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The importance of green practices for hotel guests: does gender matter?

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ABSTRACT

Due to growing consumer awareness of environmental problems, more and more hotels have been developing green practices in response to the environmental concerns of their guests and improve their image. This study aimed to test a model for analyzing the incidence of green practices as drivers for generating positive hotel image and guest trust and satisfaction, evaluating the moderating role of guest gender in these relationships. Based on a personal survey of 302 guests at 3 and 4-star hotels in Bogotá, evidence was obtained for the positive relationship between sustainable practices and the variables considered, with certain differences depending on the gender of each guest. Thus, this study highlights the importance for hotels located in developing countries of implementing green practices, in order to improve their image and increase the degree of trust and satisfaction of their guests to maintain long-term relationships.

1. Introduction

Tourism is sector of great importance for economy and society (Juvan & Dolnicar, 2017), accounting for 10.4% of global Gross Domestic Product, 7% of world exports, and 10% of employment (WTTC, 2018). On the downside, however, tourism activities generate 8% of greenhouse gases (Lenzen et al., 2018). Hotels consume high amounts of resources in its daily operations (Verma & Chandra, 2016, 2018), with a detrimental impact on the environment (Legrand et al., 2016). For this reason, environmental sustainability has emerged as a vital issue in the marketing strategies of such companies (Legrand et al., 2016).

This is evidenced by the fact that more and more hotels are incorporating green practices in their daily activities (Martínez García de Leaniz et al., 2018). One of the main reasons for implementing sustainable practices is the environmental concern of guests, which drives their pro-environmental decisions (Han et al., 2018).

The hotel sector operates in a hypercompetitive environment, facing an increasing demand for more than just the traditional services offered (Kandampully & Suhartanto, 2000). Although the relationship between the attributes of the services offered by a hotel and guest satisfaction has been extensively analyzed in literature (Albayrak & Caber, 2015), few studies have specifically addressed the relationship between sustainable features and tourist satisfaction (Trang et al., 2019; Yu et al., 2017; Yusof et al., 2017). Moreover, the results of previous studies on consumers' perceptions of the ecological practices of hotels are inconclusive. In this sense, while authors such as Berezan et al. (2014) argue that ecological initiatives are key drivers influencing guest hotel choice, other authors such as Yu et al. (2017) highlight that, although guests state that they are worried about the environmental problems, they may not act in a manner consistent with their concerns. Similarly, and despite the abundant literature on hotel image as a variable on which to base a competitive framework that is difficult to replicate (Rahman et al., 2012; Stanaland et al., 2011), emphasis has been placed on the need for additional research to assess the eventual influence of such environmental measures on the consolidation and improvement of hotel image (Palacios-Florencio et al., 2016). In addition, more and more companies are beginning to value the importance of implementing environmental initiatives in their businesses as a tool for enhancing customer trust (Ahuja, 2015). In this respect, the challenge consists in determining whether a strong and innovative environmental strategy enables hotels to increase guest trust.

Previous research on hotels has been mainly undertaken in developed countries (Leonidou et al., 2015), while research focusing on developing countries is still scarce (Myung et al., 2012). In Colombia, although the Colombian market is supported by sustainability programs for companies with so-called green activities, few studies have been conducted on these practices (Cañas, 2017). Therefore, more empirical evidence is necessary, since the ecological practices used in developing countries may be different from those implemented in developed nations (Singjai et al., 2018). Additionally, although the impact of gender on decision-making has been demonstrated in different consumer-related scenarios (Kim, 2012; Wang et al., 2018), few attempts have been made to determine whether this demographic characteristic moderates the relations between environmental initiatives, hotel image, and guest trust and satisfaction.

In this context, focusing on hotels, this study considered the following objectives: (1) evaluate how the ecological practices developed by hotels influence hotel image and the trust and satisfaction of Colombian guests; (2) study the relationships between hotel image and guest trust and satisfaction; (3) analyze the role that the gender of guests plays in the relationships between these variables, with a view to obtaining useful findings for both research in the hotel sector and professionals in the industry. Furthermore, we understand that the contribution of the hospitality industry for the economic development in Colombia, and the recent attention paid to sustainable development and, in particular, green practices, may provide valuable insights that might inspire further research in countries aiming to conciliate economic growth through tourism and sustainable development.

2. Review of the literature and hypotheses

2.1. Green practices

The green concept is attracting more and more attention from both companies and consumers and has acquired greater relevance in recent years (Han & Kim, 2010). Given this phenomenon, today more and more hotels are incorporating green practices in their daily activities to minimize their environmental impact (Martínez García de Leaniz et al., 2018; Verma & Chandra, 2018). These practices have been defined as *"environmentally friendly, that is, doing business in a way that reduces waste, conserves energy, and generally promotes environmental health"* (Rahman et al., 2012, p. 721).

Noteworthy environmental measures developed by hotels include the following: water savings through towel and sheet reuse programs or the use of low-flow faucets and showers; energy savings through the implementation of light sensors or the replacement of central air conditioning with individual air conditioning; ecological purchases such as environmental friendly cleaning products or food from local growers and producers; reducing waste emissions through the use of rechargeable soap dispensers or recycling containers; and environmental education promotion (Alonso-Almeida et al., 2017). Authors such as Kasimu et al. (2012) have classified green practices into four groups: energy management, waste management, water savings and general support for green practices. In contrast, Kim et al. (2012) classified such practices into five programs: (1) solid waste and water in rooms, (2) energy, (3) solid waste and water in cleaning, (4) water saving options for customers and (5) biodiversity.

Reasons in support of the implementation of environmental initiatives in the hotel sector include the following: competition (Kularatne et al., 2019), improving competitive position in the market (Yadav & Pathak, 2016; Yi et al., 2018), demonstrating better social responsibility and good reputation (Chen et al., 2018), reducing costs (Bohner & Schlüter, 2014) or complying with government regulations designed to protect the environment (Han, 2015).

However, research on consumer behavior has shown that one of the most important motivations for hotels to adopt green practices are customers (Kularatne et al., 2019), as consumers are increasingly concerned about the problems related to climate change (Juvan & Dolnicar, 2017; Rahman et al., 2012). In this respect, several authors have shown that tourists are willing to give up a certain degree of comfort and luxury to support hotels that have adopted environmentally-friendly initiatives (Kim & Han, 2010; Manaktola & Jauhari, 2007) and even to make certain financial sacrifices (Kim et al., 2017; Yusof et al., 2017). In their work, García-Pozo et al. (2019) show that environmental commitment by hotel establishments, and therefore their greater environmental awareness, is highly relevant to Andalusian consumers. In contrast, other studies have demonstrated that, although consumers are aware of environmental issues, not all of them are familiar with the environmental measures implemented by hotels (Gil-Soto et al., 2019; Wang et al., 2018). In this sense, the main results of the study of Gil-Soto et al. (2019) suggest that even though customers perceive green efforts regarding six items (i.e. energy, water, purchasing, waste, site and education and innovation), they do not discern hotels' level of environmental commitment.

Moreover, according to Yi et al. (2018), some guests feel that hotels use green initiatives as a promotional instrument or to improve the firm performance. Many consumers are only aware of the concept of "eco-friendly hotels" and, consequently, do not consider eco-friendly practices as a priority when choosing a hotel, preferring conventional hotels (Choi et al., 2015).

2.2. Image

Image has been described as the beliefs, behaviors or impressions of individuals with respect to a firm, product, brand or destination (Durna et al., 2015). In literature, the concept of a "firm image" has aroused great interest due to its strong influence on consumer behavior and decision-making (Durna et al., 2015; Martínez, 2015). Therefore, image emerges as a relevant area of research in tourism in general, and in the field of hotels in particular (Durna et al., 2015; Lahap et al., 2016; Wang et al., 2018; Zhang et al., 2018). Generating positive intentions in tourists becomes a relevant objective for hotels, given that the hotel industry is highly competitive and that essentially all hotels provide similar services (Xiang et al., 2015), improving image is a useful strategy for a hotel to differentiate from its competition (Bowen & Chen, 2001). In this respect, image may be considered a crucial factor for the success of these types of companies (Dhillon, 2013), while also playing a key role in the process by which tourists select hotels (Lahap et al., 2016).

Concerning green hotels, Wang et al. (2018, p. 428) define the green image as *"a series of perceptions about a firm, each perception relating to environmental commitments and concerns, which results from the firm's associations in consumers' memories"*. In this regard, image represents consumers' perceptions that a firm is committed to protecting the environment, being an important element for eco-friendly hotels to take advantage of promotional opportunities (Alonso-Almeida et al., 2017).

Today, many hotels are beginning to invest in the implementation of green practices to strengthen their corporate image (Palacios-Florencio et al., 2016, 2018; Wang et al., 2018). In this sense, literature has shown that the eco-friendly practices adopted by hotels offer different opportunities, helping them to, for example improve stakeholder relations or their corporate image and reputation, therefore boosting the demand from environmentally-concerned consumers (Martínez García de Leaniz et al., 2018). Therefore, the first hypothesis was postulated:

> H1: Hotel's green practices directly and positively influence hotel image as perceived by hotel guests.

2.3. Trust

Trust has been described as a critical factor in situations characterized by high degrees of uncertainty, as is the case with services (Morgan & Hunt, 1994), given that consumers make decisions before actually experiencing a service (Berry & Parasuraman, 2004). In the context of green marketing, trust has captured the interest of researchers (Vaishnavi et al., 2014), given that consumers "use" trust to relieve their

anxiety in their purchases of environmentally-responsible products or services (Ponnapureddy et al., 2017). According to Moorman et al. (1993), trust is defined as *"willingness to rely on acquaintances that consumers are confident in"*. Based on this definition, authors such as Martínez (2015, p. 903) consider green trust as the *"willingness to rely on an exchange partner in whom one has confidence because of its environmental performance"*.

For tourists choosing an eco-friendly hotel, the certainty about the active involvement of the selected hotel in the environment conservation is critical (Gao & Mattila, 2016), since several hotels do not conform to the regulations established by the authorities and engage in deceitful behavior (Chen & Chang, 2013). In this sense, trust in the environmental measures implemented by eco-friendly hotels is critical, given that consumers may suspect that the reason for green practices could be cost savings for the hotel or improvement of its reputation, rather than any real commitment to the environment (Sukhu & Scharff, 2018). Authors such as Palacios-Florencio et al. (2016, 2018) and Balaji et al. (2019) find empirical support for the positive influence of environmental practices implemented by hotels on the trust of their guests. Accordingly, the following hypothesis was considered:

H2: Hotel green practices directly and positively influence the trust of hotel guests.

Literature has shown that the image of a firm is reflected in the perceptions of its products that are retained in consumer memory (Chinomona, 2016). Therefore, a favorable firm's image is positively related to the trust customers have in its products (Chen, 2010; Chinomona, 2016). Similarly, with respect to the hotel industry, some authors have also positively related corporate image with guest trust (Palacios-Florencio et al., 2016; Wang et al., 2018). A good image positively affects the trust of tourists, thus reducing risk and uncertainty when it comes to selecting a specific hotel for their vacation (Kim et al., 2008). Based on the foregoing, we posit:

H3: Hotel image directly and positively influences the trust of hotel guests.

2.4. Satisfaction

Customer satisfaction, understood as the cognitive gap between expectations and actual experience with the service (Chiu et al., 2014; Oliver, 1977), is essential for firm survival in general (Pizam et al., 2016), and for the survival of hotels in particular (Ren et al., 2016).

As far as green hotels are concerned, Martinez (2015, p. 902) defines green satisfaction as *"a pleasure level of consumption-related fulfilling to satisfy customers' environmental desires, sustainable expectations and green needs"*. This consideration is crucial for assessing the influence of eco-friendly practices on guest satisfaction (Merli et al., 2019). In this regard, some studies have concluded that a positive perception of eco-friendly initiatives implemented by hotels makes an important contribution to tourist satisfaction (Manaktola & Jauhari, 2007; Merli et al., 2019; Verma & Chandra, 2018; Yu et al., 2017; Yusof et al., 2017). From the foregoing, the authors considered that the environmental measures developed by hotels are an important driver of guest satisfaction and, thus, posit:

H4: Hotel green practices directly and positively influence the satisfaction of hotel guests.

Several authors have shown that the positive image of a firm is an important determinant for increasing the level of customer satisfaction (Prayag et al., 2017; Wang et al., 2018). However, Clemes et al. (2014) concluded that, following a study on mobile communications service providers, the fact that a customer has a favorable image of a provider does not necessarily lead to customer satisfaction with the services provided by that provider.

In the green context, Jeong et al. (2014) argue that consumers' perceptions of a firm eco-friendly image are positively related to their attitudes towards that business. In this respect, several authors consider that image plays an important role in guest satisfaction (Lahap et al., 2016; Martínez, 2015; Wang et al., 2018). According to the aforementioned studies, it would be fair to say that hotel image is positively related to customer satisfaction. Thus, following hypothesis was proposed:

H5: Hotel image directly and positively influence the satisfaction of hotel guests.

Traditionally, the literature has argued that trust and satisfaction are closely related constructs (Martínez, 2015; Martínez & Rodríguez del Bosque, 2013), with trust being considered an antecedent of satisfaction (Chiou & Pan, 2009). Previous research in hospitality argues the positive influence of trust on guest satisfaction (Martínez, 2015; Martínez & Rodríguez del Bosque, 2013). Therefore, trust in a firm may generate a favorable attitude towards it, enhancing customer satisfaction. Based on the foregoing, the following hypothesis was formulated:

H6: Guests' trust directly and positively influences the satisfaction of hotel guests.

2.5. The moderating effect of gender

Consideration of socio-demographic characteristics as variables that influence and moderate consumption patterns is increasingly based on marketing literature. In this respect, one of the socio-demographic variables most widely investigated in literature on consumer behavior is gender. However, although previous studies have shown that gender plays a crucial role in consumer behavior in the eco-friendly hospitality industry (Navrátil et al., 2016; Wang et al., 2018), research results published in literature are not always consistent (Wang et al., 2018). For example, several authors have highlighted that women are more environmentally responsible consumers than men, and present higher levels of knowledge, environmental concern and participation in eco-friendly actions than men (Han et al., 2011; Kim, 2012; Wang et al., 2018). In contrast, other authors have claimed the opposite (Kang et al., 2012) or conclude that gender does not significantly influence levels of environmental concern (Alibeli & White, 2011; Sevilla-Sevilla et al., 2019). For example, the results obtained by Sevilla-Sevilla et al. (2019) allow to affirm that when choosing a specific hotel, issues related to the environmental dimension of Corporate Social Responsibility have the same importance for both genders. Thus, in line with mainstream literature, gender was expected to play the role of moderating variable in the hypothesized relationships in our proposed model. The following hypothesis was therefore proposed:
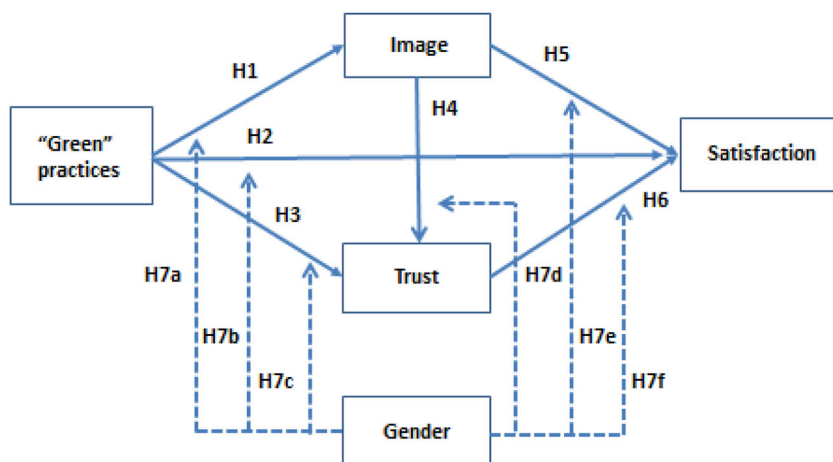
Figure 1. Conceptual model.
Source: Authors' proposal

H7: Compared to men, for women: 1) hotel green practices have a greater influence on hotel' image (H7a), trust of hotel guests (H7b) and satisfaction of hotel guests (H7c); 2) hotel' image has a greater influence on trust of hotel guests (H7d) and satisfaction of hotel guests (H7e); and 3) trust of hotel guests has a greater influence on satisfaction of hotel guests.

The proposed model relating the different constructs is shown in Figure 1.

3. Methodology

3.1. Measurement development

Nineteen (19) items were used to measure green practices, grouped into four dimensions, adapted from Kasimu et al. (2012). Guests' perceptions of the environmental practices adopted by the hotels studied was assessed through a 7-point Likert scale reflecting the degree of importance attached to each of the statements presented in each item (where 1 = not important at all and 7 = very important). The items related with image were adapted from Palacios-Florencio et al. (2016). As regards trust, the five items proposed by Chen (2010) were used. Finally, to measure satisfaction, three items were used based on the work of Martínez (2015). All of these items were valued using a 7-point Likert scale (1 = "totally disagree" and 7 = "totally agree"). A questionnaire was first drafted in English and then translated into Spanish. A back-translation was produced to endure equivalence of the questionnaires in English and Spanish. Once the questionnaire had been prepared, to verify that the respondents understood the items considered, a pilot survey was carried out with the participation of 10 guests. Then, the final questionnaire was drafted.

3.2. Data collection

To test the proposed hypotheses, a quantitative study was carried out through a face-to-face survey of Colombian tourists staying in the city of Bogotá at three and four-

Table 1. Sample characteristics.

	N	%		N	%
Gender			Occupation		
Male	177	58.6	Student	21	7.0
Female	125	41.4	Employee	176	58.3
Age			Self-employed	82	27.2
18-23	32	10.6	Unemployed	11	3.6
24-38	95	31.5	Housekeeper	6	2.0
38-58	112	37.1	Retired	6	2.0
59-72	59	19.5	Educational level		
>72	4	1.3	Secondary	6	2.0
Socioeconomic level*			Technological	123	40.7
Strata 1	–	–	Higher education	139	46.0
Strata 2	2	0.7	Postgraduate	34	11.3
Strata 3	29	9.6	Travel purpose		
Strata 4	114	37.7	Leisure	125	41.4
Strata 5	120	39.7	Business	175	57.9
Strata 6	37	12.3	Other	2	0.7

*Strata 1 represents the lowest socioeconomic level and 7 the highest one, according to the Colombian National Administrative Department of Statistics (DANE).
Source: Author's own calculation.

star hotel chain hotels that had implemented an innovative management style from the environmental standpoint, as described in their sustainability reports. The authors have selected the hotels based on the sustainable practices carried out by them to offer more sustainable services. These initiatives include: energy and water conservation, recycling and waste reduction and purchase of organic products, among other. Besides, these hotel chains have sustainability certifications, such as Green Key, Green Leaders, Green Globe, and occupy the first positions in the Corporate Sustainability Assessment for their climate strategy and environmental performance. Initially, 19 hotels of the city were considered to participate in this study. Among them, managers of 9 hotels agreed to cooperate with the researchers.

The data were collected between September and November 2018, through personal interviews conducted in the halls of the hotels. A final sample of 302 valid questionnaires was obtained. In PLS-SEM, the sample size should be at least ten times the largest number of items of a specific latent variable. In this study, the largest number of indicators in the measurement model was 19 for green practices; hence, the sample complied with the minimum size required (Hair et al., 2011).

3.3. Sample profile

To ensure that a representative sample of guests was obtained, quota sampling was used with age of tourists visiting Bogotá according to the Bogotá Tourism Observatory (2017). Table 1 shows the sample distribution, where more than half of the respondents were men (58.6%). Regarding age, 79.2% were between 18 and 58 years old. The majority of persons surveyed had technical and university qualifications (86.7%). In terms of employment status, 85.5% were employees or self-employed. Finally, the socioeconomic strata in which the Colombian population can be classified are six, named as follows: 1) low-low; 2) low; 3) medium-low; 4) medium; 5) medium-high; and 6) high. This stratification is based on the characteristics of the homes and their urban environment and represents a methodological

option based on the fact that the signifier housing-environment expresses a demonstrable socio-economic way of life taking into account the exceptions that confirm it (DANE). In this sense, with respect to social stratum, the majority belonged to strata four, five and six (89.7%).

4. RESULTS

The analysis of the results obtained was divided into two phases. Firstly, an Exploratory Factor Analysis was performed to analyze the possible dimensions of green practices. Secondly, the instrument was validated through a Confirmatory Factor Analysis and the structural model was estimated using Partial Least Squares (PLS).

4.1. Exploratory factor analysis

To ascertain whether the dimensions used in this study to measure green practices were the same as those considered in previous studies, an Exploratory Factor Analysis with VARIMAX rotation was conducted to determine if the items were grouped as initially proposed. As a result, a KMO value of 0.941 was obtained. For the Bartlett's test of sphericity, a Chi-square value of 10.929.990 (p value: 0.000) was obtained, thus validating the data matrix for continuation with the factor analysis process. In view of the matrix of rotated coefficients, two items were eliminated since their weights were below 0.5 (Nunnally & Bernstein, 1994); thus, the green practices construct was divided into the four dimensions of the original scale: energy management, waste management, water conservation and general support to sustainable tourism practices.

4.2. Confirmatory factor analysis

After this initial exploratory phase, the results were subjected to a Confirmatory Factor Analysis. To analyze the reliability of first-order reflective constructs (see Table 2), the internal consistency criterion, using Cronbach's alpha coefficient, and the composite reliability measure were used. To assess convergent validity, average extracted variance (AVE), whose value should be higher than 0.5 (Fornell & Larcker, 1981), and indicator loads, which must be equal to or greater than 0.707, were analyzed (Carmines & Zeller, 1979), proving to be statistically significant. The PLS-SEM analysis is based on the *bootstrapping* procedure to test the significance of loads and *paths*.

As shown in Table 2, all the indicators presented adequate values, except for the fifth indicator of trust ("This brand keeps promises and commitments for environmental protection") with a load lower than the cut-off value at 0.591. For this reason, this indicator was eliminated to determine whether there was any improvement in composite reliability and the *bootstrapping* technique was applied again. Since no substantial improvements were observed in the Cronbach's alpha coefficient, composite

Table 2. Measurement model evaluation results.

Constructs/Indicators	Mean	St.dev.	Loading
Energy Management (α = 0.823; CR= 0.894; AVE= 0.738)			
Installation of occupancy sensors/key card	4.140	1.600	0.813*
Energy efficient equipments and products	4.680	1.410	0.888*
Renovation of facilities	4.760	1.450	0.875*
Waste Management (α = 0.906; CR = 0.928 ; AVE= 0.685)			
The use of refillable soap and shampoo dispenser	4.51	1.62	0.871*
The use of reusable items of cloth napkins and glass cup	4.65	1.52	0.691*
The use environmentally friendly cleaners/detergents	4.60	1.49	0.836*
Recycle bins in front and back-of house areas	4.80	1.61	0.880*
Bulk purchase of food items and cleaning agents	4.65	1.43	0.773*
Composting of kitchen waste	4.64	1.58	0.896*
Water Conservation (α = 0.861; CR= 0.900; AVE= 0.644)			
Treated waste water for garden irrigation	4.33	1.60	0.694*
Reuse linens and towels	4.25	1.68	0.849*
Low-water-volume toilets	4.47	1.49	0.884*
The use of dual piping system	4.56	1.65	0.826*
Water meters in the guestrooms	4.37	1.58	0.745*
General Support to sustainable tourism practices (α = 0.899 ; CR= 0.937; AVE= 0.831)			
Environmental Management involving waste, energy, and water conservation	4.99	1.46	0.919*
The display of leaflets in hotel rooms	5.07	1.42	0.948*
Hiring of environmental management advisor	5.01	1.47	0.867*
Trust (α = 0.973; CR = 0.979 ; AVE= 0.904)			
I feel that this brand's environmental commitments are generally reliable	4.50	1.26	0.965*
I feel that this brand's environmental performance is generally dependable	4.46	1.20	0.964*
I feel that this brand's environmental argument is generally trustworthy	4.44	1.22	0.964*
This brand's environmental concern meets my expectations	4.32	1.21	0.919*
This brand keeps promises and commitments for environmental protection	4.52	2.46	0.591
Satisfaction (α = 0.960; CR= 0.974; AVE= 0.926)			
The choice of this hotel firm due to its environmental commitment makes me happy	4.43	1.34	0.965*
I consider it is correct to stay in this hotel firmbecause of its environmental commitment	4.48	1.29	0.948*
I am satisfied with this hotel firmbecause of its environmental performance	4.44	1.31	0.974*

α= Cronbach's Alpha; CR = Composite reliability; AVE = Average Variance Extracted;.
*p < 0,01.
Source: Authors' own calculation.

reliability (CR) and AVE values, the decision was taken to not eliminate it in order to avoid losing the information contained in the item.

For the image variable, since this was defined as a formative construct, it was evaluated at indicator level by assessing possible multi-collinearity, through the variance inflation factor (VIF) and the assessment of the magnitude of its weights and its significance. VIF values greater than 3.3 are considered to indicate high collinearity (Diamantopoulos & Siguaw, 2006). After elimination of four indicators that did not meet the above criteria, the results are reproduced in Table 3.

Then, a new model was created with a new second-order variable called green practices, which, according to the four types of multidimensional models proposed by Jarvis et al. (2003), was defined as type II, i.e. reflective-formative. Consequently, as was the case with the image variable analyzed above, the measurement of the green practices variable was analyzed through the variance inflation factor (VIF) and the weights, the results of which are presented in Table 4.

In terms of discriminant validity, the square roots of AVE of the two reflective constructs (trust and satisfaction) were greater than the highest correlation with any other construct in the model (Table 5), thus complying with the Fornell and Larcker criterion (1981).

Table 3. Measurement model: Image.

Indicators	Weight	VIF	t	p-value
The interior of the hotel is in accordance with its category	0.201	1.884	4.688	0.000
I distinguish the establishments of this hotel chain perfectly	0.224	2.188	7.631	0.000
This hotel is renowned for its good social behavior	0.736	1.436	7.222	0.000

Source: Authors' own calculation.

Table 4. Measurement model of second order construct.

Constructs	Weight	VIF	t	p-value
Energy Management	0.322	1.510	6.249	0.000
Waste Management	0.399	1.766	6.700	0.000
Water Conservation	0.919	1.495	10.749	0.000
General Support to sustainable tourism practices	0.462	1.891	7.708	0.000

Source: Authors' own calculation.

Additionally, for the HTMT ratio, which consisted in analyzing whether the mono-trait-heteromethod (MTHM) correlations were greater than the heterotrait-heteromethod (HTHM) correlations, it was concluded that discriminant validity existed since its value was less than 0.9 (Henseler et al., 2015), specifically 0.738, thus confirming the discriminant validity of the reflective constructs of the measurement model (i.e. trust and satisfaction).

4.3. Structural model and hypotheses testing

Upon check of the psychometric properties of the measuring instrument, the standardized *paths* coefficients (β) were estimated using the *bootstrapping* technique (Henseler, 2017) with 5,000 sub-samples. As shown in Table 6, the paths coefficients were significant in all cases and in the sense indicated by the hypotheses. Thus, firstly, the green iniciatives implemented by the hotels had a positive and significant impact on hotel image and on guests' trust and satisfaction, respectively, thus supporting hypotheses H1, H2 and H3. Secondly, the results showed that hotel image positively and significantly influenced tourist trust and satisfaction, thus supporting hypotheses H4 and H5, respectively. Finally, our analysis confirmed that trust positively and significantly influences guest satisfaction, thus confirming hypothesis H6. The results indicate that the proposed model has 57.0% of explanatory power for customer satisfaction with $R^2 = 0.570$. To assess the model fit, the Goodness of Fit (GoF) index for PLS-SEM was calculated. In particular, the conceptual model used in this study yielded a Goodness of Fit (GoF) index value of 0.649, which indicates a very good model fit (Wetzels et al., 2009).

4.4. Importance-performance map analysis (IPMA)

Standard PLS-SEM analyses provide information on the relative importance of constructs in explaining other constructs in the structural model. Information on the importance of constructs is relevant for drawing conclusions. The importance-performance map analysis (IPMA) extends the results of PLS-SEM by also taking the performance of each construct into account (Ringle & Sarstedt, 2016). IPMA presents

Table 5. Fornell-Larcker discriminant validity criterion.

	1	2	3	4
Green practices	**NP**			
Image	0.383	**NP**		
Trust	0.537	0.741	**0.951**	0.738
Satisfaction	0.434	0.694	0.714	**0.962**

On the diagonal: square root of the AVE values. Below the diagonal: correlations. Above the diagonal: HTMT values; NP = Not Applicable.
Source: Authors' own calculation.

Table 6. Structural model results.

Hypothesis	Original Sample	t	p-value
H1: Green practices – Image	0.383	7.535	0.000
H2: Green practices – Trust	0.295	7.218	0.000
H3: Green practices – Satisfaction	0.574	11.026	0.000
H4: Image – Trust	0.627	16.219	0.000
H5: Image – Satisfaction	0.365	3.237	0.001
H6: Trust – Satisfaction	0.444	4.905	0.000

R^2(Image)= 0.249; R^2(Trust)= 0.623; R^2(Satisfaction)= 0.570; Q^2(Image)= 0.089; Q^2(Trust)= 0.532; Q^2(Satisfaction)= 0.503.
Source: Authors' own calculation.

a contrast of importance (i.e. total effect of predecessor constructs in predicting a target construct) and performance (i.e. average latent variable scores) and its goal is to identify predecessors which have a relatively low performance but high importance for the target constructs (Ringle & Sarstedt, 2016). A one-unit point increase in the performance of the predecessor construct will increase the performance of the target construct by the total effect size (i.e. importance) of the same predecessor construct (Ringle & Sarstedt, 2016). In our case, guest satisfaction is a target construct, which is predicted by three predecessors: green practices, image, and trust (see Figure 1). A complete list of importance-performance values is provided in Table 7.and results are presented in Figure 2.

For a better orientation, the researchers also draw two additional lines in the importance-performance map: the mean importance value (i.e. a vertical line) and the mean performance value (i.e. a horizontal line) of the displayed constructs (see Figure 2). According to Ringle and Sarstedt (2016) when analyzing the importance-performance map, constructs in the lower right area (i.e. above average importance and below-average performance) are of the highest interest to achieve improvement, followed by the higher right, lower left and, finally, the higher left areas.

Looking at the lower right area of the importance-performance map, firstly, it is noted that trust and water conservation have relatively low performances of 53.835 and 56.023, respectively, but highly important (0.200 and 0.344). These findings are in line with the previous studies in this field. For example, Millar and Baloglu (2011) and Yi et al. (2018) also observed that energy and water conservation are highly important to guests. Hence, when hotel managers aim at increasing the performance of satisfaction, their first priority should be to improve the performance of guests' trust and aspects related to water conservation, as these constructs have the highest (above average) importance, but a relatively low (below average) performance. Secondly, with a total effect of 0.600, the importance of image is particularly high. Therefore, a one-unit increase in the performance of image would increase the

Table 7. Importance-performance map analysis for customer satisfaction.

Latent variables	Importance	Performance
Energy Management	0.210	57.198
Waste Management	0.087	60.303
Water Conservation	0.344	56.023
General Support to sustainable tourism practices	0.033	65.728
Image	0.600	62.639
Trust	0.449	55.835
Mean value	0.287	59.621

Source: Authors' own calculation.
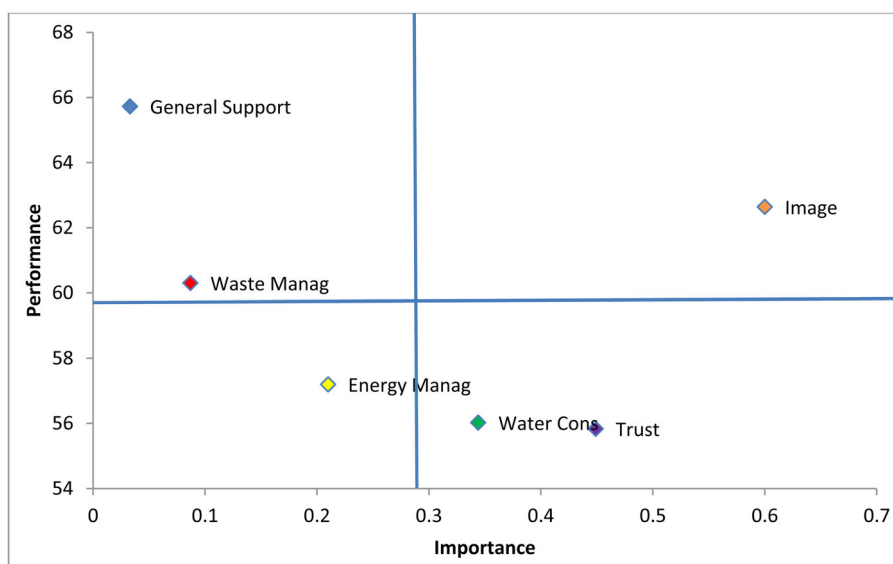
Figure 2. Importance-performance map of the target construct Satisfaction.
Source: Authors' own calculation.

performance of satisfaction by 0.600 points (ceteris paribus). Thirdly, our findings have revealed that on energy management hotels have the lowest performance (57.198) and the lowest importance (0.210), respectively; which means that there is great room for improvement in this area. Finally, issues related to waste management and general support to sustainable tourism practices follow as the fourth priority.

4.5. Group difference testing

After verifying the relationships considered in the causal model, we were interested in determining whether there were any statistically significant gender-related differences in the aforementioned relationships. To do so, a multi-group analysis (PLS-MGA) was performed to test the null hypothesis that the absolute difference between path coefficients between the groups was equal to zero. As a previous step, according to Henseler et al. (2016), the three-step MICOM (Measurement Invariance of Composite Models) procedure must be applied in order to analyze the invariance of composite models. Following this procedure, total measurement invariance was

Table 8. Results of Invariance Measurement Testing Using Permutation.

Constructs	Conf. Invar	Compositional Invariance		Partial Measur. Invar. Estab.	Equal Mean Assessment		Equal variance assessment		Full Measur. Invar Estab
		C = 1	5%		Diff	Confidence Interval	Diff	Confidence Interval	
Green practices	Yes	0.961	0.813	Yes	0.043	[-0.222;0.235]	0.129	[-0.222; 0.235]	Yes
Image	Yes	0.974	0.967	Yes	0.020	[-0.227; 0.225]	0.008	[-0.249; 0.270]	Yes
Trust	Yes	1.000	1.000	Yes	0.077	[-0.213; 0.234]	−0.192	[-0.268; 0.302]	Yes
Satisfaction	Yes	1.000	1.000	Yes	0.022	[-0.221; 0.241]	0.272	[-0.313; 0.341]	Yes

Source: Authors' own calculation.

Table 9. Results of multigroup analysis (female and male).

Hypothesis	Path Coeff female	Path Coeff male	Path Coeff. Differ. (female-male)	P-value difference		Supported? (MGA/Per.Test)
				Henseler's MGA	Permutation Test	
H1:Green practices – Image	0.389	0.385	0.004	0.509	0.977	No/No
H2:Green practices – Trust	0.599	0.394	0.205	0.009	0.005	Yes/Yes
H3:Green practices – Satisfaction	0.145	0.092	0.053	0.767	0.504	No/No
H4:Image – Trust	0.590	0.503	0.087	0.873	0.284	No/No
H5:Image – Satisfaction	0.989	0.050	0.939	0.999	0.000	Yes/Yes
H6:Trust – Satisfaction	0.888	0.139	0.749	0.000	0.000	Yes/Yes

Source: Authors' own calculation.

established (see Table 8), which is a prerequisite for comparing and analyzing the differences between two groups by MGA based on PLS-SEM results.

After completion of the MICOM procedure, the results of the two methods used were reported to demonstrate the significance of the differences in the *path* coefficients obtained in the sub-sample analysis (the MGA and the permutation test) (see Table 9). MGA directly compares *bootstrap* estimates specific to a group of each sample. A p-value of the differences between the coefficients of less than 0.05 or greater than 0.95 indicates significant differences at a 5% level of significance between the coefficients between the two subsamples (Henseler et al., 2009). The permutation test also provides a p-value, the differences being significant when this value is less than 0.05.

Based on the findings obtained, it is worth highlighting the existence of significant differences in the strength of the relationships between green practices and trust, and image and trust with respect to satisfaction. The aforementioned relationships were stronger for women. This evidence is aligned with the results reported in previous research, insofar as women are more environmentally concerned and engaged in eco-friendly actions than male guests (Han et al., 2011; Kim, 2012; Wang et al., 2018), experiencing more trust in the eco-friendly practices implemented by hotels, which in turn increases their level of satisfaction with such practices. Moreover, as already demonstrated previously by other authors (e.g. Kandampully & Suhartanto, 2000), people with a favorable image of service have a positive perception of the quality of that service, thus enhancing their level of satisfaction. The results reported here indicate that the greater satisfaction expressed by women can be explained by the degree to which they feel more "in tune" with green initiatives, possibly suggesting that female guests tend to be more satisfied than male in the context of green hotels.

5. Discussion, implications, limitations and future research

Literature acknowledges the relevance of analyzing the determinants of tourist behavioral intentions with respect to hotels and their relative importance in the provision of the service. In this line, the present work provides evidence on the positive impact of the environmental measures implemented by hotels on their image and on guest trust and satisfaction. In other words, these findings allow to conclude the need to invest in the implementation of green initiatives, in order to add value to the experience of staying at an establishment, thus generating customer trust and satisfaction. This study also attempted to verify whether the results obtained in developed economies would also be applicable to the hotel industries of developing economy countries and/or emerging tourist destinations, such as Bogotá (Colombia).

In this sense, firstly, the results obtained demonstrated: a) the existence of a positive and direct bond between the ecological measures developed by hotels and their image, as reported previously by other authors (Durna et al., 2015; Martínez García de Leaniz et al., 2018; Palacios-Florencio et al., 2016, 2018; Wang et al., 2018); b) that green initiatives positively influence guests' trust; these findings are consistent with previous studies (e.g. Balaji et al., 2019; Palacios-Florencio et al., 2016, 2018); c) that, while tourists experience a satisfactory service, the green initiatives developed by the hotels have a positive impact on their satisfaction, thus confirming the results of previous research (Merli et al., 2019; Verma & Chandra, 2016, Wang et al., 2018; Yusof et al., 2017).

Secondly, this research analysed the role of hotel image as an antecedent of guest trust and satisfaction. In line with other studies on eco-friendly hotels (Palacios-Florencio et al., 2016; Wang et al., 2018), our results showed that hotel image is an important factor in building guest trust. The results obtained suggest that tourist satisfaction with eco-friendly hotels is significantly influenced by their image (H5), thus confirming the conclusions of Martínez (2015), Lahap et al. (2016) and Wang et al. (2018). The present study also confirmed the positive and significant influence of trust on guest satisfaction, as highlighted in previous studies (Martínez, 2015; Martínez & Rodríguez del Bosque, 2013). Therefore, it may be concluded that the findings reported in previous research in developed countries can also be extrapolated to hotels located in emerging economies and tourist destinations.

Finally, gender seems to moderate the relations between green practices, image and trust with respect to satisfaction, the relationship being significantly stronger for women. The foregoing implies that once women perceive an adequate level of service quality with respect to the expected level, they are more satisfied with the choice of establishment.

The conclusions presented in this study have different implications insofar as they can help hotel managers to obtain a better understanding of their guests' perceptions with respect to the sustainable and innovative practices developed by these companies and how they contribute, together with image and trust, to generating customer satisfaction.

Firstly, the evolution of green practices points to a positive future. The results obtained suggest that such environmental measures can have a favorable influence if used correctly by hotel managers. Therefore, hotels should focus fully on their guests,

as today's guests are increasingly "environmentally responsible" and believe that hotels must be engaged in sustainability actions.

Secondly, green practices are considered to be one of the most effective tools available to companies, not only to achieve objectives, which include differentiation from their competitors. The IPMA shows that the Colombian guests regard hotel image as a factor that is highly important and where Colombian hotels perform relatively well. In this sense, Colombian hotels must strengthen their corporate image, which is a powerful tool to develop favorable responses from their customers.

Thirdly, the intangible nature of hotel services increases the difficulty of evaluating such services before they are received, and thus the risk linked to their purchase. Hence the great importance of tangibilization strategies as they help customers to reduce this risk and more reliably anticipate the results of services by observing material evidence in the service. Thus, given that in the IPMA trust is highly important but shows low performance, using presence sensors/entry cards in rooms, providing refillable shampoo/soap dispensers or using recycling bins in rooms and common areas are practices visible to guests that can positively influence their trust in the hotel.

Based on all the foregoing, focusing exclusively on the introduction of eco-friendly initiatives is insufficient. As described by Tsai et al. (2014), although hotel managers are keen on eco-friendly initiatives, their guests may not be familiar with them. As mentioned in the findings of our importance-performance map analysis, energy management, and water conservation are located in the lower right area where the importance is high but the relative performance is low. This quadrant is labelled "Concentrate Here" and indicates that Colombian hotel managers need to focus on improving their performance in these green practices as neglecting this could threaten hotels' long-term relationship with their customers. Therefore, hotels must promote awareness-raising measures to increase guest awareness, providing more detailed information on the pros of such measures and the benefits achieved after their introduction, with special attention to their benefits for society. For example, they can emphasize the environmental improvements they have achieved in recent years and demonstrate how such ecological practices can involve real benefits for society and are not only "greenwashing" tactics, but also contribute significantly to the development of sustainable tourism.

Finally, it is worth highlighting certain limitations that may be considered as potential further lines of research. Given the restricted geographical scope of our analysis, future research should broaden the study to compare the results with consumers' perceptions in other geographical areas. It would also be worthwhile replicating the analysis in other tourist lodging facilities (e.g. bed and breakfast, hostels) to assess if the type of establishment determines guest perceptions. Last, a noteworthy opportunity exists to further research based on the introduction of other relevant variables in the model, such as loyalty, commitment, environmental activities performed by clients in their daily lives or prior experience related with green hotels.

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