR = 0.118).

Second, discriminant validity was also checked via Fornell and Larcker's (1981) criterion, which compares the square root of the AVE with inter-correlations among the variables. According to this criterion, the discriminant validity condition is confirmed when the square root of the AVE is higher than the inter-correlations among the research variables. Based on the results reported in Table 4, the square root of the AVE was higher than the reported correlations among the research variables. Finally, the Heterotrait-Monotrait (HTMT) ratio of correlations was checked among the examined variables. The results, presented in Table 5, suggest that HTMT ratios were below the cut-off point of 0.85 (Henseler et al., 2015).

In conclusion, the above-discussed techniques lend support for the discriminant validity of our research variables.

#### 3.1.1. Hypotheses testing

Prior to the hypotheses testing, multicollinearity and the normality of the data were checked as follows. Regarding multicollinearity, we have checked for the variance inflation factor (VIF) in which none of these VIFs values were above 0.2 (Hair et al., 2010). Furthermore, the values of skewness and kurtosis were below 3 and 8 respectively, suggesting no evidence for the non-normality of the data (Kline, 2015).

Our hypotheses were examined using the structural equation model. This model included our five research variables together with the

**Table 2**
Confirmatory factor analysis, loading, AVEs and CRs.

| Variable/item | loading | Z-stat | CR | AVE |
|---|---|---|---|---|
| **GIL** | | | | |
| GIL1 | 0.65 | 22.70 | 0.928 | 0.593 |
| GIL2 | 0.60 | 18.37 | | |
| GIL3 | 0.76 | 34.73 | | |
| GIL4 | 0.84 | 54.26 | | |
| GIL5 | 0.86 | 61.38 | | |
| GIL6 | 0.70 | 26.95 | | |
| GIL7 | 0.87 | 65.41 | | |
| GIL8 | 0.86 | 60.28 | | |
| GIL9 | 0.73 | 29.85 | | |
| **Perceived GOS** | | | | |
| Perceived GOS1 | 0.66 | 22.13 | 0.880 | 0.520 |
| Perceived GOS2 | 0.76 | 33.05 | | |
| Perceived GOS3 | 0.74 | 30.95 | | |
| Perceived GOS4 | 0.95 | 73.08 | | |
| Perceived GOS5 | 0.76 | 33.65 | | |
| Perceived GOS6 | 0.53 | 14.81 | | |
| Perceived GOS7 | 0.55 | 15.82 | | |
| **GIWB** | | | | |
| GIWB1 | 0.75 | 30.69 | 0.783 | 0.606 |
| GIWB2 | 0.77 | 36.00 | | |
| GIWB3 | 0.83 | 42.26 | | |
| GIWB4 | 0.64 | 21.16 | | |
| GIWB5 | 0.87 | 46.01 | | |
| GIWB6 | 0.78 | 36.92 | | |
| **Green Service Recovery Performance** | | | | |
| GSRP1 | 0.83 | 40.09 | 0.863 | 0.563 |
| GSRP2 | 0.80 | 34.29 | | |
| GSRP3 | 0.84 | 43.21 | | |
| GSRP4 | 0.68 | 23.59 | | |
| GSPR5 | 0.55 | 15.09 | | |
| **Green Knowledge Sharing Behavior** | | | | |
| GKSB1 | 0.86 | 44.46 | 0.828 | 0.554 |
| GKSB2 | 0.73 | 27.28 | | |
| GKSB3 | 0.84 | 41.11 | | |
| GKSB4 | 0.51 | 12.47 | | |

**Table 3**
Competing Models and discriminant validity.

| Model | $\chi^2$ | df | $\chi^2/df$ | CFI | TLI | RMSEA | SRMR |
|---|---|---|---|---|---|---|---|
| Model 1 | 1238.49 | 402 | 3.079 | 0.914 | 0.900 | 0.069 | 0.084 |
| Model 2 | 2679.44 | 428 | 6.260 | 0.769 | 0.749 | 0.109 | 0.107 |
| Model 3 | 3351.95 | 431 | 7.777 | 0.699 | 0.676 | 0.125 | 0.108 |
| Model 4 | 4838.03 | 434 | 11.148 | 0.547 | 0.515 | 0.152 | 0.118 |

Note:
Model 1 has five factors (hypothesized model).
Model 2 (four factors: combined GIWB and green knowledge sharing behavior).
Model 3 (two factors: factor 1: green knowledge sharing behavior, GIWB, and the first five items of green inclusive leadership; factor 2: green service recovery performance, perceived GOS and last 4 items of GIL)
Model 4 (one factor, all merged).

**Table 4**
Means, Standard Deviations, Correlations, and Square Root of the AVE in ().

| | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gender | 0.40 | 0.49 | 1.00 | | | | | | | | |
| Age | 3.00 | 1.34 | 0.03 | 1.00 | | | | | | | |
| Education | 1.53 | 0.83 | -0.01 | 0.13* | 1.00 | | | | | | |
| Experience | 1.93 | 1.04 | 0.04 | 0.55** | 0.21** | 1.00 | | | | | |
| GIL | 3.40 | 0.93 | -0.07 | 0.07 | -0.02 | -0.06 | **(0.77)** | | | | |
| Perceived GOS | 3.50 | 0.89 | -0.07 | 0.12 | 0.03 | -0.02 | 0.54** | **(0.72)** | | | |
| GIWB | 3.07 | 0.83 | -0.07 | 0.03 | 0.07 | -0.04 | 0.44** | 0.39** | **(0.78)** | | |
| Green service recovery performance | 3.29 | 0.91 | -0.08 | 0.06 | 0.01 | -0.06 | 0.58** | 0.54** | 0.49** | **(0.75)** | |
| Green knowledge sharing behavior | 3.40 | 0.90 | 0.00 | 0.02 | 0.02 | -0.02 | 0.51** | 0.53** | 0.45** | 0.42** | **(0.74)** |

*Notes:* N = 436; SD = standard deviation, GIL = green inclusive leadership, GIWB = green innovative work behavior, Perceived GOS = perceived green organizational support.

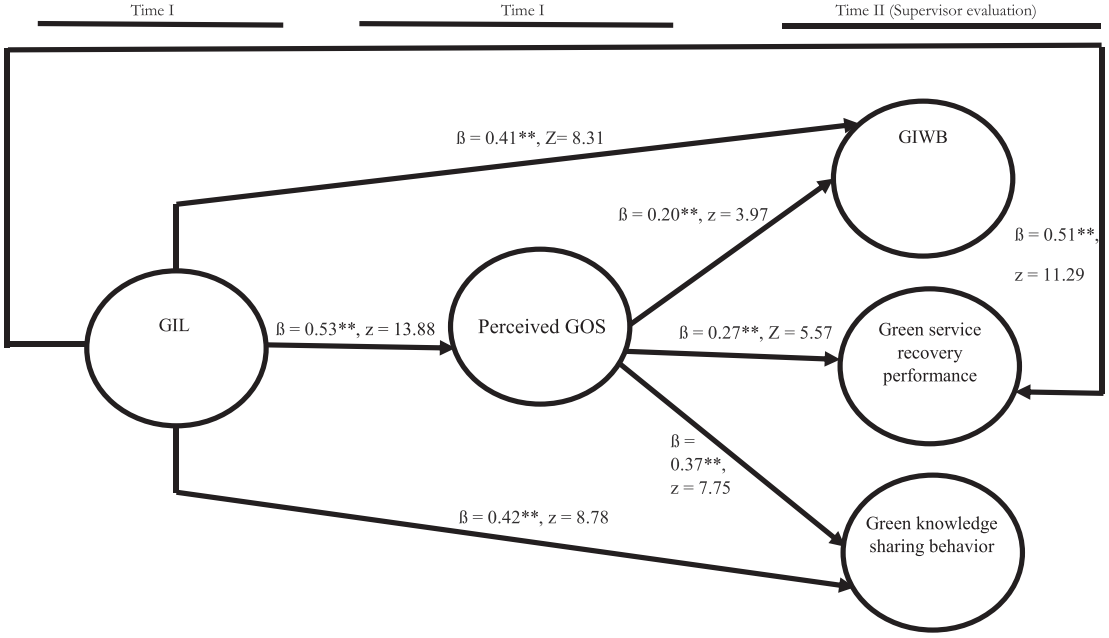
*$p < 0.01$, **$p < 0.001$

**Table 5**
**HTMT ratios**.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. GIL | | | | | |
| 2. Perceived GOS | 0.56 | | | | |
| 3. GIWB | 0.45 | 0.40 | | | |
| 4. Green service recovery performance | 0.63 | 0.61 | 0.54 | | |
| 5. Green knowledge sharing behavior | 0.55 | 0.58 | 0.47 | 0.43 | |

control variables of education and experience. The results of the structural equation model suggest that the data showed acceptable fit: $\chi^2 = 1329.49$; df = 458; $\chi^2/df = 2.903$; CFI = 0.911; TLI = 0.900; RMSEA = 0.066; SRMR = 0.081. According to the results (see Fig. 2), GIL was shown to have a positive impact on GIWB (ß = 0.41, $p < 0.01$), green service recovery performance (ß = 0.51, $p < 0.01$), and green knowledge sharing behavior (ß = 0.42, $p < 0.01$). These results supported our prediction for H1, H2, and H3. Moreover, GIL → perceived GOS link (ß = 0.53, $p < 0.01$) was significant, which lends support to H4. In addition, perceived GOS exerted a significant effect on GIWB (ß = 0.20, $p < 0.01$), green service recovery performance (ß = 0.27, $p < 0.01$), and green knowledge sharing behavior (ß = 0.37, $p < 0.01$). These findings lend support for H5, H6, and H7. It is also important to highlight that education was shown to be positively correlated with GIWB (ß = 0.087, $p < 0.05$). This suggests that the more education level an employee has, the higher GIWB this employee will show.

For mediating variables, we considered the lower level of confidence




Structural model fit indices ($\chi^2 = 1329.49$; df= 458; $\chi^2/df = 2.903$; CFI =0.911; TLI = 0.900; RMSEA = 0.066; and SRMR = 0.081).

GIL → Perceived GOS → GIWB (ß = 0.11, z = 3.81, LLCI = 0.05, ULCI = 0.16, p<0.01)

GIL → Perceived GOS → green service recovery performance (ß = 0.14, z = 5.21, LLCI = 0.09, ULCI = 0.20, p<0.01)

GIL → Perceived GOS → green knowledge sharing behavior (ß = 0.20, z = 6.76, LLCI = 0.14, ULCI = 0.25, p<0.01)

GIL = green inclusive leadership, Perceived GOS = perceived green organizational support, GIWB = green innovative work behavior
** significant at 0.01 level.

**Fig. 2.** Structural model

interval (LLCI) and upper level of confidence interval (ULCI). For the mediation effect, the results suggest that perceived GOS mediated the following relationships: GIL → GIWB (ß = 0.11, LLCI = 0.05, ULCI = 0.16, p < 0.01), GIL → green service recovery performance (ß = 0.14, LLCI = 0.09, ULCI = 0.20, p < 0.01), and GIL → green knowledge sharing behavior (ß = 0.20, LLCI = 0.14, ULCI = 0.25, p < 0.01). These results lend support for H8a, H8b, and H8c. Finally, GLI explained 27.7% of the variance in perceived GOS, in 30.2% GIWB, 48.6% in green service recovery performance, and 47.6% in green knowledge sharing behavior.

## 4. Discussion

This study aimed to test a new research model to examine how GIL impacted employees' green behaviors. Drawing on social exchange theory (Blau, 1964), social identity theory (Tajfel and Turner, 1985), and social learning theory (Bandura, 1977), the authors investigated the effects of GIL on GIWB, green service recovery performance, and green knowledge sharing behavior separately. Further, we examined the mediation effect of perceived GOS among the relationships.

Our results demonstrated that GIL is positively associated with GIWB. This implies that when leaders show openness towards environmental issues, employees are more likely to pay back to the leader with positive work behavior. This is consistent with the theoretical underpinnings rooted in social exchange theory (Blau, 1964). These results support previous empirical conclusions in hospitality, which indicated that pro-environmental leadership practices affect employees' GIWB (Aboramadan et al., 2021b) and green creativity (Bhutto et al., 2021). Second, our results suggested that GIL is positively associated with green service recovery performance. As expected, we found that GIL can affect the behaviors of employees when they deal with environment-related issues. This can be explained through social identity theory (Tajfel and Turner, 1985). According to this theory, leaders can create a shared identity for those who are concerned regarding environmental issues. Based on the findings, when employees feel that their leaders are approachable regarding green issues, they tend to outperform. The results lend support to previous studies, such as that by Darban et al. (2022), which found that employees' green recovery performance is impacted by green management practices. Third, we examined the relationship between GIL and green knowledge sharing behavior. The results showed that GIL has a significant effect on employees' green knowledge sharing behavior. Consistent with social learning theory (Bandura, 1977), we found that employees can learn from their leaders about how to behave with respect to green issues. Our results were in line with previous studies in hospitality, which suggested that green leadership practices affect employees' green outcomes (Aboramadan et al., 2021b; Bhutto et al., 2021). Fourth, our results illustrated that GIL is positively associated with perceived GOS. With a theoretical lens benefiting from POS theory (Rhoades and Eisenberger, 2002), this finding implies that GIL behaviors create a supportive eco-friendly work climate in which employees feel the care needed from their leaders regarding green management issues. Hence, it can be argued that the presence of GIL behaviors increases the confidence of employees that their workplace encourages and values their green initiatives. This outcome is in line with previous studies (e.g., Qi et al., 2019), which found that inclusive leadership encourages perceived OS. In addition, the findings support previous research in hospitality which has suggested that organizational resources (i.e., GHRM) positively and significantly impact perceived GOS (Aboramadan and Karatepe, 2021; O.M. Karatepe et al., 2022).

Furthermore, we examined the relationship between perceived GOS and green outcomes such as GIWB, green service recovery performance, and green knowledge sharing behavior. According to the results, perceived GOS was found to be positively associated with these three behaviors. Consistent with social exchange theory (Bandura, 1977), this finding suggests that when employees feel supported in terms of their green contributions to their organizations, they are more eager to engage in green behaviors. These results were in accord with prior studies in a service-based sector (e.g., Aboramadan et al., 2020a), and in a hospitality setting (e.g., O.M. Karatepe et al., 2022). The aforementioned studies found that perceived GOS affects employees' pro-environmental behaviors. Finally, the results showed that the mediation effect of perceived GOS was significant in the relationship between (a) GIL and GIWB (b) GIL and green service recovery performance, and (c) GIL and green knowledge sharing behavior. This implies that when GIL behaviors are displayed towards environmental matters, employees feel that their green values are very much supported by their organization; this, in turn, will result in increased perception of OS, and would ultimately lead employees to show positive green behaviors. Our results were also consistent with previous research (see Aboramadan et al., 2021a; O.M. Karatepe et al., 2022) which found that perceived GOS was found to play an intervening role in the relationship between green management practices and hotel employees' green work-related outcomes.

### 4.1. Theoretical contributions

Our study has several contributions to theory. First, this is one of the few studies which examine the role of GIL in generating positive green behavioral outcomes in hospitality research. To the best knowledge of the authors, the hospitality literature shows that there is only one study which has examined how GIL exerts a positive effect on green creativity among European hotel employees (see Bhutto et al., 2021). Second, we respond to scholarly calls made to extend green leadership research from examining its effects on green organizational outcomes to green individual outcomes (Luu, 2017). This was done in this research by examining the effect of GIL on three eco-friendly behaviors, namely GIWB, green service recovery performance, and green knowledge sharing behavior. In hospitality research, empirical evidence pertaining to the established relationships in this study does not exist. Third, our research contributes to the scarcity of the studies pertaining to investigating employees' pro-environmental behaviors (Karatepe et. al, 2021; Darban et al., 2022). Our research also contributes to the literature on the aforementioned green outcome variables, as less research has examined the antecedents of these variables. (see. Aboramadan et al., 2021b; T. Karatepe et al., 2022; Aboramadan et al., 2021a; Luu, 2018b). Finally, our research contributes to the hospitality literature regarding the role of perceived GOS as an intervening mechanism among the study's hypotheses. This is because research on perceived GOS support in a hospitality setting is still in its infancy stages (see Aboramadan and Karatepe, 2021). Furthermore, although perceived GOS has been demonstrated to affect green outcomes (Aboramadan et al., 2021a) and non-green outcomes (Aboramadan and Karatepe, 2021), evidence regarding the impact of perceived GOS on GIWB, green service recovery performance, and green knowledge sharing behavior in hospitality research is scarce.

### 4.2. Practical implications

Based on our study's findings, important implications for practice can be generated to provide insights for hospitality and tourism organizations. First, hospitality organizations should embrace GIL philosophy in their corporate agenda, since this leadership style contributes to encouraging positive green behavioral outcomes among employees, such as implementing green novel ideas, addressing customers' environmental complaints, and sharing green-related knowledge and information. Second, staffing policies in hospitality organizations should take into account hiring leaders whose behaviors are based on openness and availability to discuss and address environmental issues. Our study showed that GIL enables sustainable outcomes, through their socially involved approach to leadership that builds trust and integrity through open, sincere, and morally sound actions. Therefore, hospitality

organizations may consider training and coaching their leaders to promote an inclusive climate through being more open, available, and accessible to deal with environmental initiatives. To achieve each component of GIL at the same time, we recommend that hotel HR units should work together with leaders and assist them in acquiring the required green abilities and behaviors. Specifically, HR units should work closely with leaders to explain why green inclusion practices are vital, and also how leaders can contribute to achieving such practices. Along the same line of inquiry, we recommend that hotels take a more personalized approach to leaders' development and learning trajectories. On such occasions, the key focus is to improve leaders' green capabilities in order to enable employees to work in an environment that is characterized by green inclusion. Furthermore, hotels should consider inserting GIL behaviors into their compensation and promotion schemes. In other words, we recommend that hotels should work on their performance evaluation systems, to enable leaders to be assessed on their GIL behaviors in order to ensure that the desired behaviors are encouraged. This will assist leaders in adopting an inclusive mindset towards the environment. We also recommend that a feedback system should be established, in which employees can easily share their experiences about implementing GIL practices. For example, employees might provide their perceptions pertaining to GIL practices on a regular basis, and provide suggestions on how to improve them.

Third, our study highlights the importance of perceived GOS among employees, as it fosters their green behavioral outcomes. We highlight that when the organization values environmental contributions from their employees, this will generate favorable conditions for promoting positive environmental outcomes. Therefore, we encourage hospitality organizations to open doors towards employees' green contributions and feedback, and show a level of appreciation towards such contributions. Fourth, hospitality organizations should take serious steps toward enhancing GIWB, green service recovery performance, and green knowledge sharing behavior. This can be done by prioritizing the organization's green interests, through including these in their mission and vision statements. In addition, hospitality organizations are invited to continuously communicate their green interests through organizing training sessions which aim to raise environmental awareness among employees. Fifth, those organizations must show the importance of employees' green initiatives through financially and non-financially rewarding their green behaviors and practices. Our findings may guide hospitality organizations to consider fostering GIL to leverage sustainable tourism and to accomplish the green goals of organizations.

### *4.3. Limitations and future research*

The results of this research should be interpreted with caution, because of the following limitations. First, cause-effect conclusions from this study cannot be made due to the nature of the research design. Future research may consider carrying out a longitudinal study to establish causality among the research variables examined. Second, results cannot be generalized since the data come from employees working in 3-star hotels. Hence, future empirical endeavors may rely on data collected from wider categories of hotels. such as 4 and 5-star hotels and other hospitality sectors such as restaurants or tourism agencies. Third, our research examined the effect of GIL on only three green outcomes. Future research may extend our model by examining the effect of GIL on other green behaviors, such as recycling behavior, green voice behavior, and green work engagement. Furthermore, future research may consider examining the relative importance of other green leadership styles together with GIL. For instance, examining whether green servant leadership, GIL, or green transformation leadership might better predict green behavioral outcomes would enrich the hospitality literature on environmentally-specific leadership styles. Fourth, our research relies on data from a European context (Italy). Hence, future research may replicate the research models in contexts other than Europe, such as developing or emerging economies. Finally, it would be interesting to see whether GIL can generate non-green positive behavioral outcomes, such as job performance or creativity. In other words, it will be important to determine whether the effect of GIL is not only limited to encouraging environmentally friendly behaviors.

## 5. Conclusion

This study sought to address the research question: *To what extent does green inclusive leadership predict green organizational outcomes?* In this study we collected 436 manager-subordinate dyads (in Italian hotels) to test this research question and its associated hypotheses, using structural equation modelling. We found significant relationships between our variables and identified that GIL has a positive effect on GIWB, green knowledge sharing behavior, green service recovery, and perceived GOS. That is, when managers have and enact GIL, their employees feel their workplace is more supportive of sustainable views (perceived GOS), and they demonstrate greater green behaviors. In addition, sustained perceptions of GOS also mediated the relationship between manager-level GIL and employee-level green behaviors. That is, when the organization is also seen as supporting green outcomes, the effect the leader has on employees is increased. To conclude, hoteliers and managers seeking to build a culture of green organizational behavior should start by recruiting, developing, and cultivating their managers in the practices of GIL and ensuring their organization shows their support for green initiatives.

## Conflict of interest

The authors confirm that there is no conflict of interest in this study and this study has received financial support which is acknowledged below Dataset is available upon request.

## Data Availability

Data will be made available on request.

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