

STRUCTURAL EQUATION MODEL: INFLUENCE ON TOURIST SATISFACTION WITH DESTINATION ATRIBUTES

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Abstract

Purpose – To present a model that expresses the relationships observed between a set of independent variables that condition overall satisfaction with a tourist destination, allowing to discover the potential for improvement of this indicator.

Methodology – An instrument is designed to measure the satisfaction of tourists with a destination, starting from a list of attributes used in the literature that are submitted to the research of experts. A reliability analysis of the results and an evaluation of construct validity were performed. Through a confirmatory factor analysis, the factorial structure of the set of observed variables was identified. Finally, a structural equations model was created to understand the interrelationship between the variables considered in the study and their incidence in general satisfaction with the destination.

Findings – The application of the instrument designed to the calculated sample allowed to identify the latent variables existing in the practical construct studied, identifying through the factorial analysis four aspects associated to the satisfaction of tourists with the destination: access, lodging, facilities and attractions. The construction of the structural equations model corroborated the previous results and evidenced the level of incidence of each factor studied in the overall satisfaction as well as the incidence of each attribute in the factor that integrates.

Originality – It is achieved define a structural equations model that represents and explains the relationship between the variables considered in the quality management of a destination and the degree to which they relate to each other and influence the level of satisfaction experienced by tourists.

Keywords Customer satisfaction, Tourist destination, Tourism, Structural equation model.

INTRODUCTION

The volume of research related to customer satisfaction is becoming more significant, only between 2014 and 2016 there are more than 2,215 publications of research papers in journals indexed in the Scopus database. These studies vary from sector, country and continents. Although the studies are sectoral in nature, there is a predominance of them in the services sector, with respect to tangible products, where they are scarce and where studies of product quality are concentrated. This is assumed to be due to two reasons, the tangible nature of production facilitates more internal quality control, and there is a predominance of the services sector with respect to products in the current economy.

Similarly in the investigations of intangibles, a predominance of sectors such as banking (Ali and Raza 2015; Ateba, Maredza, Ohei, Deka and Schutte 2015) and tourism (Pereira, Salgueiro and Rita 2016; Triantafillidou and Petala 2016) is manifested in this type of research. Specifically within the tourism sector, the research related to this theme varies from tourism modality, with research related to health tourism (Aziz, Md-Yusof, Abu-Bakar, Taib and Ayob 2015), sports (Hallmann, Mueller and Peters 2015), cultural (Chai, Bao, Sun and Cao 2015) but with a large predominance of mass tourism of sun and beach (Bujosa, Riera and Pons 2015). The research sites involved in the tourism product vary, investigating travel agencies (Drosos and Tsotsolas 2014), airlines (Hussain 2016), attractions (Krivoshcheyeva, Sultaeva and Druchevskaya 2014; Renko and Bucar 2014), restaurants (Min and Lee 2014), shops (Al-Ali, Bazin and Shamsuddin 2015) but highlighting research in hotels (Albayrak & Caber, 2015; Hamidi, Raston, & Al-Mamun, 2014; Tsai, 2014).

Research on tourist satisfaction not only develops at the establishment or product level, but also reaches higher levels of complexity, such as the structure that presupposes a tourist destination (Abubakar and Mavondo 2014; Baksi 2014; Fu and Yeh 2014). One of the objectives of investigations of customer satisfaction in tourist destinations is to identify the attributes that determine satisfaction (Bédiová and Ryglová 2015; Lanfranchi, Giannetto and De Pascale 2015; Ryglová and Vajčnerová 2014).

In order to identify the attributes and interrelations that exist between them, to explain customer satisfaction, a number of mathematical treatments have been used from the most recognised SERVQUAL (Stefano, Casarotto Filho, Barichello and Sohn 2015) to more current ones such as the use of fuzzy logic (Saeedpoor, Vafadarnikjoo, Mobin and Rastegari 2015), quantitative methods (Bandaru, Gaur, Deb, Khare, Chougule and Bandyopadhyay 2015), genetic algorithms (Hao, Yu, Law and Fong, 2015), Bayesian statistics (Coussement, Benoit and Antioco 2015), neural networks (Leong, Hew, Lee and Ooi, 2015), and structural equations (Aktepe, Ersöz and Toklu 2015a, 2015b; Satsanguan, Fongsuwan and Trimetsoontorn 2015), among others.

The objective of this research is to identify the attributes that determine the satisfaction with a tourist destination and the way in which these are interrelated, through the construction of a structural equation that explains this interrelation.

1. LITERATURE REVIEW

The definitions of tourist destinations available in the literature are varied, for example: the WTO defines the tourist destination as “a physical space in which a tourist spends at least one overnight. It includes tourism products such as support services and attractions and tourist resources within one day’s return travel time. It has physical and administrative boundaries defining its management, and images and perceptions defining its market competitiveness” (World Tourism Organization 2007, 1); while Vajčnerová, Šácha, Ryglová and Žiaran (2016, 667) state that “from the point of view of marketing, the tourist destination is a product that must reach a necessary quality and must be managed in a strategic way.” Multiple authors rather than go deeper into a definition, they prefer to analyse the various components that present a tourist destination.

Table 1 summarises the latent variables and attributes offered by several authors consulted (Moutinho Luiz, Caber, Silva Santos and Albayrak 2015).

Table 1: Proposed dimensions and attributes of tourist destinations.

Latent variables or Dimensions				
Buhalis (2000)	Kozak and Rimmington (1998)	Echtner and Ritchie (1993)	Tosun, Dedeoğlu and Fyall (2015)	
Attractions Accessibility Services Packages available Activities Auxiliary services	Attractions Facilities and services Hospitality Cost Infrastructure	Transport Prices Lodging types Level of sincerity Safety Reputation Expected level of quality service	Lodging services Local transport services Cleaning services Entertainment services Communication services Airport services	
Attributes				
Wang, Hsieh, and Huan (2000)	Lin, Lee and Chen (2009)	Wang, Ma, Hsu, Jao and Lin (2013)	Wang, Hsieh, Chou and Lin (2007)	Wang et al. (2013)
Pre conference tour Airport /plane Hotel Restaurant Trained Scenic spot Shopping Optional excursion	Pretour information Hotel Restaurant Trainer /driver Scenic spot	Brief pre touring Hotel Restaurant Tour leader and tour guide Scenic spot Coach Optional excursion	Trade agreement Transport Hotel Group leader Local guide Optional excursion	Pretour information Hotel Restaurant Responsible travel and tourism Guide Scenic spot Coach Optional excursion

Source: Based on Moutinho Luiz et al. (2015).

Authors such as Moutinho Luiz et al. (2015) present their own proposal:

- Airline: Comfort and physical attributes of the aircraft, supply of food and beverages on the plane, general cleaning of the aircraft
- Transfer: Quality of service of the tour operator's staff at the arrival airport, transferring organisation between the airport and the hotel, sympathy and kindness of transfer staff, information given by transfer staff, professionalism of transfer staff
- Travel guide: Utility of the hotel guide, solution of the problems in the time by the hotel guide, professionalism of the hotel guide, information given by the guide on the tours, possibility to contact the hotel guide, usefulness of the recommendations given by the hotel guide
- Transportation: Comfort, cleaning, compliance with driving regulations
- Information: Content of the travel brochure about the country, file information at the hotel reception, information board at the hotel

- **Hotel:** Quality of service of hotel staff, quality of food and beverages in the hotel, general atmosphere of the hotel, design of the rooms, general cleanliness of the hotel, hotel pool, technical condition of hotels and rooms, entertainment activities in the hotel, welfare services and spa in the hotel, services for children, restaurants.

Similar proposal makes Buhalis (2000):

- **Attraction:** Special, natural, artificial, expressly built events
- **Accessibility:** Transport system, terminals and vehicles
- **Services:** Accommodation, food services, retail
- **Packages available:** Packages pre-established by intermediaries and directors
- **Activities related to tourism products**
- **Auxiliary services:** Banks, telecommunications, hospitals, etc.

The foregoing shows the diversity of criteria in relation to what are the dimensions and attributes that condition the satisfaction of tourists in a tourist destination. In the same way, despite the divergences, it is also recognised the tendency to coincide in several of the attributes or dimensions to consider even when the way of naming them is modified.

Likewise in the literature there are multiple definitions and methods of evaluating customer satisfaction, although usually definitions of satisfaction revolve around the idea that is “the mood that customers have about a company when their expectations have been met or exceeded during the life of the product or service” (Bandaru et al., 2015, p. 266).

Regarding methods to evaluate customer satisfaction, these vary in their mathematical treatment, from the oldest ones known as the SERVQUAL (Stefano et al. 2015) to more current or less used ones such as the use of fuzzy logic (Saeedpoor et al. 2015), genetic algorithms (Hao et al. 2015), structural equations (Aktepe et al. 2015a, 2015b; Satsanguan et al. 2015), or more recently as neural networks (Leong et al. 2015), among others. Each of them with their usefulness and limitations regarding their requirements to be applied, or the results they give. The analysis through the structural equation models has the advantages not only of evaluating satisfaction in general but also of understanding the degrees of interrelation or influence that occur between the explicit or latent variables that influence the model.

2. METHODOLOGY

For the development of the practical phase of the investigation the following steps were performed.

Step 1: Selection and characterisation of the sample: The population of the sample was constituted by the 136,150 tourists who during the investigation period (high season: November 2012 to March 2013) visited the Holguin tourist destination in Cuba. A self-administered questionnaire was applied to 2,726 tourists who were at the airport to return to their respective countries after completing their stay in the tourist destination studied. In order to establish the sample, a proportional stratified random sampling was

established by defining the following parameters (sampling error assumed by the investigated: $e = 2.38\%$; normal distribution value: $Z = 2$; probability of success or behavior of the investigated phenomenon: $P = 0.50$; likewise the failure probability as a complement: $q = 1 - p = 0.50$). The sample used is shown in Table 2.

Table 2: **Characterisation of the sample.**

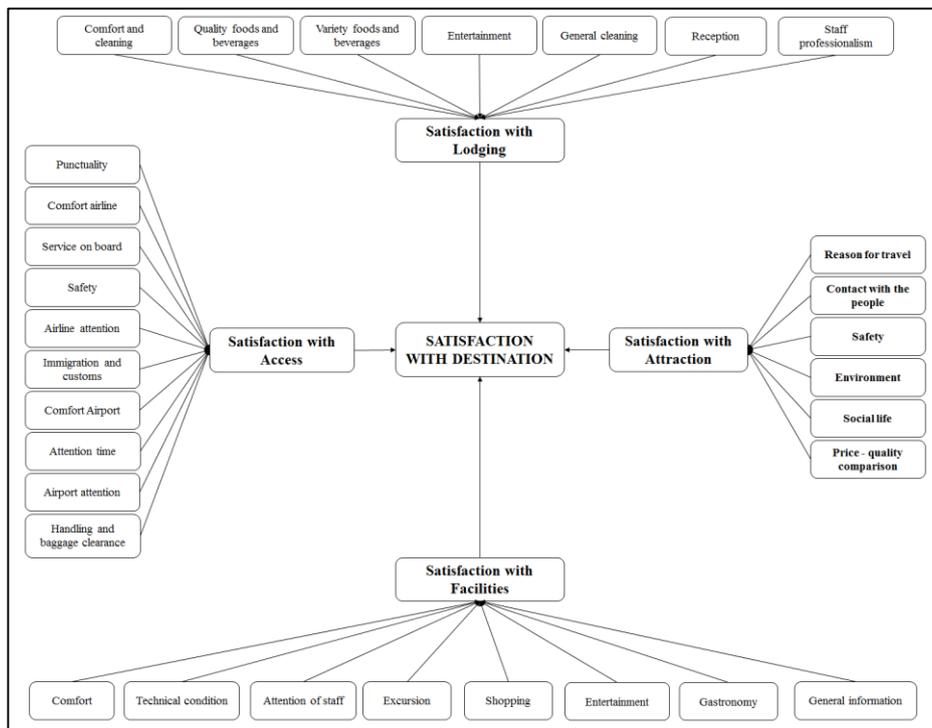
Variable	Description	%	Variable	Description	%
Geographical Zone	Germany	33	Type of Tourism	Beach & Sun	77
	France	33		Nature	10
	Canada	25		Health	5
	USA	6		Events	5
	Latin-American	3		Other	3
Employment	Professional	48	Age (years)	25 - 44	49
	Employee	32		45 - 60	44
	Retired	10		Lower than 24	5
	Students	6		Over 60	2
	Own business	3		Gender	Female
	Housewife	1	Male		44

Step 2: Design, application and evaluation of the instrument: The design of the instrument was developed in two stages: the first qualitative oriented to identify the attributes by which customer satisfaction is evaluated in the scientific literature and in the practical context studied. Through which initially 40 attributes were identified, which were submitted to the evaluation of nine experts, including five PhDs with research in tourism (one Spanish, one Canadian and three Cubans) and four professionals with more than 15 years of experience in this sector (one Canadian, one Spanish, one Jamaican and one Cuban). These experts eliminated nine attributes by not being selected by more than 80% of the evaluators. With the 31 attributes selected, grouped into: Access (10 attributes), Facilities (8 attributes), Lodging (7 attributes) and Attractions (6 attributes), the quantitative stage was started with the design of a survey in which The satisfaction of attributes is evaluated on a scale of 1 to 10, the latter being the highest score. The survey was subjected to an analysis of apparent validity and content by the experts consulted. Once the validity of the survey was evaluated, it was applied to the established sample.

Step 3: Factor analysis of the instrument application results: With the information collected in the surveys, a confirmatory factor analysis (CFA) was performed using the IBM SPSS 23 statistical package to identify the factorial structure of the set of observed variables. Thus allowing to evaluate whether there is a relationship between the observed variables and the existence of underlying latent constructs (Aktepe et al. 2015a; Kesari and Atulkar 2016; Schumacker and Lomax 1996). The answers were associated with four large latent variables with their respective attributes related to the destination. In the exploratory study the Cronbach's alpha was calculated for each dimension, with the following results: access (0.902), facilities (0.918), lodging (0.975) and attractive (0.855), which corroborated the reliability of the instrument used. The validity of the factor analysis was corroborated through the KMO with a value of 0.928 and a highly significant Baltrett sphericity test.

Step 4: Construction of the Structural Equation Model: After confirming the dimensions and factor loads of the attributes that make them up, the structural equations model (SEM) is used to find the structural relationships between the latent variables (Aktepe et al. 2015a; Kesari and Atulkar 2016). For the construction of the model we used the IBM SPSS AMOS 23. Once the model has been identified and estimated, we evaluate the fit of the data to the proposed model for which we will follow three alternatives: Evaluation of the global model fit, Evaluation of the adjustment of the measurement model and Evaluation of the adjustment of the structural model (Salgado Beltrán 2009). In the case that occupies to this paper the proposed model is based on the theoretical analysis presented above, remaining as follows (Figure 1):

Figure 1: Proposed Model.



Source: Own elaboration.

Taking into account that statistical procedures exist that do not offer an advantageous way to differentiate between observable and latent variables, the application of the structural equations model is justified since it allows to test theoretical models with empirical data.

Step 5: Evaluation of the model: For the evaluation of the model obtained, the indicators established for these purposes will be used, which are summarised in Table 3.

Table 3: Indicators of evaluation of the value of the generated model.

Indicators	Acronym	Contrast Value
Chi-square value/ degrees of freedom	CMIN/DF	< 3 – Good
Probability level associated to Chi-square value	Probability level	> 0.05 – Significant
Comparative Fit Index	CFI	> 0.95 – Great
Goodness of Fit Index	GFI	> 0.95 – Excellent > 0.90 – Traditional > 0.80 – Permissible
Adjusted Goodness of Fit Index	AGFI	> 0.80 – Acceptable
Root Mean Square Error of Approximation	RMSEA	< 0.05 – Good 0.05 to 0.10 – Moderate
Probability of Close Fit	PCLOSE	> 0.05 – Significant

Source: Own elaboration.

3. RESULTS

The data obtained by performing a confirmatory factor analysis by processing the database constructed with the application of the instrument of information collection to tourists are shown in Table 4. Factorial loads less than 0.70 were eliminated.

With the results obtained it was possible to identify the latent variables that were collected in the model that was intended to be tested. According to the results, four latent variables or dimensions are identified:

1. **Lodging Process:** determinant dimension since it contains the variables to which the tourist will be exposed during a longer time during their stay in the destination
2. **Access Process:** contemplating the attributes related to the way of arriving at the destination grouping variables related to the airline, the airport and the formalities of emigration and customs
3. **Extra-hotel facilities:** they reflect the set of variables with which the tourist interacts outside the lodging and that complement their experience in the destination
4. **Dimension of impulse to the trip:** it contains those attributes related to the reasons that propelled to travel to the tourist, although it is the dimension of smaller explained variance contains within itself the greater factorial loads.

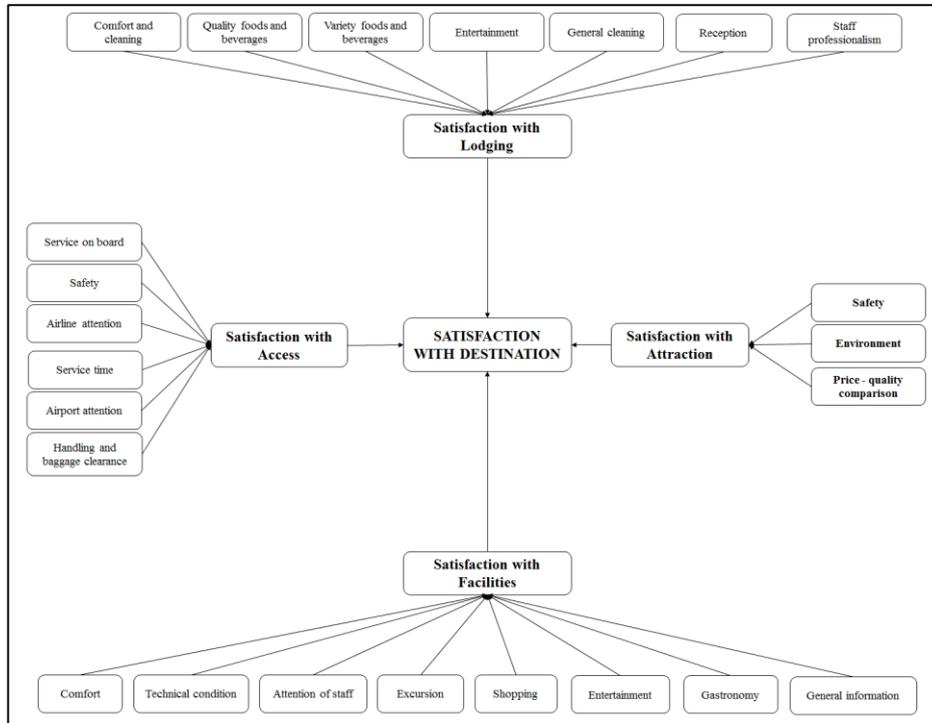
Table 4: Matrix of rotated components and results of the satisfaction of tourists.

Variables	Latent variables				Results of satisfaction
	1	2	3	4	
Reception in lodging (RH)	.902				7.34
Entertainment at lodging (AH)	.897				7.27
Comfort and cleaning of lodging (CLH)	.892				7.30
Variety of foods and beverages at lodging (VABH)	.888				7.34
General cleaning at lodging (LG)	.884				7.37
Quality of foods and beverages at lodging (CABH)	.881				7.30
Staff professionalism at lodging (PPH)	.871				7.35
Staff attention of airline (TPAer)		.784			6.60
Service on board the airline (SerAer)		.765			6.41
Immigration and customs at the airport (EyAAe)		.765			6.99
Airline safety (ESAF)		.760			6.71
Attention of airport staff (TPAe)		.756			6.83
Service time at the airport (Tiae)		.751			6.75
Handling and baggage clearance at the airport (MydAe)					6.86
Comfort airport (CAE)					6.79
Attention time of the airline (SREP)					6.75
Comfort airline (CAER)					6.71
Attention of staff facilities (TPF)			.798		7.38
Technical condition of the facilities (ETF)			.796		7.54
General information on the facilities (IGF)			.766		7.47
Gastronomy facilities (GF)			.763		7.40
Excursion in the facilities (EF)			.763		7.44
Entertainment in the facilities (RF)			.736		7.40
Shopping in the facilities (CF)			.716		7.43
Comfort of the facilities (CoF)			.705		7.38
Reason for travel to the attraction (MVA)				.994	8.99
Price - quality comparison in the attraction (ACPR)				.993	8.93
Safety of attraction (SA)				.993	9.05
Environment in the attraction (MAA)					8.95
Social life in the attraction (VSA)					9.00
Contact with people in the attraction (CPA)					9.00
Only factorial loadings are considered superior to 0.70					
Extraction Method: Principal Component Analysis.					
Rotation Method: Varimax with Kaiser Normalisation (Rotation converged in 5 iterations)					
Kaiser-Meyer-Olkin Measure of Sampling Adequacy: 0.925					
Bartlett's Test of Sphericity. Approx. Chi-Square: 69727.579. Sig. .000					
Total Variance Explained: 77.293					

As it is possible to observe some of the studied variables, it was not enough explained in the obtained factors (for possessing factor loads lower than 0.70) which made it easier to reconsider the initially proposed model, which is shown in Figure 2.

With the use of the IBM SPSS AMOS 23 it was attempted to explain the model presented above with the objective of finding the relationships that are established between the latent variables found and the measurement of the variable total satisfaction with the destination, which was part of the applied survey as a global variable.

Figure 2: **Reconsidered Model.**

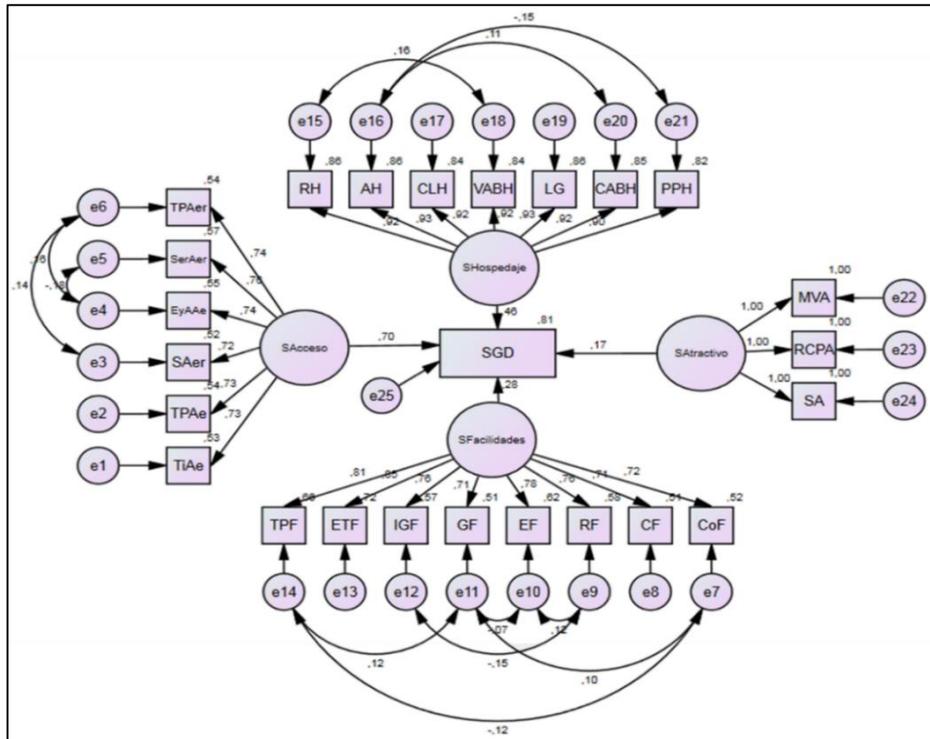


Source: Own elaboration.

After making the necessary adjustments to the resulting model in order to improve the adjustment indicators, we found the result shown in Figure 3. The obtained values allow to express that the model generated is a representation of the influences that have the latent variables found in the overall satisfaction with a destination. According to the results, the variables that integrate each of the dimensions show high degrees of relationship with the latent variable to which they belong, in addition to observing high levels of mutual influence between them. In contrast, the latent variables found vary their level of influence in overall satisfaction with the destination in a general way.

The greatest influence is seen in the variable *satisfaction with access*, whose results are the lowest, considering the scale adopted. This means that the greatest influence on the overall satisfaction of tourists with destination is located on the variable that has the worst behavior. The result obtained reinforces the idea that the general satisfaction of the tourists with a destination is more influenced by the dissatisfactions that are generated in the independent variables than by the satisfactions that these same variables can generate.

Figure 3: Final structural equation model.



Source: Outputs from IBM SPSS AMOS 23.0.

The adjustment indicators of the obtained model are shown in Table 5 according to which it can be affirmed that the relationships between the variables constitute a good model, since all the adjustment indicators comply with the established parameters except for the GFI (0.896) in which only a permissible value (> 0.80) but very close to the traditional one (>0.90) and the RMSEA (0.073) whose behavior is rated as moderate (0.05 - 0.10) is achieved.

Table 5: Adjustment indicators of the model.

Indicator	Reached value	Evaluation
CMIN/DF	2.661	Good
Probability level	0.254	Significant
CFI	0.955	Great
GFI	0.896	Permissible
AGFI	0.871	Acceptable
RMSEA	0.073	Moderate
PCLOSE	0.060	Significant

Source: Outputs from IBM AMOS 23.

Note: The meaning of the acronyms of the indicators can be found in Table 3.

DISCUSSION

The generated model was based on the variables substantiated on the existing literature regarding the satisfaction of tourists with tourist destinations. Through the model, the multifactorial character of satisfaction as a construct is confirmed, showing the influences existing between the independent variables that condition it. In this sense it is considered that the results obtained are consistent with the elements identified in similar studies in the literature consulted (Buhalis 2000; Echtner and Ritchie 1993; Kozak and Rimmington 1998; Lin, Lee and Chen 2009; Moutinho Luiz et al. 2015; Tosun et al. 2015; Wang et al. 2000; Wang et al. 2007; Wang et al. 2013). Differences are associated with the results of one or another author regarding the attributes considered or the nomenclature used to name them, but in general they coincide in the latent variables considered as those of attraction, access, lodging and facilities.

The most significant changes are observed in not considering variables such as the influence of intermediaries, marketing variables (Buhalis 2000; Moutinho Luiz et al. 2015), the reputation of the destination or the trading price (Echtner and Ritchie 1993). These attributes were considered in the initial list but the experts proposed to exclude them from the analysis, mentioning that they were largely beyond the reach of destination management since there was no high probability of influencing them.

It is interesting to highlight or take up the finding that the greatest influence on the overall satisfaction of tourists with the destination is possessed by the variable that presents a more unfavorable state. What can be interpreted as that the overall satisfaction is more conditioned by the negative aspects or the dissatisfactions that are generated than by the positive and rewarding experiences throughout their stay. This could be the result of very high levels of expectations generated before the trip by any of the driving forces (media, recommendations of acquaintances or previous personal experiences).

The results obtained can be interpreted under the precepts of the Herzberg's motivational theory (Antón, Camarero and Laguna-García 2017; Yeboah and Abdulai 2016). In the context of this study, the aforementioned implies that although the variables related to access are not associated with the reasons or stimuli of the trip and therefore are not the most important in the satisfaction of tourists. An unfavorable state of those variables could generate high levels of dissatisfaction and have an impact on the tourists' subsequent behavior towards the destination.

The data that facilitated the generation of the model allow to establish a logic of intervention in the studied destination in order to improve the overall satisfaction of the same, acting in a punctual way on those that most limit it. The research findings show that the limiting factor is satisfaction with access, a variable where the greatest amount of dissatisfaction with the destination is concentrated. For this reason it is advisable to act on it in order to obtain a better behavior of total satisfaction.

LIMITATIONS AND RECOMMENDATIONS

According to previous research (Buhalis 2000; Moutinho Luiz et al. 2015) the results could be considered incomplete by not considering the effects of variables such as fate reputation, marketing mechanisms and price aspects that could be object of future research to analyse the effects of introducing these variables into the analysis.

Although it was initially considered part of the study variables of high recognition in the international literature on the subject (Tosun et al. 2015) such as interaction with the local population and the influence of tourism and tourists in the local reality. These variables were excluded from the final study due to low factor loading, but it was considered that this was influenced by the operating characteristics of the destination studied, where during several years was limited, to ensure greater safety, contact of tourists with the local population. Variables that could be part of the "attraction" dimension and that could be evaluated in later investigations.

Finally, although the tourist destination under study has a wide variety of attractions for development, its main attraction is the sun and the beach, so the results of this research are considered particular for this type of destination and would be convenient to evaluate the variability that could show them in tourist destinations of different nature.

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