

Papers

Model to assess hospitality on board Brazilian domestic air transport aircraft

Modelo para Aferir a Hospitalidade a Bordo das Aeronaves do Transporte Aéreo Doméstico Brasileiro

Modelo para medir la hospitalidad a bordo de aviones de transporte aéreo nacional brasileño

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Keywords:

Hospitality;
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Palavras-chave:

Hospitalidade;
Passageiros;
Aviação;
Empresa Aérea.

Abstract

Justified purpose of the topic: Knowledge of how passengers perceive hospitality aboard Brazilian aircraft allows us to know the tangible and intangible factors that customers value and that can influence airline choice. Objective: Within aviation hospitality, the present study aims to investigate hospitality in Brazilian domestic air transportation from passenger viewpoint. Method and approach: The study is of a mixed nature comprising a qualitative stage with literature review and quantitative one, with the development of a data collection instrument and the analysis of 1,163 questionnaires, using SPSS software as an analysis tool. Results: The findings allow us to conclude that passengers perceive hospitality aboard Brazilian domestic air transport aircraft, comprising a set of 19 items that can be explained using 5 factors that were named "attractions", "service", "well-being", "low cost" and "cleanliness". Originality: This work aims to present an original model to measure hospitality aboard Brazilian aircraft.

Resumo

Propósito justificado do tema: O conhecimento da forma como os passageiros enxergam a hospitalidade a bordo das aeronaves brasileiras permite identificar os fatores tangíveis e intangíveis valorizados pelos passageiros e que podem fazer diferença no momento da escolha da empresa aérea. Objetivo: Dentro do universo da hospitalidade na aviação, a presente pesquisa tem como objetivo analisar a hospitalidade no transporte aéreo doméstico brasileiro a partir da visão dos passageiros. Metodologia e abordagem: O estudo é de natureza mista compreendendo fase qualitativa com revisão bibliográfica e quantitativa com o desenvolvimento de instrumento de coleta de dados e a análise de 1.163 questionários, tendo se utilizado como ferramenta de análise o software SPSS. Resultados: Os resultados alcançados permitem concluir que, na visão dos passageiros, a hospitalidade é percebida a bordo das aeronaves do transporte aéreo doméstico brasileiro, abrangendo um conjunto de 19 itens que podem ser explicados usando-se 5 fatores que foram denominados "atrativos", "atendimento", "bem-estar", "low-cost" e "higiene". Originalidade do documento: Este trabalho é original, pois tem por objetivo apresentar modelo inédito para se aferir a hospitalidade a bordo das aeronaves brasileiras.

Palabras clave:

La hospitalidade;
Pasajeros;
La aviación;
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**Resumen**

Propósito justificado del tema: El conocimiento de la forma en que los pasajeros ven la hospitalidad a bordo de las aeronaves brasileñas permite conocer los factores tangibles e intangibles valorados por los pasajeros y que pueden diferenciar en el momento de la elección de la aerolínea. Objetivo: Dentro del universo de la hospitalidad en la aviación la presente investigación tiene como objetivo analizar la hospitalidad en el transporte aéreo doméstico brasileño a partir de la visión de los pasajeros. Metodología y enfoque: El estudio es de naturaleza mixta comprendiendo fase cualitativa con revisión bibliográfica y cuantitativa con el desarrollo de instrumento de recolección de datos y el análisis de 1.163 cuestionarios, habiéndose utilizado como herramienta de análisis el software SPSS. Resultados: Los resultados alcanzados permiten concluir que, en la visión de los pasajeros, la hospitalidad es percibida a bordo de las aeronaves del transporte aéreo doméstico brasileño, abarcando un conjunto de 19 ítems que pueden ser explicados usando 5 factores que fueron denominados "atractivos", "atención", "bienestar", "low-cost" e "higiene". Originalidad del documento: Este trabajo es original, ya que tiene como objetivo presentar un modelo sin precedentes para medir la hospitalidad a bordo de aviones brasileños.

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1 INTRODUCTION

Hospitality is embedded in the simplest activities of daily life and, when it runs smoothly it often goes unnoticed. According to Camargo (2015), hospitality occurs in the interstices, that is, it is permeated by moments visibly surrounded by inhospitality and even, why not, hostility. In the author's words, hospitality is opposed to inhospitality and hostility, which permeate small conflicts and even aggression, will always go together.

But what is hospitality? In Grinover's (2002) view the word hospitality can be understood as the reception of guests, visitors, and travelers, and can be simplified in the act of welcoming. Gotman (2001) considers hospitality as the act of welcoming and serving someone outside his or her home, and can be summarized in the relationship between a host and a guest. This encounter is governed by written or unwritten laws that define the continuity of the group. It is also known that hospitality goes beyond a good reception. The hospitality scene, according to Derrida (1997), presupposes two characters acting within strict laws that, if not followed, could also generate inhospitality.

Thus, with the advancement of research and within the multiple forms of hospitality, this can also be found in air transport, with national-level studies addressing this subject at the Graduate Program in Hospitality at Anhembi Morumbi University as shown in Table 1.

Table 1 – Studies about airline hospitality in Brazil

(continue)

Approach	Author
Characterization of the professional training program, developed through corporate education, of the airport agents of an airline that received the fictitious name of "Voa Brasil".	Félix (2006)
Study on Congonhas Airport addressing the passenger service dimension.	Favorito (2013)
Comparison of perceived onboard hospitality levels between a full-service airline and a low cost carrier.	Kaperaviczus (2015)
Analysis of how the host company meets the specific needs of the new middle-class traveler in corporate mobility.	Goldenberg (2016)
A study entitled "Hospitalidade e serviços a bordo de aeronaves: o caso da Companhia Aérea Azul" [Hospitality and services on board aircrafts: the case of Azul Airlines], which sought to identify on board Azul aircraft the four moments of hospitality, as defined by Camargo (2004).	Santos (2017)

Table 1 – Studies about airline hospitality in Brazil	(conclusion)
Study entitled “A gestão de serviços em hospitalidade: o papel do comissário como anfitrião nas empresas aéreas brasileiras” [The management of hospitality services: the role of flight attendant as host in Brazilian airlines], seeking to investigate the actual role of flight attendants.	Salva (2017)
A study entitled “Correio Aéreo Nacional (CAN): a hospitalidade na integração de populações isoladas” [Brazilian Airmail: hospitality in the integration of isolated populations], whose objective was to unveil the dimension of hospitality in the integration of isolated populations, by the Brazilian Airmail, from the 1930s to the 1980s.	Calçada (2018)

Source: The authors (2019)

It should be emphasized that these studies are related to the present study in that they address hospitality and air transport, however, the approach is different from the one proposed in this article.

In the international literature there are also studies addressing airline hospitality as presented in Table 2.

Table 2 – International literature on airline hospitality	
Approach	Author
Evaluation of passenger repurchase option based on the quality of service on board.	Chang and Yang (2008)
Identification of the factors most valued by passengers in the services offered by Iranian airlines.	Nejati, Nejati and Shafaei (2009)
Study in Malaysia identifying key factors for choosing an airline.	Yeoh and Chan (2011)
Study entitled “Hospitality in Aviation: A genealogical study” which examines the hospitality on board airline.	Nilsson (2012)
Study on the influence of quality of service on passenger satisfaction in Indian airlines.	Archana and Shuba (2012)
Construct development to measure perceived hospitality on board aircraft in Malaysia.	Nameghi and Ariffin (2013)
Study aimed to investigate the role and function of hospitality in aviation.	Motiani, Patil and Borkar (2013)
Study on passengers' level of hospitality performance in private settings and their expectation of hospitality provision in airlines.	Nameghi (2013)
Study using a structural equation modeling approach to measure passenger satisfaction with onboard services.	Suki (2014)
Assessment of perceived service quality in a comparative study of airlines in the United Arab Emirates.	Masarrat and Jha (2014)
Customer satisfaction survey at Pakistan International Airlines.	Faizan, Bidit and Raffaele (2015)

Source: The authors (2019)

Drawing a parallel between the Brazilian and international literature, although the approaches are different, there is a common feature in understanding that hospitality plays an important role, also in the context of aviation, showing the relevance of the present study.

Thus, for the construction of the theoretical framework, searches were conducted on Google Scholar, CAPES database, Scientific Electronic Library Online (SCIELO), Blackwell Synergy, Cambridge University Press, Oxford University Press, and EBSCO host, in the Portuguese, Spanish and English languages, using respectively the keywords “hospitalidade na aviação”, “hospitalidad en la aviación” and “hospitality in aviation”.

To understand the importance and relevance of this topic of tourism studies Vasconcelos, Machado, Almeida, Arruda and Matos (2015) point out that only in Latin America and the Caribbean the aviation industry accounts for more than four million jobs and contributes more than US\$107 billion to the gross domestic product (GDP), and forecasts indicate that in these regions passenger numbers are expected to nearly triple from 145.9 million in 2010 to 438.9 million in 2030. Also, Camargo (2019) emphasizes that the relationship between hospitality, leisure, and tourism should soon be enriched with the evolution of research around the concept of mobility closely related to air transport.

Therefore, we observed that air transport is an integral part of tourism. A good example of this relationship is the study by Araújo, Freitas, Gomes and Brito (2016), who concluded that in 2013, the decrease in domestic flights demand has become the biggest problem for the state of Rio Grande do Norte tourism.

Thus, given the known association between air transport, tourism, and hospitality, the aim of this paper is to analyze hospitality in Brazilian domestic air transport from the passenger perspective.

For this purpose, a data collection instrument was developed, based on the model developed by Nameghi and Ariffin (2013) to measure the perceived levels of hospitality in Malaysian aircraft, but now adapted to the Brazilian context.

The study, according to Gil (2010), is in the field of applied social sciences using mixed-methods design, first a qualitative phase with the literature review and then a quantitative research using exploratory factor analysis of the data obtained from the collection instrument developed, performed with SPSS software (Statistical Package for the Social Sciences).

Thus, this article presents the development of the data collection instrument, field research, consisting of data collection and information provided in an interview with GOL Airlines President – Paulo Sérgio Kakinoff – literature review, and exploratory factor analysis of the data. These data lead to a model that defines how hospitality can be perceived on board Brazilian domestic air transport aircraft. The originality of this study is the adaptation of the model to the Brazilian context, as well as the development of the data collection instrument to cover the tangible aspects of the comfort dimension not addressed by Nameghi and Ariffin (2013).

2 NAMEGHI AND ARIFFIN'S MODEL

Before describing the data collection instrument developed in this study, it is necessary to understand the construct to measure hospitality levels on board aircraft, authored by Nameghi and Ariffin (2013). In Table 3 we present the initial description of the 27 behaviors attributed to flight crews, within the theoretical framework proposed by the authors mentioned.

To generate these 27 behaviors, 11 frequent travelers who were graduate students from the University of Malaysia were interviewed.

Table 3 – Results from the first exploratory factor analysis (continue)

No.	Behavior	Main authors
1	The cabin crew display natural smiling faces.	Johanson and Woods (2008).
2	The cabin crew maintain eye contact with passengers during conversation.	Johanson and Woods (2008.)
3	The cabin crew politely interact with passengers.	Gallarza et al. (2002).
4	The cabin crew interact with passengers respectfully.	Wilkins et al. (2007), Gallarza and Saura (2006.)
5	The cabin crew make the best effort to give personal attention to passengers.	Kun and Lee (2011).
6	The cabin crew make the best effort to make small talk with passengers.	Johanson and Woods (2008), Mohsins and Lockyer (2010).
7	The cabin crew make the best effort to assist all passengers.	Expert panel
8	The cabin crew offer a warm welcome to all passengers.	Barsky and Nash (2002), Johanson and Woods (2008).
9	The cabin crew wished all passengers friendly goodbye.	Barsky and Nash (2002), Johanson and Woods (2008)
10	The cabin crew direct passengers to their seats.	Johanson and Woods (2008), Mohsins and Lockyer (2010), Gilbert and Wong (2003), Wilkins et al. (2007), Hyun et al. (2011).
11	The cabin crew make the best effort to assist passengers with carry-on luggage.	Mohsins and Lockyer (2010), Gilbert and Wong (2003), Wilkins et al. (2007).

Table 3 – Results from the first exploratory factor analysis		(conclusion)
12	The cabin crew strive to respond promptly to passenger requests.	Mohsins and Lockyer (2010), Johanson and Woods (2008), Wilkins et al. (2007), Gallarza and Saura (2006).
13	The cabin crew are available to assist passengers.	Johanson and Woods (2008), Gilbert and Wong (2003), Wilkins et al. (2007).
14	The cabin crew offer giveaways to passengers.	Hyun et al. (2011), Gallarza and Saura (2006).
15	The cabin crew make their best efforts to ensure that all passengers enjoy their meals.	Wilkins et al. (2007), Mohsins and Lockyer (2010), Wu and Liang (2009), Meng and Elliot (2008), Hyun et al (2011).
16	The cabin crew strive for passengers to receive enough food and drink.	Wilkins et al. (2007), Mohsins and Lockyer (2010), Wu and Liang (2009), Hyun et al. (2011).
17	Refreshments are available throughout the flight.	Expert panel
18	The cabin crew make every effort to ensure that passengers are comfortable in their seats.	Dubé and Renaghan (1999), Barsky and Nash (2002), Forgas et al. (2010), O'Connell and Williams (2005), Kim and Moon (2009), Gilbert and Wong (2003), Pakdil and Aydin (2007).
19	The cabin crew make every effort to ensure that cabin temperature is adequate for each passenger.	Kim and Moon (2009), Wu and Liang (2009), Hyun et al. (2011).
20	The cabin crew make every effort to ensure that cabin lighting meets passenger expectations.	Expert panel
21	The cabin crew make every effort to ensure that passengers can rest and sleep well.	Expert panel
22	The cabin crew make every effort to ensure passenger safety throughout the flight.	Heung et al. (2000), Knutson et al. (2009), Forgas et al. (2010), Gilbert and Wong (2003), O'Connell and Williams (2005).
23	The airline provides passengers with useful destination information prior to disembarkation.	Johanson and Woods (2008), Gilbert and Wong (2003), Wilkins et al. (2007), Kim and Lee (2011), Gallarza and Saura (2006).
24	The cabin crew invite passengers to fly with the airline again in the future.	Expert panel
25	The company appreciates the choice of passengers.	Expert panel
26	The company expresses its satisfaction in serving passengers during the flight.	Expert panel
27	The company invites passengers to contact ground staff if they encounter a problem when landing.	Expert panel

Source: Adapted from Nameghi and Ariffin (2013)

Continuing the process and after data collection, the 27 items were analyzed with SPSS software and an exploratory factor analysis with Varimax rotation was performed, reducing the items to 19 and grouping the hospitality dimensions.

The remaining 19 items were tested again with 546 passengers, and after running again SPSS, the previously obtained data were confirmed, namely that the construct based on airline hospitality can be effectively explained using the four dimensions called “Courtesy”, “Appreciation”, “Socializing”, and “Well-being” following Nameghi and Ariffin (2013) labels.

3 THE NEW DATA COLLECTION INSTRUMENT

After presenting the measurement scale developed by Nameghi and Ariffin (2013), we present the data collection instrument used in this study, that was adapted to the Brazilian context.

Therefore, given that the data collection was carried out through a questionnaire, it is worth remembering some advantages of this instrument, as Marconi and Lakatos (2002) point out, such as geographical coverage, time saving, less risk of bias due to researcher's influence, and greater certainty because the answers are not identified.

To this end, an adaptation and translation of the Malaysian authors' construct was made, initially resulting in a questionnaire with 9 closed-ended items.

Accordingly, the questionnaire has a total of 9 questions. The first one was a screening question to exclude from data collection those who have not used Brazilian domestic air transport in the last 24 months, a parameter also used by Nameghi and Ariffin (2013). The other 8 items, address the four dimensions defined in the construct developed by Nameghi and Ariffin (2013), which are courtesy, appreciation, socializing, and comfort, with 2 questions for each dimension.

For a better understanding of the data collection instrument, it is necessary to specify the definition of the mentioned dimensions, as follows:

- Courtesy: is the cabin crew's ability to interact with passengers in a polite and respectful manner;
- Appreciation: is related to a type of approval and gratitude on the part of the passenger, showing their willingness to fly with the company again;
- Socializing: refers to the cabin crew's efforts to engage personally with each passenger making them feel welcomed on-board aircraft;
- Comfort: It refers both to tangible factors related to the quality of the infrastructure and onboard amenities, as well as the psychological comfort that will make passengers relaxed and assured essential to the well-being of the passenger during the flight.

Thus, for each dimension of hospitality the following questions were asked:

Courtesy

- On the flight(s) taken, did the cabin crew interact with the passengers in a respectful manner?
- In your opinion, did the cabin crew make every effort to respond promptly to passenger requests?

Appreciation

- Did the cabin crew offer a warm welcome to the passengers?
- Did the cabin crew thank the passengers for their preference and invited them to fly again with the company?

Socializing

- Did the crew make every effort to make small talk with passengers?
- Have crew members made every effort to assist passengers in all their needs?

Comfort

- Have crew members tried to maintain adequate temperature control for passenger comfort?
- Did the cabin crew make every effort so that the passengers could rest comfortably?

After developing the questionnaire, we conducted a pretest for clarity, nonconformities, and the pertinence of the questionnaire to the research object.

According to Gil (2010), the number of respondents can be between 10 or 20, regardless of the number of elements that make up the sample, thus, 25 questionnaires were administered. Of these, 1 questionnaire was not returned and 4 were excluded because respondents had not taken domestic flights in the last 24

months, therefore, 20 valid questionnaires were collected. The analysis showed that respondents lacked items addressing the comfort dimension.

The pretest revealed a consensus among respondents regarding the intangible factors related to crew behavior, thus, we decided – following respondents’ suggestions – to add to the instrument developed by the Malaysian authors, adapting the construct to the actual experience of passengers with the Brazilian domestic airlines.

The initial questionnaire was composed of a total of 9 items and after the pretest other items were added, totaling 22 questions encompassing tangible factors – not addressed by the Malaysian authors – related to well-being dimension, adequate to the Brazilian domestic aviation market.

Another change concerned the “slightly agree” and “slightly disagree” scale options which the interviewees found difficult to distinguish. Thus, both options were eliminated and replaced by “neither agree nor disagree”, which altered the number of options for each item from 6 to 5.

Also, as a result of the interviews, the items were presented as statements with respondents indicating their agreement or disagreement in a scale ranging from 1 to 5, making it easier to fill in a single sheet table.

Thus, all the questions in the first questionnaire were kept – in the form of statements – and 14 new items were added addressing the dimension of comfort in following topics:

- punctuality;
- legroom space;
- provision of food on board;
- number of flight attendants on board;
- baggage fees;
- in-flight entertainment.

Further improvements in the instrument resulted from the second pretest, namely the need to insert three more items, related to luggage and food, which in the opinion of some respondents were relevant.

After these changes, a third pretest was carried out with 20 respondents and the analysis showed that the data collection instrument was ready to be administered.

The final version of the research instrument is shown in Table 4.

Table 4 – Data collection instrument

Gender	() Male	() Female
Age	() 18 - 24 () 25 - 35	() 36 - 50 () ≥ 51
Income	() ≤ 3 minimum wages () 3 - 10 minimum wages	() 10 - 20 minimum wages () > 20 minimum wages
Have you traveled by plane in the last 24 months?	() Yes	() No
Most of yours trips were	() Leisure	() Business
The travel time of most of your trips was	() up to 2 hours () 2 - 4 hours	() more than 4 hours

Based on your experience, rate from 1 to 5 the statements in the table below, where:

- 1- Strongly disagree
- 2- Disagree
- 3- Neither agree nor disagree
- 4- Agree
- 5- Strongly agree

1- The cabin crew interacted with the passengers respectfully.	1	2	3	4	5
2- A carry-on luggage up to 10 kg gives the passenger the level of comfort required.	1	2	3	4	5
3- The cabin crew made the best effort to respond promptly to passenger requests.	1	2	3	4	5
4- Free hand luggage of up to 10Kg reduced the flight price.	1	2	3	4	5
5- The company kept to the time schedule and takeoff was on time.	1	2	3	4	5
6- The cabin crew offered a warm welcome to passengers on board.	1	2	3	4	5
7- The legroom and reclining space allowed me to rest comfortably.	1	2	3	4	5
8- The cabin crew thanked passengers for choosing the airline and invited them to fly again with the airline.	1	2	3	4	5
9- The number of flight attendants on board allowed the passengers to be served promptly.	1	2	3	4	5
10- The cabin crew made the best effort to make small talk with the passengers.	1	2	3	4	5
11- I consider the provision of food and drinks on board to be essential.	1	2	3	4	5
12- Paid meals, snacks and beverages during the flight reduces the ticket price.	1	2	3	4	5
13- The cabin crew have worked tirelessly to assist passengers with all their needs.	1	2	3	4	5
14- I found in-flight entertainment (satellite TV, wireless internet, movies) to be satisfactory.	1	2	3	4	5
15- The cabin temperature control was adequate for my comfort.	1	2	3	4	5
16- The cabin crew made every effort so that the passengers could rest comfortably.	1	2	3	4	5
17- The aircraft was adequately clean.	1	2	3	4	5
18- The lavatories were adequately sanitized.	1	2	3	4	5
19- Reception and courtesy influence the choice of airline.	1	2	3	4	5
20- The quality of onboard service influences the choice of airline.	1	2	3	4	5
21- Inflight entertainment influences the choice of airline.	1	2	3	4	5
22- Punctuality influences the choice of airline.	1	2	3	4	5
23- Comfort influences the choice of airline.	1	2	3	4	5
24- There is enough room to put all passengers' hand luggage.	1	2	3	4	5
25- I agree with the price charged for food provided on board aircraft.	1	2	3	4	5
26 - I appreciate the quality of the food provided on board the aircraft.	1	2	3	4	5

Source: The authors, 2019

The final version of the data collection instrument highlighted the importance of the three pre-tests conducted because they showed that the initial approach – aimed at the Malaysia context – was not consistent with the Brazilian domestic aviation market.

4 DATA COLLECTION

The collection was made through distribution of printed questionnaires and Google Forms sent via email, WhatsApp, LinkedIn, and Facebook. The WhatsApp messenger application was the most effective channel for collecting the quantitative data, considering that it accounted for approximately 65% of responses. It should be clarified that the link of the data collection instrument was originally made available via email, LinkedIn, and WhatsApp only to people in the authors' contact network. Regarding the availability via Facebook this was done spontaneously by contacts who received the link. To effectively reach the target audience, as Malay authors did, respondents who had not traveled by plane in the past 24 months had their questionnaires excluded from the survey.

Regarding the sample size, 1,163 questionnaires were answered, of which 335 were answered on paper and the remaining 828 were answered via the Internet through the Google Forms link. Regarding the questionnaires on paper, answers were transcribed by the author into the Google Forms.

The survey yielded 1,095 valid answers, i.e. those from respondents who have traveled in a Brazilian domestic air transport aircraft in the last 24 months, being 68 questionnaires, 5.8% of the total, discarded because they did not meet this criterion. The data obtained were submitted to exploratory factor analysis, using the SPSS version 22 software.

5 QUANTITATIVE ANALYSIS

The study population is composed of users of Brazilian domestic air transport and the sample represents those individuals who traveled on Brazilian domestic air transport in the last 24 months.

In order to know the main characteristics of the sample, we present below the demographic characteristics of the sample, namely, gender, age, income, reason for travel, and duration of travel.

Table 5 - Gender

Options	Percentage	Frequency
Male	62.8%	730
Female	37.2%	433

Source: The authors, 2019

Table 6 - Age

Options	Percentage	Frequency
18 - 24 years	30.5%	355
25 - 35 years	20.8%	242
36 - 50 years	21%	244
Above 51 years	27.7%	322

Source: The authors, 2019

Table 7 - Income

Options	Percentage	Frequency
Up to 3 minimum wages	22.7%	264
3 to 10 minimum wages	37.1%	432
10 to 20 minimum wages	22.8%	265
> 20 minimum wages	17.4%	202

Source: The authors, 2019

Table 8 - Reason for travel

Options	Percentage	Frequency
Leisure	76.9%	894
Business	23.1%	269

Source: The authors, 2019

Table 9 - Duration of travel

Options	Percentage	Frequency
Up to 2 hours	26.1%	304
2 - 4 hours	42%	489
> 4 hours	31.8%	370

Source: The authors, 2019

After describing the sample demographics, we move on to the analysis of the data that will lead to the study conclusions.

Thus, as a first step, the quality of the model and the suitability of data for factor analysis were tested through KMO and Bartlett's sphericity test, which are presented in Table 10 (Hair et al., 2009; Pestana; Gageiro, 2013). The Kaiser-Meyer-Olkin (KMO) analysis is a criterion for assessing whether a factor analysis model is fitted to the data. Bartlett's sphericity test aims to examine the hypothesis that the variables are not correlated in the population.

Table 10 - KMO and Bartlett's test analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin measure of sampling adequacy		.839
Bartlett's sphericity test	Approx. Chi-Square	3,464,024
df		210
Sig.		.000

Source: The authors, 2019

Based on the data presented in Table 10, it can be observed that the KMO is 0.839 and can be considered "Very Good", according to the criteria of Pestana and Gageiro (2013) and Mingoti (2007) indicating that the factor analysis is suitable for this data set and the study can be continued.

The second test presented in Table 10 is Bartlett's sphericity test, which aims to verify if there are correlations between the variables, rejecting the null hypothesis of the data because they are not an identity matrix. Based on Table 10, we can state that with a significance below 0.0001, the data is correlated and is adequate for this type of analysis (HAIR et al., 2009)

A factor analysis was conducted using SPSS version 22 with principal component extraction and varimax rotation and 0.3 threshold. The initial solution presented six factors, but it was necessary to eliminate the variables 5 => 0.310, 7 => 0.337, 8 => 0.364, and 10 => 0.453, as they have communalities below those recommended by Pestana and Gageiro (2013).

Regarding the variables 26 => 0.435, 9 => 0.451, 14 => 0.449, even though they did not reach the minimum commonality recommended by Pestana and Gageiro (2013), they were kept, as their removal would imply model unbalance. Also, variable 25 => 0.495 was not discarded because it was just slightly below the recommended threshold.

The factor structure to emerge was a 5-factor solution, which was tested for quality and adequacy. Data were analyzed using exploratory factor analysis (EFA) to simplify the variables through the concept of latent variable or factor, thus facilitating interpretation (Malhotra, 2011; Pestana; Gageiro, 2013).

Another measure for assessing the quality of the model was sampling adequacy through the anti-image correlation matrix, presented in Table 11, which according to Hair et al. (2009) is the measure of correlations between variables.

Table 11 – Measure of sampling adequacy

Anti-image correlation matrix	
1- The cabin crew interacted with the passengers respectfully.	.848 ^a
2- Carry-on luggage up to 10 kg gives the passenger the level of comfort required.	.814 ^a
3- The cabin crew made the best effort to respond promptly to passenger requests.	.868 ^a
4- Free hand luggage of up to 10Kg reduced the flight price.	.779 ^a
6- The cabin crew offered a warm welcome to passengers on board.	.858 ^a
9- The number of flight attendants on board allowed the passengers to be served promptly.	.914 ^a
12- Paid meals, snacks and beverages during the flight reduces the ticket price.	.710 ^a
13- The cabin crew have worked tirelessly to assist passengers with all their needs.	.895 ^a
14- I found in-flight entertainment (satellite TV, wireless internet, movies) to be satisfactory.	.874 ^a
15- The cabin temperature control was adequate for my comfort.	.901 ^a
16- The cabin crew made every effort so that the passengers could rest comfortably.	.916 ^a
17- The aircraft was adequately clean.	.795 ^a
18- The lavatories were adequately sanitized.	.785 ^a
19- Reception and courtesy influence the choice of airline.	.824 ^a
20- The quality of onboard service influences the choice of airline.	.775 ^a
21- Onboard entertainment influences the choice of airline.	.863 ^a
22- Punctuality influences the choice of airline.	.823 ^a
23- Comfort influences the choice of airline.	.813 ^a
24- There is enough room to put all passengers' hand luggage.	.855 ^a
25- I agree with the price charged for food served on board aircraft.	.783 ^a
26- I appreciate the quality of the food provided on board the aircraft.	.906 ^a

Source: The authors, 2019.

The values considered acceptable for this type of analysis should be greater than 0.05. It can be verified in Table 11 that no value was below the recommended threshold, thus, all variables were kept in the model (Hair et al., 2009; Pestana; Gageiro, 2013).

The next step in assessing data quality was commonality analysis which, according to Hair et al. (2009), represents the total amount of variance that an original variable shares with others, with an acceptance threshold of 0.5. The commonality values in this study are presented in Table 12.

Table 12 – Communalities of the variables

Commonalities	Initial	Extraction
1- The cabin crew interacted with the passengers respectfully.	1.000	.601
2- A carry-on luggage up to 10 kg gives the passenger the level of comfort required.	1.000	.797
3- The cabin crew made the best effort to respond promptly to passenger requests.	1.000	.666
4- Free hand luggage of up to 10Kg reduced the flight price.	1.000	.662
5- The company kept to the time schedule and takeoff was on time.	1.000	.594
6- The cabin crew offered a warm welcome to passengers on board.	1.000	.451
7- The legroom and reclining space allowed me to rest comfortably.	1.000	.721
8- The cabin crew thanked passengers for choosing the airline and invited them to fly again with the airline.	1.000	.589
9- The number of flight attendants on board allowed the passengers to be served promptly.	1.000	.449
10- The cabin crew made the best effort to make small talk with the passengers.	1.000	.529
11- I consider the provision of food and drinks on board to be essential.	1.000	.513
12- Paid meals, snacks and beverages during the flight reduces the ticket price.	1.000	.741
13- The cabin crew have worked tirelessly to assist passengers with all their needs.	1.000	.772
14- I found in-flight entertainment (satellite TV, wireless internet, movies) to be satisfactory.	1.000	.655
15- The cabin temperature control was adequate for my comfort.	1.000	.736
16- The cabin crew made every effort so that the passengers could rest comfortably.	1.000	.617
17- The aircraft was adequately clean.	1.000	.548
18- The lavatories were adequately sanitized.	1.000	.678
19- Reception and courtesy influence the choice of airline.	1.000	.597
20- The quality of onboard service influences the choice of airline.	1.000	.495
21- In-flight entertainment influences the choice of airline.	1.000	.435

Source: The authors, 2019

Based on the values presented in Table 12 and following the recommendations of Hair et al. (2009) and Malhotra (2011), it can be observed that all the values of the variables were above the recommended, except for the variables 14, 25, 26, and 9 which were already justified, therefore there was no need to exclude any variables.

The next analysis was variance explained that for a 6-factor solution came to an explanation of 61.71% of the model proposed in this study, and the remaining 38.29% of the model explained by other factors, therefore, this solution explains data well (PESTANA; GAGEIRO, 2013).

The last measure of model quality was Cronbach's alpha, which is a reliability measure for each factor ranging from 0 to 1, according to Hair et al. (2009), with acceptance values between 0.6 and 0.7. Study values are shown in Table 13

Table 13 - Cronbach's alpha of the factors

Factor	Cronbach's alpha	No. of variables	Result
1	.844	5	Supported
2	.778	5	Supported
3	.618	4	Supported
4	.670	3	Supported
5	.740	2	Supported
6	.482	2	Not supported

Source: The authors, 2019

The values presented in Table 13 show that factor 6 was below the recommended threshold of Hair et al. (2009) and should be eliminated. Thus, the rotated matrix of factors found in the study is presented in Table 14.

Table 14 – Rotated factor matrix

		Component				
		1	2	3	4	5
Attractions	20- The quality of onboard service influences the choice of airline.	.851				
	23- Comfort influences the choice of airline.	.798				
	19- Reception and courtesy influence the choice of airline.	.787				
	21- In-flight entertainment influences the choice of airline.	.734				
	22- Punctuality influences the choice of airline.	.721				
Service	3- The cabin crew made the best effort to respond promptly to passenger requests.		.790			
	1- The cabin crew interacted with the passengers respectfully.		.765			
	6- The cabin crew offered a warm welcome to passengers on board.		.747			
	13- The cabin crew have worked tirelessly to assist passengers with all their needs.		.623			
	9- The number of flight attendants on board allowed the passengers to be served promptly.		.548			
Well-being	15- The cabin temperature control was adequate for my comfort			.690		
	14- I found in-flight entertainment (satellite TV, wireless internet, movies) to be satisfactory.			.647		
	16- The cabin crew made every effort so that the passengers could rest comfortably.			.565		
	26 - I appreciate the quality of the food provided on board the aircraft.			.486		
Low cost	12- Paid meals, snacks and beverages during the flight reduces the ticket price				.835	
	4- Free hand luggage of up to 10Kg reduced the flight price.				.771	
Cleanliness	25- I agree with the price charged for food provided on board aircraft.				.637	
	18- The lavatories were adequately sanitized.					.827
	17- The aircraft was adequately clean.					.812

Source: The authors, 2019

After factor analysis, the software grouped the answers presented into 5 groups of interrelated questions that were summarized in 5 factors - “Attractions”, “Service”, “Comfort”, “Low cost” and “Cleanliness” - that were analyzed in the light of the presented theoretical framework.

5 DISCUSSION

From the grouping of questions performed by the SPSS and analysis of the behaviors covered in each group, we identified the striking feature of each of these groups to name them.

Thus, the construct, which can be translated here as an idealized model, to explain how hospitality is perceived on board Brazilian domestic air transport aircraft, from the passenger perspective, is composed of 19 items that can be explained using 5 factors that in the choice made by the author and based on the literature review were named “Attractions”, “Service”, “Well-being”, “Low cost” and “Cleanliness” organized in Table 14 by importance. I.e., for passengers the most important factor is “Attractions” followed in order of importance by “Service”, “Well-being”, “Low cost”, and “Cleanliness”.

In other words, exploratory factor analysis explains how questions relate and how they can explain hospitality on board aircraft.

That being said, we present our definitions for each of the factors related to hospitality on board Brazilian domestic air transport aircraft.

Attractions

Factor that is associated with the reasons why passengers choose an airline.

Service

Factor that is associated with the quality of interpersonal relationships between passengers and crew.

Well-being

Factor related to tangible and intangible aspects that allow the passenger to have a comfortable flight.

Low cost

A factor associated with the provision of food and drink on board only upon payment and the limitation of the size and weight of hand luggage, factors that are normally associated with low-cost operation.

Cleanliness

Factor associated with perceived cleanliness of the cabin and lavatories.

The first factor called “attractions” is explained by 5 items comprising on-board service quality; comfort; reception and courtesy; entertainment and hospitality.

The second factor called “Service” is explained by 5 items comprising passenger service; respect for passengers; the kindness of the crew; passenger assistance; and the number of flight attendants.

The third factor called “well-being” is explained by 4 items comprising thermal comfort; entertainment; crew assistance; and food quality.

The fourth factor called “low cost” is explained by 3 items comprising the provision of food and drink for payment; free hand luggage up to 10 kg; and the price charged for food.

The fifth factor called “cleanliness” is explained by 2 items comprising aircraft cleanliness and lavatories cleanliness.

After defining the factors and the items that explain them, we now describe each one in detail. Factor “attractions” was rated as the most important by respondents and in analyzing behaviors it is quite understandable that people would like and would be interested in:

- enjoy quality onboard service;
- make the trip with comfort;
- be received on the aircraft with courtesy;
- have a good in-flight entertainment system;
- on-time flights.

Going back to the literature addressing onboard service, Boutaud (2011) emphasizes the importance of returning to commensality, demonstrating that the provision of food and beverages on board aircraft serves the purpose of assembling the passengers in an environment that presents the warmth of meal and welcome in a place that feels safe and comfortable.

In addressing comfort, Lashley (2000) recalls that hospitality is offered to guests (passengers) who are away from home by a host (crew), necessarily involving a provider and a receiver, involving tangible and intangible factors. Thus, the provider promotes physical and psychological comfort and creates the necessary sense of safety. It is in this sense that hospitality is present in the passenger cabin of the aircraft.

Milon (2011) addresses in-flight entertainment focusing on the concept of mobile hospitality that would move from a place of reception as a dwelling – the hospitable dwelling – to the place of transportation as a mobile space of existence – the hospitable journey, a feeling enhanced by all the entertainment available to passengers.

Such an approach is consistent with Kakinoff (2019) study, in citing GOL's “more life to your time” program in which the airplane should be, in the customer's view, a great time machine that would allow them to travel without realizing or feeling the discomfort of dislocation.

Focusing on punctuality, Kakinoff (2019) makes it clear that for business travelers this item of airline choice is second only to the convenience of flight schedules.

Thus, concluding the comments on the factor “attractions” it is found that, not by chance, respondents attributed a high degree of importance to these items, because, as seen, the authors cited address the importance of “attractions” within hospitality in customer choice and preference.

The second factor on the importance scale attributed by passengers was called “service”, involving behaviors that are related to:

- crew members' efforts to meet passenger requests;
- crew members' interaction with passengers in a respectful manner;
- the kindness of the crew to the passengers;
- crew assistance to passengers; and
- the number of flight attendants on board.

In Camargo's (2004) view, hospitality can be divided into four moments, namely, receiving, hosting, feeding, and entertaining, all included in the factor used in this study to be referred to as “service”.

In hospitality studies, it can be said that the quality of interpersonal relationships, including “service”, is at the heart of the whole process, since if strict laws are not observed the whole process can go astray in the antithesis of hospitality that it would be hostility. This view is supported by Camargo (2015) for whom hospitality happens in the interstices, meaning that it is permeated by moments surrounded by inhospitality and even, why not, hostility.

Gotman (2001) considers hospitality as the act of welcoming and serving someone outside his or her home, being summarized in the relationship between a host and a guest. This encounter is governed by written or unwritten laws that define the continuity of the group.

The importance of quality of service is, once again, highlighted by Grinover (2002), for whom the word hospitality can be understood as the reception of guests, visitors, and travelers, and can be summoned up in the act of welcoming.

As we can see, the emphasis put on service is, predominantly, related to intangible factors. This finding is consistent with Lashley's (2000) findings for whom hospitality is conferred by a host to a guest who is away from home, involving intangible human relationship factors to provide safety and psychological comfort.

In this context, and to better understand how GOL's employees are trained to provide the best customer service, Kakinoff (2019) clarifies that the entire customer relationship team is guided by three principles: safety, simplicity, and friendliness. Safety is inherent to air activity, being an unsafe air operation unconceivable. Simplicity because the company carries a very wide spectrum of passengers, encompassing customers from different social classes. Finally, friendliness is the ingredient that will make the passenger feel welcomed.

“Well-being” was the third best rated factor by respondents and it is associated with tangible and intangible aspects that allow passengers to travel comfortably, including:

- the thermal comfort provided by maintaining adequate temperature control on board;
- the provision of entertainment and amenities such as high-speed Internet access and satellite tv;
- the crew members' efforts to provide adequate means for passengers to rest comfortably; and
- beverages and catering services that please most passengers.

A caveat is in order at this point. Hospitality here is addressed mostly through tangible aspects that make up the environment allowing passengers to travel in a comfortable way, although the intangibles aspects are also present, e.g. in the relationships between crew and passengers.

Thus, when talking about tangible and intangible aspects, it is worth remembering that Lashley et al. (2005) emphasize that the quality of interpersonal interactions in service delivery is more important to make for memorable experiences than the quality of tangible aspects. Thus, we are led to believe that the association of intangible aspects (smile, friendliness, warmth, attention, simplicity, courtesy) with tangible aspects (comfortable seating, good onboard service, adequate temperature, entertainment, amenities) would probably be the best way of welcoming passengers.

It is in this sense that Milon (2011) highlights the intention of companies to sell something more than just transportation, they endeavor to deliver moments where the person feels welcomed and has the feeling of being safely transported, in an environment that gives him or her the comfort and tranquility expected.

Therefore, the importance of “well-being” in the air transport context is evident, since it will be decisive in shaping the assessment of the overall quality of service provided by the airline.

The fourth factor identified in the research is associated with behaviors that are normally linked to low-cost airlines, including:

- the provision of food and drink on board for payment only;
- the free baggage allowance of a maximum of 10kg; and
- the price charged for food provided on board aircraft.

At this moment, when addressing the low-cost operation, it is worth recalling Palhares (2002) when he points out that, with the deregulation of the sector in the United States, some concepts of new air transport companies began to appear, creating growth conditions. One such concept was that of the low-cost/low-fare companies that was embodied in the US company Southwest Airlines with which air travel became more common, significantly reducing the “glamour” of flying.

Thus, the possibility of buying a plane ticket for more affordable prices and the possibility of paying by instalments, has improved the quality of life, especially for the less affluent classes, opening travel and leisure opportunities never before imagined.

Regarding the low-cost operation, the answers presented demonstrate that the provision of food on board, the size and weight of hand luggage, and the price charged for food on board are important topics for respondents.

Therefore, the “low-cost” factor, in the respondents' view, is seen as an important item in aircraft operation, provided that the restrictions imposed on passengers, as a result of this philosophy, imply a corresponding reduction in price.

Thus, the findings show some dissatisfaction in the Brazilian domestic air market, given that the context of a company such as Southwest Airlines, in the United States, is different of what is experienced in Brazil. The spartan-style flights correspond to low-cost fares, while in Brazil there is a feeling that comfort is diminished without any compensation in the ticket prices.

The fifth and last defined factor was called “Cleanliness” and is related to passengers’:

- perceived aircraft cleanliness; and
- perceived cleanliness of lavatories.

It would be impossible to address the factor “cleanliness” without talking about comfort, given that Nameghi and Ariffin (2013) define it as a set of features that involves both tangible factors related to the quality of infrastructure and amenities provided on board, as well as the psychological comfort that will bring the tranquility and confidence necessary to the well-being of the passenger during the journey.

Thus, cleanliness within its degree of importance is one of the items that must be observed to give passengers the feeling of being transported in an environment with adequate levels of comfort.

6 CONCLUDING REMARKS

The purpose of this research, described in this article, was to know how passengers perceive hospitality on board Brazilian domestic air transport aircraft. To this end, we developed a data collection instrument applied to 1,163 respondents through printed questionnaires and Google forms link.

The next step was to submit the obtained data to exploratory factor analysis using SPSS software, having the program grouped the answers presented in 5 interrelated question groups that can be summarized in 5 factors that were the object of analysis, within the theoretical framework presented.

Thus, the construct, which can be translated here as an idealized model, to explain how hospitality is perceived on board Brazilian domestic air transport aircraft, from the passengers' perspective, is composed of 19 items that can be explained using 5 factors that, based on the literature review, were named "attractions", "service", "well-being", "low-cost" and "cleanliness" ranked in Table 14 following their importance.

Regarding the main contribution of this research, it is related to the development of a model to measure hospitality aboard Brazilian domestic air transport aircraft, addressing different factors from those used by Nameghi and Ariffin (2013), aimed at made specifically for the Brazilian context.

Regarding the authors' impressions, the work allowed to know a little more about onboard hospitality in the Brazilian domestic air transport, making it clear that the comfort dimension regarding the tangible aspects still falls short in the view of the passengers. Overall, passengers' assessment is positive and apparently what bothers them most is the fact that certain cost cuts made, such as free in-flight service and restriction on free hand luggage up to 10 Kg, have not resulted in a decrease in the ticket price, giving them the feeling of being, somehow, undermined.

It is also worth remembering that this study has limitations and that these are related to the fact that the research was limited to Brazilian domestic air transport, and it is not possible to generalize these results to international air transport and to the context of other countries.

Finally, future research could apply the developed research instrument in other countries, thus allowing comparative analysis between the Brazilian context and that of other countries.

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