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## **Perceived Service Quality within the Portuguese hotel industry and its association with Customer Satisfaction**

Beatriz Guedes Costa

Master in Management

Supervisor:

Prof. Teresa Grilo, Prof.<sup>a</sup> Auxiliar, ISCTE Business School, Department of Marketing,  
Operations and General Management

November, 2020



**BUSINESS  
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Department of Marketing, Operations and General Management

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## **Acknowledgements**

First and foremost, I would like to express how overwhelming and fulfilling it is to submit this dissertation that marks the end of my academic life, at least for now. I have spent the last six years of my life in ISCTE-IUL that could have not been any more joyful and challenging, both personally and academically. These walls have witnessed so many of my achievements and setbacks, that this final milestone sure feels bittersweet.

It was not an easy task to finalize this dissertation while working a full-time job and for that I must thank my parents and grandparents for all the words of encouragement. Family truly is our greatest gift.

I must also mention my friends, whose constant companion, laughter and love meant the world to me during this period of my life that, without a doubt, was the most challenging so far.

Last but certainly not the least, I would like to thank my supervisor, Prof<sup>a</sup> Teresa Grilo for never doubting me, and helping me do what sometimes felt like it was impossible. For all the kind words and guidance, thank you, they truly meant a lot.

To my parents and grandparents, who make my heart full

## **Abstrato**

No atual mundo empresarial, a competitividade é um fator em constante crescimento com impacto em diversos setores, incluindo a indústria hoteleira. A qualidade dos serviços providenciados é muitas vezes utilizada como uma forma de diferenciação face aos concorrentes, como tal, é de extrema importância assegurar que a mesma se encontra inerente ao serviço providenciado.

Atendendo a este facto, o propósito desta dissertação é analisar a qualidade percebida do serviço na indústria hoteleira portuguesa – aos olhos do consumidor – assim como a sua associação com a satisfação.

De forma a atingir tal objetivo, foi utilizada a framework SERVPERF proposta por Cronin and Taylor (1992). Adicionalmente, esta dissertação procura exercer uma análise global do serviço, medição da qualidade percebida do serviço e a sua relação com a satisfação do consumidor.

Para obter conclusões empíricas, foram realizados testes e análises estatísticas, tais como testes de hipóteses, regressão linear, entre outras. A validade tanto do SERVPERF como do instrumento para avaliar a satisfação foi avaliada, e ambas as ferramentas consideram-se válidas para este estudo.

Os resultados destas análises e testes sugerem que existem diferenças nos níveis de qualidade percebida pelos clientes relativamente às diferentes dimensões da qualidade do serviço, e que estas têm influência na percepção global do serviço. Foram denotadas diferenças na influência de cada variável independente nas diversas dimensões da qualidade do serviço, satisfação e percepção global da qualidade do serviço. Verificou-se também uma associação forte positiva entre satisfação do consumidor e percepção da qualidade do serviço.

## **Abstract**

In a thriving business world, competitiveness is an ever-growing variable that has impact on many sectors and the hotel industry is not an exception. The quality of services is often used as a way of obtaining differentiation from competitors and therefore its provision is quite important for both ends, customer and company. Due to this fact, the purpose of this dissertation is to evaluate the perceived service quality in the Portuguese hotel industry – by the eyes of its customers – as well as its association with customer satisfaction.

To do so, the framework proposed by Cronin and Taylor (1992), SERVPERF, was used. Additionally, this dissertation aims to make an approach to a global analysis of the service, including in a single study, the evaluation of perceived service quality and the relationship between service quality and customer satisfaction. In order to do so, several statistics and analyses, such as hypothesis testing, linear regression, among others, were conducted.

The results showed good reliability for the SERVPERF and satisfaction construct. There were differences identified regarding perceived service quality for the different service quality dimensions, as well as different influences of the independent variables on the service quality dimensions, satisfaction and overall perceived service quality. A strong positive association was found between satisfaction and overall perceived service quality and that some service quality dimensions have a considerable influence on the overall perceived service quality.

### **JEL Classification:**

L83 – Industry studies: services (Sports • Gambling • Restaurants • Recreation • Tourism)

Y40 – Dissertations

**Keywords:** service quality, service quality dimension, perceived service quality, customer satisfaction, hotel industry

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## **Glossary**

LF = Lodging Facility

SQ = Service Quality

SQD = Service quality dimension

CS = Customer Satisfaction

PSQ = Perceived Service Quality





## Chapter 1. Introduction

### 1.1 Context

Nowadays it is quite clear that the business world is changing and evolving, being more centred in the consumer and its needs. With the globalization phenomenon, the consumer has access to a great number of services and products that satisfy his/hers needs on the spot, which enables the growth of competition and creates a need for having competitive advantages, Grönroos (2000).

According to Asubonteng *et al.*, (1996), service quality is a concept to bet on if one wishes to achieve differentiation from competitors. It is also mentioned throughout the academic field that customer satisfaction is connected with service quality in every sector, including the hotel industry, Yip *et al.* (2011), Jun *et al.* (2004). In fact, it is stated that service quality results in the satisfaction of customers, Parasuraman *et al.* (1985), Cronin and Taylor (1992), thus increasing the number of potential clients. Therefore, if one chooses to differentiate itself from the competitors – even in the hotel industry – one must take into account the importance of service quality which ultimately results in a satisfied customer. The overview of the hotel industry in particular, is the growing volume of competitors and rapid pace of growth, which has implications on the increased choice, greater value for money and augmented levels of service, Kandampully and Suhartanto, (2000). Such scenario makes it is quite clear that there is a challenge within the industry to satisfy and retain customers. By satisfying the customer, it is possible for the company to expand its business, obtain a higher market share and reach profitability. In fact, there are several studies indicating that an outstanding service quality results in a satisfied customer, which ultimately has impact on their choice of accommodation when planning their vacations, Wuest *et al.* (1996), Atkinson (1988), Ananth *et. al* (1992), Barsky and Labagh (1992), Cadotte and Turgeon (1988), Knutson (1988), McCleary *et. al* (1993), Rivers *et. al* (1991) and Wilensky and Buttle (1988).

Therefore, if a hotel management wishes to have a striving business, then it must put efforts in acknowledging the importance of service quality and its impact on customer satisfaction and adjust their offer accordingly.

In Portugal for quite a few years now, the hotel industry has been registering growth and a flood of tourists both internally as well as from all over the world, which has had impact on the Portuguese economy and society. In fact, according to the Portuguese National Institute of Statistics (2019), the tourism accommodation sector registered 3.3 million guests and 9.5 million overnight stays in August 2019, corresponding to year-on-year rates of change of +6.6% and +2.6% respectively (+5.6% and +2.6%

in July 2019, in the same order). Regarding overnight stays of residents, these grew by 3.2% (+3.1% in July) and of non-residents increased by 2.3% (+2.4% in the previous month).

Given the importance and weight this sector has on the Portuguese economy, together with fact that service quality is presented as a source of competitive advantage and a base for customer satisfaction in both services in general as in the hotel industry, this dissertation is focused in the analysis of the perceived service quality and customer satisfaction within the Portuguese hotel industry. Additionally, there are no studies of this context performed in the Portuguese reality, therefore this is perceived by the author as a relevant opportunity to provide insights to the Portuguese hotel industry management on how to provide the best service quality possible and have satisfied customers.

The focus of this study will be on Portuguese customers that travel for leisure, since according to the Portuguese National Institute of Statistics (2019) “leisure, recreation or holidays” was the main reason to travel in the third quarter of 2019 (5.7 million trips, +20.4%), this way increasing its representativeness in 5.1 percentage points (66.2% of the total, compared to 61.1% in the third quarter of 2018); led as the main reason for traveling on both domestic and foreign trips, with respectively 64.5% (+4.8 p.p.) and 78.7% (+5.3 p.p.) of trips.

Adding to this, the fact that the expectations and perceptions of guests – who travel for leisure – regarding service quality are quite subjective and they differ from one person to another, provides an opportunity to perform different analyses and withdraw many conclusions. One added analysis is the association of customer satisfaction with perceived service quality, as it is claimed in the academic field the existence of such relationship. Therefore, the author wishes to analyse it as well, which contributes yet to another interesting research.

## **1.2 Objectives**

With this dissertation, the author decided to make a distinction between the general objective and the partial ones that allow to withdraw conclusions and validate the central issue of this research.

### **1.2.1 General objective**

The aim of this dissertation is to measure the perceived service quality in the Portuguese hotel industry from the consumer’s perspective, who travel for leisure, as well as its association with customer satisfaction. Afterwards, it is assessed which service quality dimensions of the perceived service quality have more influence on the overall perceived service quality.

### 1.2.2 Partial objectives

To meet the main objective previously mentioned, throughout this dissertation the author intends to:

1. Evaluate customers' perception of the service quality for the Portuguese hotel industry, both overall and by quality dimension
2. Evaluate the influence of different services characteristics, such as star rating, hotel location, price range and additional set of offers, in the perceived service quality of the Portuguese hotel industry
3. Evaluate the influence of different customer characteristics such as age, gender, income range, area of residency, frequency of hotel stays in one year and party size when staying in a hotel, in the perceived service quality of the Portuguese hotel industry
4. Analyse which of the service quality dimensions have more influence on perceived service quality in the Portuguese hotel industry
5. Evaluate customer's satisfaction with the Portuguese hotel industry
6. Analyse the strength of the association between overall perceived service quality and customer satisfaction within the Portuguese hotel industry
7. Propose managerial recommendations for the service delivery in the Portuguese hotel industry to improve perceived service quality and customer satisfaction

### 1.3 Research questions

To meet the objectives described in the chapter above, research questions were developed:

**RQ1:** What is the Portuguese customer's perception of the service quality provided in the Portuguese hotel industry?

**RQ2:** To what extent do the service quality dimensions influence perceived service quality in the Portuguese hotel industry?

**RQ3:** Is perceived service quality associated with customer satisfaction in the Portuguese hotel industry?

**RQ4:** Which managerial recommendations regarding service delivery can be made to improve the perceived service quality and the customer satisfaction with the Portuguese hotel industry?

## **1.4 Research methodology**

To meet the objectives initially described, a questionnaire was thought needed to be answered by customers of the Portuguese hotel industry. To have a proper tool to do so, research was conducted in the academic field to search for suitable frameworks for measuring service quality both in general services as well as in the hotel industry. After a wide investigation, the appropriate instrument was used to evaluate perceived service quality and customer's satisfaction. The questionnaire was released through social media networks (such as Instagram, Facebook, Whatsapp) as well as via e-mail, and its results were analysed in SPSS software.

## **1.5 Dissertation structure**

The structure of this dissertation is divided in five chapters being the contents described in the following paragraphs.

The Chapter 1, Introduction, discloses that customer satisfaction is a central issue in the current business world and aligned with the presence of many competitors, makes it crucial to obtain competitive advantages and provide the best service possible. Only with this, companies and brands can satisfy its customers. Moreover, the context for this dissertation is provided in more detail, its objectives – both general and specific – the methodology carried out, research questions explained and the structure of this paper.

In the Chapter 2, Literature Review, a review is made on the existing literature regarding the field of the study of this dissertation. It begins with the development of service and service quality concepts, followed by the development of the tools used to assess perceived service quality – both in services in general and in the hotel industry. Then, the concept customer satisfaction and its relationship with perceived service quality is disclosed, allowing to find the necessary links between the concepts that serve as a foundation to reach these dissertation's objectives.

In the Chapter 3, Methodology, the dissertation investigation model and its operationalization are developed. Afterwards, the independent variables to be used, the hypotheses testes to be carried out and other statistical techniques thought to be of value added for this study, are also presented. In addition to this, the methods for data collection and tools for its assessment are disclosed.

In the Chapter 4, Data analysis, the results obtained from the data collection are presented and analysed. This is done by resorting to statistical techniques such as Cronbach's Alfa, hypotheses tests, statistical correlation and multiple linear regression.

In the final Chapter, Conclusions & Discussion, the conclusions and final remarks of this study are disclosed. The research questions presented are answered based on both literature review and results from the data analyses. Afterwards, the study limitations are disclosed and suggestions for future research on this topic will also be presented.

## **Chapter 2. Literature Review**

In this chapter, the many concepts used throughout this dissertation are presented, as well as the main pillars that construct the arguments that allowed the author to create the hypotheses of this study in order to be able to provide theoretical support for this investigation.

### **2.1 Services**

As it has been stated throughout this dissertation, as well as in the academic filed, the global business environment that we live in results in an increase of competition and a rapid pace of innovation, where the business that satisfies its customers the most, is the one that survives. In this day and age, delivering quality service is considered a fundamental strategy for success, Dawkins and Reichheld (1990), Parasuraman *et al.*, (1985), Reichheld (1990), Zeithaml *et al.*, (1990).

In fact, according to Oliver and MacMillan (1992), every interaction between the firm and the customer – denominated as service encounter – is an opportunity to distinguish the company from its competitors by providing superior service and of quality.

Facing this, it is only natural that one of the main companies' focus is to improve their level of service and enhance the satisfaction of their customers. However, before disclosing what service quality is, one must assess what the concept service comprises.

Grönroos (2006, p. 323), refers that "a service is a process that consists of a group of activities that take place in interactions between a customer and people, goods and other physical resources, systems and/or infrastructures representing the service provider and possibly involving other customers, which aims at assisting the customer's everyday practices."

Regarding its components, according to Parasuraman *et al.*, (1985), services have four main characteristics, which are usually disclosed as IHIP (Intangibility, Heterogeneity, Inseparability, Perishability) characteristics. Following the work done by Sasser (1978), the IHIP characteristics are:

1. **Intangibles:** instead of goods (which are tangible since they are objects and therefore it is possible to assess its quality while manufacturing them), services cannot be touched, measured, counted, stored or inventoried. They instead deliver performance and therefore are intangible. The fact they are intangible actually creates a constraint for companies; it is more difficult for them to know how the customers perceive and evaluate the service, Zeithaml (1981).

2. **Heterogeneous:** the service performance will vary from provider to provider, day by day, as well as from customer to customer, Parasuraman (1985). Since each provision of a service is different, this situation can create a disparity between the delivery intention of the producer and the service received by the customer, Posselt (2017).

3. **Inseparable:** service quality is not something that can be prepared prior to its delivery in a laboratory or factory. In fact, it is during the service delivery that there is an interaction between the customer and the provider of the service, where quality is generated. Therefore, it is impossible to segregate the preparation and the provision of the service.

4. **Perishable:** as explained above regarding the impossibility to separate production and consumption, services cannot be stored and happen while being provided. This ultimately makes them perishable.

### 2.1.1 Service quality

As mentioned above, service quality is of great deal for the businesses to be able to thrive, therefore, it is critical to understand this concept and its implications. This notion has been an important topic of research due to its relationship with costs, Crosby (1979), profitability, Buzzell and Gale (1987), customer satisfaction, Bolton and Drew (1991) and Boulding *et. al*, (1993) customer retention, Reichheld (1990) and Bowen (1993) and positive word-of-mouth, Buttle (1996). There are two internationally recognized definitions of service quality, one being presented by the Nordic school Grönroos (1984) and the other one by the American school.

According to Grönroos (1984) service quality has two elements: technical quality, refers to what the customer is receiving from the service, therefore “what”, and functional quality, which refers to the manner in which the service is delivered to the customer, therefore “how”.

Regarding the American school, the variable expectations is included in the definition of the concept. Oliver's (1980) service quality theory states that this concept can be defined as the difference between customers' expectations for service performance *a priori* service encounter and the perceptions of the service received are formulated. In fact, this theory predicts that the customers will judge the quality as low if does not meet their expectations and vice-versa. Meaning, quality increases when customers' expectations are exceeded. Also, according to Lewis and Booms (1983), this concept can be defined as an overall assessment of service from the customer's perspective and it is a key criteria while evaluating the service.

Parasuraman *et al.* (1985), suggested three elemental themes regarding this concept:

1. Service quality is more difficult for the customers to evaluate than goods quality
2. Service quality perceptions result from a comparison of consumer expectations with the actual service performance
3. Quality evaluations are not made only on the outcome of service, bus as well as on the evaluation of the service delivery process

By reading these definitions it is quite clear that customers' expectations and service outcomes have a big impact on SQ. However, it is also important to understand the impact that the way service is delivered has on this concept. Quite a few authors agree on the fact that the service delivery process has influence on SQ. Sasser *et al.* (1978) divided service performance in three levels: material, facilities and personnel. This distribution by dimensions, implies that service quality involves not only the outcome, but also the way in which the service is delivered. According to Lehtinen and Jarmo (1982), service quality is created during the interaction between the customer and any element that is part of the company. These authors divided service quality in three dimensions: physical quality (physical parts of the service such as equipment or facilities), corporate quality which considers the company's image, and interactive quality (takes into account the interaction between the customer and the service personnel, and also customers with other customers).

By gathering all the academic work done by the mentioned authors, it is possible to conclude that there are three main points we should keep in mind when thinking about service quality:

1. This concept involves a comparison between the customer expectations and the actual service delivered
2. Service quality, due to services characteristics (intangibility, heterogeneity, inseparability and perishability) it is harder to be evaluated by the customer than goods quality

3. Service quality does not solemnly depend on the outcome of the service. The service delivery process and the way service is delivered, are important aspects to have a quality service

#### 2.1.1.1 Service quality dimensions

Swartz and Brown (1989) made some distinctions regarding the SQ dimensions that were derivate from the work of Grönroos (1984) and Lehtinen and Jarmo (1982) presented in the chapter above. “What” the service delivers is evaluated after the performance, Swartz & Brown (1989). This dimension is called outcome quality by Parasuraman *et al.* (1985), technical quality by Grönroos (1982) and physical quality by Lehtinen and Jarmo (1982). “How” the service is delivered is evaluated during its delivery, Swartz & Brown (1989). This second dimension is referred by Parasuraman *et al.* (1985) as process quality, functional quality by Grönroos (1982) and interactive quality by Lehtinen and Jarmo (1982).

In short, the five dimensions of service quality can be described as follows, according to Kitapci *et al.* (2014), based on the authors above mentioned:

1. Tangibles
2. Reliability
3. Responsiveness
4. Assurance
5. Empathy

#### 2.1.2 Perceived service quality

According to Parasuraman *et al.* (1988), perceived service quality is a “global judgement, or attitude relating to the superiority of the service and explained it as involving evaluations of the outcome (what the customer receives from the service) and process of service act (the way in which the service is delivered)”. It also operationalized the concept as the difference between customers’ expectations and customers’ perceptions of the service delivery in a tool, denominated SERVQUAL. Zeithaml (1987) stated that the construct of service quality is centred on perceived quality, defined as a consumer’s understanding regarding an entity’s overall excellence or superiority.



### 2.1.2.1 Assessment of Perceived Service Quality

As it was previously mentioned, companies wish to provide quality services since the benefits that advent from it are quite significant. This goal shows the need for developing measures that can estimate the current level of service provided, since measurement it is the first step towards improvement, and managers can take better decisions and deploy resources to produce customer satisfaction, Chatzoglou *et al.* (2014). In addition to this, since there is been an increasing awareness regarding service quality enhanced by globalization, the need to measure it also increased, generating the prompt development of metrics for its assessment. There is quite a lot of academic work done in this field, however the most suitable and valid metrics to assess this concept are SERVQUAL formulated by Parasuraman *et al.* (1985) and SERVPERF created by Cronin and Taylor (1992). Both will be developed and explained in the following chapters.

#### 2.1.2.1.1 SERVQUAL Model

Even though the SERVQUAL model was created twenty years ago by Parasuraman (1985), it is still the most mentioned tool for measuring service quality, despite of all its criticisms. The author took empirical evidence from five industries: retail banks, a long-distance telephone company, securities broker, an appliance repair and maintenance firm and credit card companies to formulate such instrument.

This method measures the service quality by comparing the customers' expectations of the service yet to be received and their perceptions of the service delivered. Therefore, it measures the gap between customers' expectations and perceptions. Afterwards, this gap is based on the ten dimensions of service quality:

1. Reliability: refers to the consistency of performance and dependability
2. Responsiveness: willingness or readiness of employees in providing the service
3. Competence: means possessing the right skills and knowledge to perform the service
4. Access: involves the approachability and ease of contact
5. Courtesy: refers to the politeness, respect and friendliness of the company's personnel
6. Communication: means to keep the customers informed and listened to them
7. Credibility: involves trustworthiness and honesty
8. Security: freedom from danger and risk

- 9. Understanding and knowing the customer: trying to understand the customer’s needs
- 10. Tangibles: includes the service’s physical evidence

In Parasuraman *et al.* (1988) later work, the ten dimensions collapsed into five: reliability, assurance, tangibles, empathy and responsiveness. Reliability, tangibles and responsiveness remained independent, but the other seven dimensions were aggregated into assurance and empathy.

Table 1. Parasuraman et al. (1991b) five dimensions of Service Quality

Dimensions	Definition	Items in scale
Reliability	Ability to perform the promised service accurately	Four
Assurance	Knowledge and courtesy of employees and their ability to transfer trust	Five
Tangibles	Apperance of physical facilites, equipment, personnel and communication materials	Four
Empathy	Provision of caring and personalized attention to the customers	Five
Responsiveness	Willingness to help custmers and provide prompt service	Four

The first dimension mentioned, Reliability, is the one related to service outcome oppose to the other four that are more associated with the service delivery process, according to Parasuraman *et al.* (1991b). Another suggestion made by the author is that even though reliability is the most important dimension in matching customer expectations, the other four are crucial to exceed customer expectations.

This tool has a set of 22-item tapping the five dimensions above described, which are measured by either five or four items each. To designate which questions are measuring which dimension, a factor analysis was done, allowing to conclude which questions do not distinguish between dimensions and the number of dimensions in the data. The questions that were not related to any of the dimensions were discarded by the authors.

This instrument is administered twice but in different forms, the first is to measure expectations and the second one to measure perceptions. Therefore, this model ends up having a comprised set of 44 items (22 for expectations and the other 22 for perceptions). The customers’ responses to their expectations and perceptions are settled on a 7-point Likert scale and are compared in order to reach a P-E gap score. The higher perception is *versus* expectations, then higher is the perceived service quality, and vice-versa. If service quality is negative, it indicates “dissatisfaction” and if positive indicates “satisfaction”.

The gap between expectations and perceptions are related to a number of different variables. The five fundamental gaps of this tool are the following, Parasuraman *et al.* (1991b):

**Gap 1:** difference between customers' expectation and management's perceptions understanding of those expectations.

**Gap 2:** difference between management's perceptions of customer's expectations and service quality specifications. This means that even if the customer desires are expected from the management, this will not be translated into the expected specifications due to restrictions concerning the organization resources, Zamil & Areiqat (2012).

**Gap 3:** difference between service quality specifications and service delivered, meaning, the service performance gap.

**Gap 4:** difference between the service delivered and its actual specifications with the organization's communication to customers regarding the service delivery. Meaning, do the promises made by the organization match the service delivery or not.

**Gap 5:** difference between consumer's expectations and perceived service. This gap depends on the size and direction of the other four gaps mentioned, associated with the delivery of service quality by the organization.

Although SERVQUAL is a pioneer tool in its field, it is not safe from criticism. The critics can be divided in theoretical and operational.

### Theoretical

1. **Disconfirmation model:** refers to the scale related to the use of (P-E) gaps. Most studies done in this field, have found this to be an inadequate fit between this service scale and the overall service quality measured directly through a single-item scale, Babakus and Boller (1992), Babakus and Mangold, (1989), Carman (1990) and Finn and Lamb (1991). They state that these scores do not provide any additional information beyond what is already contained in the perception component of service quality scale, Jain and Gupta (2004). Cronin and Taylor (1992) also criticized this tool, saying that perceived service quality should be conceptualized in attitudinal terms, and in this instrument it is not done considering such terms. In fact, according to Peter *et al.* (1993) and Buttle (1996), there is little to no evidence that customers assess service quality in this way (P-E).

2. **Expectations:** according to Babakus and Boller (1992), expectations don't play a significant role in the conceptualisation of service quality. Churchill and Surprenant (1982) also agreed with this statement,

illustrating in their customer satisfaction work that this gap might not contribute with anything new or of value given that the gap is a direct function of E and P. Another critic made to this concept it is the fact that it's loosely defined and is open to several different interpretations, Teas (1993).

3. **Process orientation:** this tool focuses on the process of service delivery, not the outcomes of the service encounter, Buttle (1996). A study done by Richard and Allaway (1993) which incorporated both process and outcome components, allow them to conclude that process-and-outcome is a better predictor of consumer choice than process, or outcome, alone.

4. **Dimensionality:** the five dimensions used in the instrument are not universal; the items do not always load on the factors which one would expect prior to the service delivery, Buttle (1996).

### Operational

1. **Item composition:** each factor of this tool scale is composed by either four or five items. By looking at studies carried out Carman's (1990) study of hospital services (employed 40 items), Bouman and Van der Wiele (1992) study of car service used 48 items, Saleh and Ryan (1991) in their hospitality industry research employed 33 items, Fort (1993) on his software house service quality analysis used 31 items, and Babakus and Mangold (1992) employed 15 items on their hospital research, it becomes clear that this scale composition it is not adequate to capture the variance within, or the context-specific meaning, of each dimension, Buttle (1996).

2. **Scale points:** SERVQUAL uses a seven-point Likert scale, which has been criticized on several premises. Lewi (1983) criticized this scale since from her point of view, it lacks verbal labelling for points two to six. Such can lead the questionnaire respondents to overuse the extreme ends of the scale, which could be deflected by labelling each point. Another concern is the interpretation respondent may have of the midpoint meaning in the scale. Is it a "Don't know", is it an "I feel indifferent" response? There are so many ways to interpret this midpoint that sure is a shortcoming of this scale.

3. **Two administrations:** according to Bouman and Van der Wiele (1992), answering towards expectations and perceptions can cause the questionnaire respondents to be confused and disinterested, affecting the quality of data collected.

4. **Variance extracted:** according to Fornell and Lacker (1981) the variance extracted should be employed only as a measure of construct validity. SERVQUAL author, Parasuraman *et al.* (1988), stated that the total amount of variance extracted by then five factors in the different industries he applied the tool in – bank, credit-card, repair and maintenance, and long-distance telephone samples – was 56 per

cent, 57,5 per cent, 61,6 percent and 56,2 per cent respectively. However, several studies have shown different values for the variance extracted for different settings of services, Babakus and Bolders (1992), Carman (1990), Saleh and Ryan (1991), and Bouman and Van der Wiele (1992). This goes to show that in a general way, the modified scales (formulated with the specific industry in mind) tend to produce higher levels of variance, which ends up validating more the measure.

#### 2.1.2.1.2 SERVPERF Model

Of all the criticisms that SERVQUAL faced, the harshest one came from Cronin and Taylor (1992). They alleged that this tool scale was questionable and found it confusing with service quality. They were keen on discarding the expectations (E) component from the instrument and use only performance (P), and created a new tool, denominated as SERVPERF. Their theoretical claims were supported by empirical evidence that they gathered from four different industries: banks, pest control, dry cleaning and fast-food. Since this new tool is a variant from SERVQUAL that only comprises the perceived performance component, the number of items is only twenty-two and the seven-point Likert scale was maintained. This method also does not differ in the number of dimensions used to measure service quality, them being tangibles, reliability, responsiveness, assurance and empathy. In this instrument, the higher the perceived performance, the higher is service quality. This new tool is an improvement regarding SERVQUAL both in a methodological way and in an empirical way. Regarding the methodology, the number of items was minimized in fifty per cent, which shows that the scale is more efficient. Regarding the empirical improvements, this tool is superior to SERVQUAL in the sense that is able to explain a greater variance in the overall service quality measured through the use of a single-item scale, Jain and Gupta (2004).

Actually, SERVPERF has a considerable amount of support from a lot of researchers, Babakus and Boller (1992), Bolton and Drew (1991b) , Boulding *et al.* (1993), Churchill and Surprenant, (1982), Gotlieb *et al.* (1994), Hartline and Ferrel (1996), Mazis *et al.* (1975), Woodruff *et al.* (1983). Also, it has been discovered that when applied along with the SERVQUAL scale, SERVPERF measure outperforms the SERVQUAL scale, Babakus and Boller (1992), Boulding *et al.* (1993), Brady *et al.* (2002), Cronin *et al.* (2000). After all these studies, it is possible to conclude that the perception-only measure seems more adequate, Cronin and Taylor (1992), Teas (1993), Siu and Cheung (2001) to assess perceived service quality.

Besides all this support from different researchers, one of the own SERVQUAL authors, Zeithaml, admitted that perceived service quality is directly influenced only by perceptions (or performance), Boulding *et al.* (1993). This ultimately testifies for the superiority of the SERVPERF instrument.

### 2.1.3.2 Assessment of Perceived Service Quality within the Hotel Industry

According to Yasin *et. al* (2004) the hotels that execute successful quality programs have great outcomes such as greater customer satisfaction, profit margins and lower operational costs than the competitors who do not pay attention to quality improvement programs. To do such, the hotel management must focus on providing a service in the levels of quality expected by their guests. Therefore, in order to know what the levels of quality guests are expecting, and which dimensions are more relevant to them, one must operate an instrument that assesses such topics.

However, developing such an instrument for industry it is not an easy task due to the several specifications this industry has: there are a lot of different property types, that along with the diverse needs of the hotel guests' shows that this concept should be assessed from many angles, Getty and Getty (2003). Therefore, this assessment measure should include dimensions that reflect this large scope of the quality construct of this industry.

As we could see from the critics made to SERVQUAL, the use of a generic scale for measuring service quality in all types of service circumstances have been put to question by several academics, as well as argued that a simple modification of the SERVQUAL items is not enough to measure the service quality across different services industries, Carman (1990), Babakus and Boller (1992), Brown *et al.* (1993), Van Dyke *et al.* (1997).

According to a study done by Carman (1990), there are a few dimensions that must be expanded by adding thirteen additional items to the SERVQUAL tool, so it can be possible to adequately assess service quality across different types of services.

In addition to this, research made by Babakus and Boller (1992) suggested that service quality in some services settings is a unidimensional concept and in others a multi-dimensional one. Facing these evidence's it is possible to conclude that industry-specific measures of service quality might be more suitable than using a single generic scale. In fact, Dabholkar (1996, p. 14) stated the following: "...it appears that a [single] measure of service quality across industries is not feasible. Therefore, future research on service quality should involve the development of industry-specific measures of service quality." Facing this, there is a lot of research done attempting to adapt SERVQUAL to develop alternative specific-industry measures. The hotel industry is one of them. The table below indicates studies carried out in the hotel industry using an adapted version of SERVQUAL and dimensions used.

Perceived Service Quality Within the Portuguese Hotel Industry

Table 2. Studies carried out in the hotel industry using an adapted version of SERVQUAL

Study	Service Industry and Country	Dimensions	Reliability
Knutson, <i>et al.</i> (1992)	Lodging industry, USA	5 dimensions: reliability (4 items), assurance (5), responsiveness (3), tangibles (6), empathy (8)	Ranged from 0.63 to 0.80
Getty and Getty (2003)	Lodging industry, USA	5 dimensions tangibility (8); reliability (4); responsiveness (5), confidence (5), communication (4)	High reliability no detailed information
Akbaba (2006)	Business hotel Industry, Turkey	5 dimensions: tangibles (6), adequacy in service supply (7), understanding and caring (5), assurance (4), and convenience (3)	Ranged from 0.71 to 0.86
Wilkins <i>et al.</i> (2007)	Hospitality service (Australia)	3 dimensions: physical product (3 sub-dimensions, 13 items), service experience (3 sub-dimensions, 13 items), quality food and beverage (4 items)	Ranged from 0.72 to 0.90
Saleh and Ryan (1991)	Hospitality industry, Canada	4 dimensions for hotel guests: tangibles and reliability (10), responsiveness (8), assurance (8), empathy (6)	Ranged from 0.74 to 0.93 for hotel guests; ranged from 0.63 to 0.80 for management staff

From these different studies it is apparent that the number of dimensions varied according to the service context and the country. These insights give a bit of a direction to researchers in developing measures to assess service quality in the hotel industry. In the chapter below, some other tools used to measure PSQ in such industry are presented and developed, as well as the understanding of the dimensions' importance for service quality in the hotel industry; they are HOLSERV, LODGSERV and Lodging Quality Index (LQI).

2.1.3.3.1 HOLSERV – SERVQUAL model applied to the hotel industry

Service quality has been a subject of discussion in the hotel industry and has been a topic of a few research and studies, Chang *et al.* (2002), Sargeant and Mohamad (1999), Tsang and Qu (2000). However, there is a challenge to be kept in mind; in this industry there are other attributes (besides the general service attributes), such as imprecise standards and seasonal demand creating a difficulty in measuring service quality, Wong *et al.* (1999). In fact, quality aspects such as “friendliness”, “politeness” and “helpfulness” can have different interpretations and meanings to different guests. The seasonal component of the demand can also complicate the provision of a consistent service of quality, Sasser *et al.* (1978). Such constraints are an increased difficulty. As discussed in the section 2.1.2.1, more precisely in sub-section 2.1.2.1.1, there is a renowned tool for measuring service quality, SERVQUAL. But also, as we know, there has been quite some criticisms pointed towards this instrument, making us questioned if it is indeed a good method to measure such construct in this industry.

For instances, the study carried out by Saleh and Ryan (1991) regarding hotel industry, reported five dimensions of quality that are different from the ones used in SERVQUAL. Which suggests that a further customization of the scale must be done for this specific industry.

The author Wong *et al.* (1999) in her study regarding analyzing service quality in the hotel industry, created a tool based on SERVQUAL but customized it according to this industry, and named it HOLSERV. This instrument used the conceptualization of service quality as the degree of discrepancy between guests' expectations *a priori* service delivery and guests' perceptions of the service delivered. So, as we can see, Wong *et al.* (1999) used the same construct conceptualization as Parasuraman *et al.* (1988). In the development of this new tool, eight items were either modified or added to the original SERVQUAL scale, three items were deleted, leaving HOLSERV to be constructed by a total of 27 items. In similarity with the scale used in SERVQUAL, HOLSERV also used the seven-point Likert scale for guests to evaluate their answers, being 1 = "completely failed to meet my expectations" and 7 = "far exceeded my expectations". In addition to this, there was also another scale whose goal was to measure overall service quality, using a single rating ten-point scale, being 1 = "very poor" and 10 = "excellent". This was done to be possible to conclude what is the best predictor of overall service quality. To assess the scale reliability, it was used the Hunter and Gerbing's (1982) approach of confirmatory analysis to establish reliability. After this analysis was carried out, the high alpha values for the total index are high while the reliability coefficients for the five dimensions exceed the 0,70 cut-off value, recommended by author Nunnally (1967). These high alpha values indicate good internal consistency among the items and the high alpha value for the overall scale indicates that the validity HOLSERV is indeed met, Wong (1999).

To establish HOLSERV's predictors of the overall service quality, a regression analysis was made. The results indicate that the best predictor is responsiveness, assurance and empathy, all items related to employees. This result shows that hotel managers should invest efforts in improving the items in employees, which consists on the functional aspects (how it is done) of the service rather than technical aspects (what it is done), Wong *et al.* (1999). The tangibles dimension is the second-best predictor of overall service quality, and consists in having modern equipment', a good decoration, hotel location and so on. These results are also supported by the research done by Knutson *et al.* (1992) on the hotel industry, since he also reached similar conclusions on the importance of this dimension on PSQ.

In conclusion, the findings of the HOLSERV application suggest that there are three dimensions to service quality in the hotel industry: employees, tangibles and reliability. Being the dimension employees, the best predictor for overall satisfaction quality. It was also demonstrated that this tool is reliable and



valid for assessing the construct of service quality in the hotel industry. Besides HOLSERV being reliable it is also a shorter and more user-friendly version than SERVQUAL, Wong *et al.* (1999).

#### 2.1.3.3.2 LODGSERV model

LODGSERV is a tool created by Knutson *et al.* (1990) based on SERVQUAL, which goal is to measure consumers' expectations for service quality in the hotel experience. It has twenty-six items and the five generic dimensions of the Parasuraman *et al.* (1985) model. Guided by the work of this author, LODGSERV was first designed with thirty-six items to reach all five dimensions of SERVQUAL. While testing this tool, Knutson *et al.* (1990) had three elements leading this study: validity, reliability and utility. Regarding validity, since SERVQUAL was already proven to be valid and the intent of each question was maintained, the validity of LODGSERV was assumed. To test for reliability, Hunter and Gerbing's (1982) approach was used, using tests for internal consistency, parallelism and calculations of coefficient alpha. Afterword's, it was clear that ten out of the thirty-six items had no value for the index and were discarded, being LODGSERV left with twenty-six. As similar as SERVQUAL, this industry-specific tool used the seven-point Likert scale in its surveys (ranging from 1 = strongly disagree reflecting low expectations and 7 = strongly agree, reflecting high expectations).

The distribution of this instrument scores shows that hotel guests indeed have high expectations for service quality in this service industry. Besides the general sense of high expectations, when individual dimension scores were examined, it was also clear that guests have a hierarchy of service quality expectations. According to the results this tool showed, the most important dimension of service quality in a hotel experience is reliability (mean score of 6,63). The second most important dimension is assurance (mean score of 6,39). This shows that hotel guests feel strongly about trust and confidence the hotel management and staff can transmit to them. They wish to feel that the employees can handle the unexpected and are experienced. The third most important dimension is responsiveness. Such refers to the employees' promptness in solving the guests' issues, and being available and willing to help. Ranked in fourth place is the dimension tangibles. According to the results, the majority of the sample considered that it is important for the hotel to have a good decoration, a good location, efficient and modern equipment and a neat staff presentation. Ranked last, it is the Empathy dimension, referring to the employees caring and being sensitive to the guests' individual needs. Besides the means values for the first two dimensions (reliability and assurance), there is also a small deviation, indication that these dimensions are most likely dissatisfiers more than satisfiers, meaning, if they are present the guests will not be satisfied, however if they are not present, then they will be dissatisfied, Knutson *et al.* (1990).

The research and development of LODGSERV done by Knutson *et al.* (1990) displays that this tool is indeed valid and reliable to be used to measure consumer expectations for service quality in the hotel industry.

#### 2.1.3.3.3 Lodging Quality Index (LQI)

This quantitative measuring tool based on SERVQUAL, created by Getty and Getty (2003) is a reliable and valid instrument with the goal to assess service quality in lodging facilities. The procedure for developing a scale employed by these authors was based on the one outlined by Churchill (1979) and applied by Parasuraman *et al.* (1988). In fact, the procedure used by Churchill was later used and illustrated its utility in developing a lodging quality scale, Getty and Thompson (1994a). The steps of such process are the following:

1. Specify the domain of quality
2. Generate a sample of items
3. Collect first data set
4. Purify measure
5. Collect second data set
6. Assess reliability
7. Assess validity
8. Develop norms

1. Specify the domain: in the development of LQI, all ten original dimensions of SERVQUAL were included in order to bring to light any other potential dimensions that may or may not exist in the lodging industry (Tangibility, Reliability, Responsiveness, Competence, Courtesy, Credibility, Security, Access, Communication, and Understanding).

2. Generate a sample of items: means to generate a pool of scale statements that represent each of the ten dimensions above described. Getty and Getty (2003) conducted in-depth interviews and were left with a total pool of 63 items.

3. Collect first data set: the instrument with the 63 items was mailed to frequent traveler business owners who were members of their local Chambers of Commerce; the result was twelve large US cities. The type of lodging facilities were not addressed in this study due to the fact that this market is highly segmented and customers may have different needs regarding LFs, Getty and Getty (2003)

4. Purify measure: item elimination was done by applying a Pearson correlation coefficient and a PCA, resulting in LQI being left with 45 item-scale. The original ten dimensions were also reduced to five:

tangibility (11 items), reliability (9 items), responsiveness (7 items), competence and communication morphed into one dimension (6 items), courtesy, credibility, security, access and understanding collapsed into one dimension as well (with 12 items). The last two dimensions were not assigned a label until the second application of scale purification.

5. Collect second data set: the revised 45-item scale was mailed to 1200 new subjects in the same cities, resulting in a response rate of 19,1 per cent.

6. Assess reliability: it was used the coefficient alpha and a factor analysis. The 45 item-scale was reduced to a scale of 26 items with 5 dimensions.

7. Assess validity: the validity of this tool was assessed in three indicators, established by Parasuraman, *et al.* (1988) (face validity, trait validity and predictive validity).

8. Develop norms: the basic score of a respondent on LQI does not provide any information to decision makers. Therefore, it is necessary to develop “norms” for the scale. This was done by looking at the overall distribution of scores for each individual item and comparing each score to the average, to establish a benchmark. Thus, when reviewing the results of the survey, it is important to examine the average score as well as the overall range to get a clearer view on what is meant by a high score and a low score.

In conclusion, this instrument captured the dimensions of quality within the lodging industry, being: tangibility, reliability, responsiveness, confidence and confidence, thus being different from the ones used in SERVQUAL and better in reflecting the nature of the lodging industry.

## **2.2 Customer Satisfaction**

### **2.2.1 Customer satisfaction in general**

Customer satisfaction has been the focus of many researches for the past years, since it is an essential factor related to a company's profitability and customer loyalty, Jones and Sasser (1995). This research resulted in numerous approaches to the concept. The two main conceptualizations of the concept can be divided in transaction-specific or cumulative. In the transaction specific, customer satisfaction is viewed as a post-purchase evaluation judgement, Anderson and Fornell (1993). In the cumulative perspective, the concept is viewed as an overall evaluation based on the consumption experience with a product/service over time, Fornell (1992), which ends up being a fundamental indicator of a company's service supplier performance through time, Bitner and Hubbert (1994) and Rust and Oliver (1994).

According to Greenwell *et al.* (2002) and Liu and Jang (2009) customer satisfaction has been presented and studied as a unidimensional construct that measures the overall satisfaction with the service – this satisfaction being the result of all the interactions between the customer and the service organization. In fact, Johnson and Fornell (1991) also defined this concept as the overall satisfaction of the performance of an offering, product or service up to date. Hunt (1977) defined customer satisfaction as a cognitive process related with the post-purchase evaluation of the product/service offering.

Besides all these definitions, Oliver (1980) developed the most widely accepted form of construct – the expectancy disconfirmation theory. This theory states that customer satisfaction results from the comparison made between his/her expectations pre-purchase about anticipated performance and perceptions of performance. In a simpler way, it is the comparison of expectations *versus* outcomes of the service usage. When the outcomes match the expectations, confirmation occurs ( $P = E$ ). When there are differences between the expectations and the outcomes, disconfirmation occurs ( $P \neq E$ ). The disconfirmation can be either positive – when the performance is better than the expectations ( $P > E$ ) – or negative – when the performance is worse than expected ( $P < E$ ). Satisfaction is then caused by either confirmation or positive disconfirmation, and dissatisfaction is the result of negative disconfirmation.

Gerson (2004), defined customer satisfaction as the customer perception that his/her expectations have been met or surpassed, while Thureau and Hansen (1999) defines the concept based on the disconfirmation theory, as the customers emotional reaction to a perceived difference between performance assessment and expectations. As we can see, these statements are pretty much aligned with the approach made by Oliver. The World Tourism Organization (1985) actually defined customer satisfaction as a psychological concept that states feelings of well-being and pleasure result from obtaining what one hopes for and expects from a product/service. Once again, this definition is somewhat similar with Oliver's.

As of result of all these studies, it is safe to say that customer satisfaction can be defined as the degree to which the individual's expectations are met or exceeded *versus* the performance of the service. With this, customer satisfaction has been related with expectations, perceived value, and service/product quality.

### 2.2.1.1 Customer satisfaction determinants

Although there is a consensus regarding the consequences of customer satisfaction, there is still some debate happening regarding its antecedents, Bodet *et al.* (2016). Szymanski and Henard (2001), basing on the work done by Oliver (1980), identified several customer satisfaction antecedents, such as expectations (anticipation), disconfirmation of expectations (comparative references), performance, affects and equity (fairness). However, there is been discussion regarding if certain antecedents shouldn't be considerate as a part of the construct, Arnould and Price (1993) and Olsen and Johnson (2003).

Regarding the antecedent performance, this is associated with the service capability to fulfil customers' needs, and it has been linked to perceived service quality, Bodet *et al.* (2016). In fact, there is quite a lot of literature and research identifying the determinants of customer satisfaction as the service quality dimensions, Brown (1993). According to Lang (2011), service quality is indeed a determinant, therefore, an antecedent, of customer satisfaction. A study carried out by Lee *et al.* (2000) and Murray and Howat (2002), reached the same conclusion: perceived service quality being the antecedent of customer satisfaction.

A few studies also discovered some interrelationships such as: there is a positive relationship between service quality, satisfaction and revisit intentions, Lee *et al.* (2011); and service quality positively influences customer satisfaction, Kuo (2009). Another author that defined service quality as factor affecting customer satisfaction was Zeithmal, (2006, pp. 110-116).

A study carried out by McDougall and Levesque (2000) proved that core service quality (the basic service "contracted" for or promised), relational quality (the way in which the service is delivered) and perceived value are antecedents of customer satisfaction. The conceptualization of their model is the following:

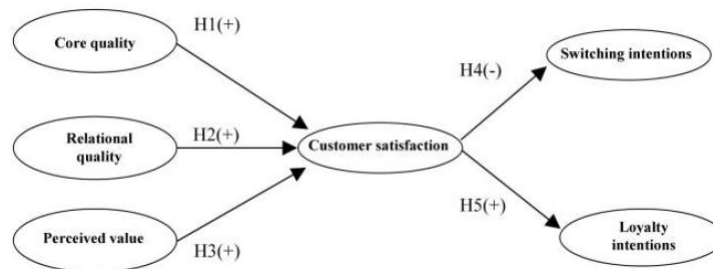


Figure 1. McDougall and Levesque (2000) proposed drivers for customer satisfaction and future intentions

In their study, perceived service quality is considered as consisting in two dimensions: core quality and relational quality. Customer satisfaction is viewed as the overall assessment of the service provider while future intentions represent the probability of returning to this same service provider. Perceived value was incorporated in such model as there is limited empirical evidence conducted on this concept relationship with customer satisfaction in the service industry, Anderson *et al.* (1994). The definition used in the research is the one developed by Zeithaml (1988), stating that perceived value is defined as the consumers' overall assessment of what is received related to what is given. The goal of the model was to test the specified relationships through the use of a set of linear structural equations, McDougall and Levesque (2000). After testing the model, it was clear that perceived value is a significant determinant of customer satisfaction. Such conclusion is aligned with the studies mentioned above, Lee *et al.* (2000) and Murray and Howat (2002). As it was initially settled to be proved, the three factors – core service quality, relational service quality (so both dimensions of perceived service quality in the study) and perceived value – had impact on customer satisfaction.

After analysing all the evidence available on the academic literature, one thing it is possible to conclude: service quality dimensions are indeed antecedents of customer satisfaction, and have impacts that can be either positive or negative, on it.

### 2.2.2 Customer Satisfaction within the Hotel Industry

It is quite clear the importance and weight of CS in supporting companies to earn a competitive advantage and profitability. Therefore, in order to achieve CS, it is crucial for hotel managers to acknowledge and anticipate customers' needs and to be able to satisfy them, Dominici and Guzzo (2010). However, it is a challenge to achieve this position due to the fierce competition of the market, which only demonstrates how advantageous the positive relationships between costumers and hotels are, since they create customer's higher commitment and increase their return rate. In fact, according to Choi and Chu (2001) long-term and reciprocally advantageous relationships between customers and the hotel are becoming more important due to the highly correlation between guest's overall satisfaction levels and the probability of their return to the same hotel, which ultimately improving their profitability.

Stated the importance of the relation between guests and hotels management, it is crucial for the managers to assess and identify the important attributes considered by costumers as their needs and expectations, Yang *et al.* (2011).

Most experiences in the hotel industry are a combination of products and services. That is why the customer's satisfaction with it is the total sum of the difference between their perceived outcome and expectations related to a group of weighted attributes of all products/services that make up the experience, Pizam *et al.* (2016). According to Chen and Tsai (2007), the CS in this industry is defined by the extent of customers' contentment that results from the ability of the hotel experience to fulfil their needs, wishes and expectations regarding their hotel stay.

However, one thing the hotel management must keep in mind is the fact that satisfaction it is not a universal phenomenon, and not everyone gets the same amount of satisfaction from the same hotel experience, Pizam *et al.* (2016). Customers may have different needs and desires according to the type of hotel stay they are going to have, that influence their expectations. For example, a couple on their honeymoon will have different desires for their stay (maybe they wish for the hotel to have a spa), comparing to a family with three children, whose parent's first concern would be if the hotel has rooms with enough space to accommodate three children. Facing this, it is important to have a clear idea of the customers' needs that correspond to different kinds of satisfaction. To do this, one must segment the market, since no service can offer to everyone the same amount of satisfaction, World Tourism Organization (1985).

In short, an individual's satisfaction with the outcomes of a hotel stay is a result of a comparison of such outcomes with expectations. And the changes in satisfaction can result from changes either in the perception of the actual quality of outcomes received, or from changes in the expectations *versus* these outcomes, when compared. The changes in expectations can result from a numerous factors such as, a change in needs (hungry *versus* full), change in objectives (business trip *versus* leisure trips), new personal experiences (for example, previously had a great hotel experience at another hotel), and any other factors that can highlight a particular quality of the outcomes (for example, it is a cold and rainy day and the hotel has heating), McCallum and Harrison (1985) and Gan and Lu (2012).

By reading the research made on this topic, it is possible to conclude that it is indispensable for hotel managers to pay attention to the attributes considered relevant by their customers, understand which ones are critical for their satisfaction, in order to build a positive long-term relationship.

### 2.2.2.1 Customer satisfaction dimensions within the hotel industry

According to several studies, the fundamental factors for hotels achieving a great performance, is to provide high quality services and improving customer satisfaction. In order to do such, the hotel management must first analyse which are the service quality dimensions more relevant to its customers and how these can turn a hotel stay into a great experience, leaving the guest satisfied. According to Wuest *et al.* (1996), it is the customers' perception of the hotel attributes, meaning, the degree to which guests find determined services and facilities critical for their decision when choosing a hotel for their stay. Several studies as Atkinson (1988) Ananth *et al.* (1992), Barsky and Labagh (1992), Cadotte and Turgeon, (1988), Knutson B. (1988), McCleary *et al.* (1993), Rivers *et al.* (1991), Wilensky and Buttle (1988), have identified some hotel attributes as decisive for customers when looking for a hotel, they are cleanliness, price, location, star rating, security, personal service, physical attractiveness, opportunities for relaxation, standard of services, appealing image and reputation. According to Reuland *et al.* (1985), hotel services consist of an amalgam of three elements: the material product, the behaviour of the employees and the environment (buildings, decoration, layout among others), therefore, customers overall satisfaction with their hotel stay, outcomes from the satisfaction with all these three elements.

To this day, quite a lot of studies were made on the key factors that influence customer satisfaction in the hotel industry. The table below demonstrates the literature with such studies.

Table 3. Studies carried out in the hotel industry studying the key factors for customer satisfaction

<b>Key factors identified</b>	<b>Authors</b>
<b>Physical product management, value for money, process management</b>	Ramanathan (2012)
<b>Staff's service attitude, swimming pool facility, Internet access services, room rate, breakfast, toothbrush and toothpaste</b>	Yang <i>et al.</i> (2011)
<b>Customer service, cleanliness, location, value, facility, star rating, size and décor of guestroom, amenities, food, quietness</b>	Magnini <i>et al.</i> (2011)
<b>Brand equity-physical quality, staff behaviour, ideal self-congruence, brand identification, lifestyle congruence, price range</b>	Nam <i>et al.</i> (2011)
<b>Core service, service encounter performances, price range</b>	Han <i>et al.</i> (2011)
<b>Physical products, hotel location, services</b>	Fu (2011)
<b>Functional service quality, relational service quality</b>	Sanchez-Hernandez <i>et al.</i> (2010)
<b>Responses relating to front office, room service, in house cafe/restaurant</b>	Mohsin and Lockyer (2010)
<b>Service climate</b>	Kralj and Solnet (2010)



<b>Responsiveness to customers' needs, the creation of customer value</b>	Chand (2010)
<b>Employee's behaviour</b>	Zhang and Li (2009)
<b>Interactive relationships with service employees, restaurant environment factors, interactions with other customers</b>	Wu and Liang (2009)
<b>Ideal self-congruence, desires congruence, physical quality, staff behaviour, location</b>	Deng (2008)

As we can see from the studies carried out regarding which service quality attributes contribute the most for CS, it is possible to see similar conclusions being reached. It is safe to say that in fact, the items price range, location, star rating and physical attractiveness/equipments/facilities are among the most mentioned attributes from the guests' perspective when looking for a hotel.

### 2.2.3 Relationship established with Perceived Service Quality

As we go through the several definitions of both perceived service quality and customer satisfaction concepts, it is natural that a bit of a confusion may arise due to the apparent initial similarities of these two constructs. Moreover, their relationship has been discussed across several studies, although sometimes consensus is not always achieved. Some researchers argued that CS is an antecedent of SQ, Bolton and Drew (1991b), Bitner (1990), Patterson and Johnson (1993). However, there are also numerous studies indicating the opposite, stating SQ as an antecedent of CS, Anderson and Sullivan (1993), Ravald and Grönroos (1996), De Ruyter *et al.* (1997), Parasuraman *et al.* (1985), Cronin and Taylor (1992), Tam (2004). This second point of view has had more support by the academic researchers since it is perceived as the most suitable relationship between these two concepts. Particularly, in the hotel industry this relationship has been studied and conceptualized. Oh (1999) conceptualized the relationship as the following:

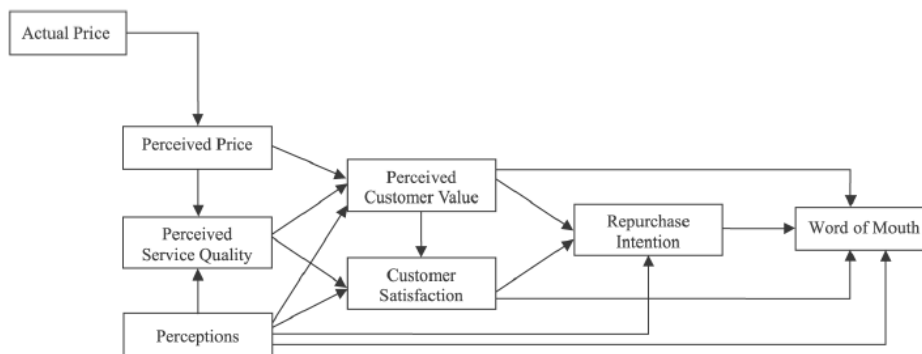


Figure 2. Oh's (1999) Model of service quality, customer value, and customer satisfaction

From this graphic, it is possible to see that PSQ is indeed an antecedent of CS, as this is related with a either a confirmation or disconfirmation of expectations (this is related with Oliver's (1980) theory). Therefore, if a customer perceives quality as bad, they will be dissatisfied, and if they perceived it as good, they will be satisfied.

## Chapter 3. Methodology

### 3.1 Introduction

Given the existence of five different tools to assess PSQ – SERVQUAL, SERVPERF, HOLSERV, LODGSERV, LQI – discussed in the chapter above, one was thought out to be more suitable to be used in this dissertation.

SERVQUAL although being the most mentioned tool in the academic literature when talking about assessing perceived service quality also has a lot of criticism attached to it, both operational and theoretical, Buttle (1996), Babakus and Inhofe (1991), Teas (1993), Churchill and Surprenant (1982), Babakus and Boller (1992), Kahneman and Miller (1986), Carman (1990), Jain and Gupta (2004), Finn and Lamb (1991), Babakus and Mangold, (1989), Peter *et al.* (1993), Buttle (1996), Van Dyke *et al.* (1999), Cronin and Taylor (1992). The criticism are numerous; having the component Expectations it is not of value added and the disconfirmation model being inadequate to measure PSQ (since this concept should be conceptualized in attitudinal terms and that model doesn't reflect that), Cronin and Taylor (1992). This tool also does not focus on the outcomes of the service encounter, only on the process of service delivery. This disables the tool of being a reliable predictor of customer choice. Regarding its five dimensions, these are not universal, since they do not always load on the factors that one expects prior to the service delivery. Hence, SERVQUAL was discarded when analysing which tool could be better to assess PSQ in the Portuguese hotel industry.

Opposing to SERVQUAL, SERVPERF has had a lot of support coming from researchers, Babakus and Boller (1992), Bolton and Drew (1991b) , Boulding *et al.* (1993), Churchill and Surprenant, (1982), Gotlieb *et al.* (1994), Hartline and Ferrel (1996), Mazis *et al.* (1975), Woodruff *et al.* (1983). SERVQUAL uses both expectations and perceptions, while SERVPERF only uses perceptions, as it is showed to be more efficient when it comes to assess PSQ. In fact, Zeithaml – which is one of the SERVQUAL authors – has admitted that PSQ is influenced directly only by perceptions, Boulding *et al.* (1993)

In addition to this, according to Jain and Gupta (2004), this tool is superior to SERVQUAL in the sense that is able to explain a greater variance in the overall service quality measured with a single-item scale. Therefore, from a theoretical point of view, this toll it is a good candidate to assess PSQ within the

Portuguese hotel industry. A statistical analysis, Cronbach's Alphas, must be done to assess the empirical validity of such instrument in assessing PSQ in the context of this dissertation.

Although SERVPERF is widely used to analyse PSQ within the services industry, a lot of researchers have come to the conclusion that a tool must have industry-specific measures of service quality since it is more suitable than a single generic scale Carman (1990), Babakus and Boller (1992), Brown *et al.* (1993), Van Dyke *et al.* (1997), Dabholkar (1996, p. 14). Facing this, many researchers created tools for measuring PSQ within the hotel industry: HOLSERV, LODGSERV and Lodging Quality Index (LQI).

Regarding HOLSERV, there are four main downsides to it:

1) It is not commonly used, and therefore there is not enough evidence that it is a reliable and solid tool to access PSQ in the hotel industry.

2) The fact that this tool was created with a characteristic of this industry in mind: the author considered a specific star rating, from three stars to five. Excluding then, a big amount of lodging facilities. That is why this tool should be refrained from being applied freely across the entire industry.

3) According to the author himself, Wong *et al.* (1999), this tool does not have the final answer for assessing and improving service quality, and should be complemented with in-depth interviews and group discussions. Facing these statements, the tool HOLSERV is discarded for assessing PSQ in the Portuguese hotel industry.

The second tool developed for the hotel industry, LODGSERV, created by Knutson *et al.* (1990) although reliable and valid to measure customers' expectations, it falls short when it comes to the variable perceptions, as this concept it is not measured in this tool. As already mentioned by several scholars, a perception-based tool is the proper way to access the PSQ within a service industry regardless of its type (hairdressers, hotel, schools, etc). Hence, the LODGSERV tool is rejected solemnly based on the most agreed topic of discuss between scholars regarding the PSQ measurement.

The third specific tool for hotel industry, Lodging Quality Index (LQI), created by Getty and Getty (2003) although its reliability was proven, there are not a lot of studies using this tool, making it a dubious choice for this study.

Following these remarks, the tool chosen to assess PSQ in the Portuguese hotel Industry is SERVPERF, with a few modifications and extra questions to fit the industry specifications as indicated by the academic literature on the subject.

### 3.2 Investigation hypotheses

To answer the research questions that ultimately will meet the partial objectives of this dissertation, one must develop hypotheses that can validate or not certain assumptions.

Following the work done by Getty and Getty (2003), Wong *et al.* (1999), Knutson *et al.* (1990), Parasuraman (1985) and Cronin and Taylor (1992) regarding perceived service quality in services as well as studies carried out by Knutson, *et al.* (1992), Getty and Getty (2003), Akbaba (2006), Wilkins *et al.* (2007) and Saleh and Ryan (1991) regarding PSQ in the hotel industry in many contexts and countries, it would be interesting to assess perceived service quality within the Portuguese hotel industry. Two of the conclusions from those studies is the fact service quality dimensions (tangibles, reliability, responsiveness, assurance and empathy) have different impacts on the overall PSQ, and that the customer characteristics (gender, age) also play a part when it comes to PSQ, Parasuraman *et al.* (1991), Cronin and Taylor (1992), Knutson *et al.* (1992), Getty and Getty (2003), Akbaba (2006).

Besides the service quality dimensions mentioned above, given the structure and aim of the study, it is thought to be of use to analyse more service characteristics – such as star rating, hotel location and price range – and their possible influence on PSQ, as well as the existence of other service attributes, Atkinson (1988) Ananth *et al.* (1992), Barsky and Labagh (1992), Cadotte and Turgeon, (1988), Knutson B. (1988), McCleary *et al.* (1993), Rivers *et al.* (1991), Wilensky and Buttle (1988).

Also, in addition to age and gender, another set of customer characteristics were thought to be of relevance for this study, them being income range, local of residency, frequency of hotel stays in one year and party size when staying in a hotel. The possible influence of these variables in PSQ will also be analysed.

In order to proceed to do the analyses above described, the following hypotheses were formulated:

**H1:** The characteristics of the service provided by the Portuguese hotel industry influence the overall level of perceived service quality of this industry as well as all five service quality dimensions proposed by Parasuraman *et al.* (1988)

**H1a:** The characteristics of the service provided by the Portuguese hotel industry influence the overall level of perceived service quality

**H1b:** The characteristics of the service provided by the Portuguese hotel industry influence all the five service quality dimensions presented by Parasuraman *et al.* (1988)

**H2:** The customer characteristics influence the overall level of perceived service quality in the Portuguese hotel industry as well as all five service quality dimensions proposed by Parasuraman *et al.* (1988)

**H2a:** The customer characteristics influence the overall level of perceived service quality in the Portuguese hotel industry

**H2b:** The customer characteristics influence all the five service quality dimensions proposed by Parasuraman *et al.* (1988)

Besides the more “traditional” service attributes of a hotel, several studies have found that the existence of some type of additional service offers (such as gym, pool, spa, availability of breakfast, parking lot, restaurant and free wi-fi) can have influence on the PSQ by hotels guests’, Atkinson (1988) Ananth *et al.* (1992), Barsky and Labagh (1992), Cadotte and Turgeon, (1988), Knutson B. (1988), McCleary *et al.* (1993), Rivers *et al.* (1991), Wilensky and Buttle (1988), Yang *et. al* (2011), Nam *et. al* (2011), Fu (2011), Ramanathan (2012), Magnini *et. al* (2011). This possibility will also be analysed in this study, resulting in the below hypotheses.

**H3:** The variables related to an additional set of offers of the hotel service (such as gym, pool, spa, breakfast included, parking lot, restaurant, free wi-fi, others) have influence on overall level of perceived service quality as well as on the five service quality dimensions proposed by Parasuraman *et al.* (1988)

**H3a:** The variables related to an additional set of offers of the hotel service (such as gym, pool, spa, breakfast included, parking lot, restaurant, free wi-fi and others) influence the overall level of perceived service quality in the Portuguese hotel industry

**H3b:** The variables related to an additional set of offers of the hotel service (such as gym, pool, spa, breakfast included, parking lot, restaurant, free wi-fi and others) influence all the five service quality dimensions proposed by Parasuraman *et al.* (1988)

As stated in the literature review, there are numerous studies reporting a relationship between PSQ and CS that is in fact, a causal one, being PSQ an antecedent of CS, Anderson and Sullivan (1993), Ravald and Grönroos (1996), De Ruyter *et al.* (1997), Parasuraman *et al.* (1985), Cronin and Taylor (1992). Also, authors such as Tam (2004) and Islam *et al.* (2012), studied service quality and customer satisfaction, and all state that both concepts walk hand in hand. Accordingly, in this study it will be explored such hypotheses.

**H4:** Perceived service quality is associated with customer satisfaction within the Portuguese hotel industry

Align with the previous hypotheses, if there is stated to be an association between PSQ and CS, and that the SQ dimensions have different weights on the overall PSQ, Parasuraman *et al.* (1988) and Cronin and Taylor (1992), then one must assess if by any chance these dimensions also have an impact on CS, either by direct association or not (via PSQ). As mentioned earlier in the literature review chapter and hypotheses above, there are numerous studies reflecting that service characteristics have influence in PSQ. Hence, the following hypotheses was formulated:

**H5:** The characteristics of the service provided by the Portuguese hotel industry influence the level of customer satisfaction with this industry

Due to the causal relationship between PSQ and CS that is stated in the literature, and since the customers' characteristics such as gender, age, income range, local of residency, frequency of hotels stay in one year and party size when staying in a hotel might have an impact on their PSQ, Knutson *et al.* (1992), Getty and Getty (2003), Akbaba (2006), Wilkins *et al.* (2007) and Saleh and Ryan (1991), then, by either direct or indirect influence, customer satisfaction might be also influenced by such characteristics, Pizam *et al.* (2016).

**H6:** The customer characteristics influence the overall level of customer satisfaction with the Portuguese hotel industry

As previously stated, there are some type of additional set of offers in a hotel service that can have influence on the PSQ by hotels guests', Atkinson (1988) Ananth *et al.* (1992), Barsky and Labagh (1992), Cadotte and Turgeon (1988), Knutson B. (1988), McCleary *et al.* (1993), Rivers *et al.* (1991), Wilensky and Buttle (1988), Yang *et. al* (2011), Nam *et. al* (2011), Fu (2011), Ramanathan (2012), Magnini *et. al* (2011). In addition to this, it has also been stated the existence of a causal relationship between PSQ and CS. Therefore, the author wishes to analyse if such additional offers have impact on guest's CS, by either direct or indirect influence (through PSQ).

**H7:** The variables related to additional offers of the hotel service (such as gym, pool, spa, breakfast, parking lot, restaurant, wi-fi) have influence on customer satisfaction with the Portuguese hotel industry

Below a table is presented, describing the partial objectives, research questions and its respective analysis in order to answer the questions and meet the objectives the author proposes to.

Table 4. Summary of this dissertation partial objectives, research questions and respective analysis  
(Source: prepared by the author)

Partial Objectives	Research Questions	Analysis
1. Evaluate customers' perception of the service quality for the Portuguese hotel industry, both overall and by quality dimension	RQ1: What is the Portuguese customer's perception of the service quality provided in the Portuguese hotel industry?	Descriptive analysis
2. Evaluate the influence of different services characteristics, such as star rating, hotel location, price range and additional set of offers, in the PSQ of the Portuguese hotel industry		Hypotheses tests (H1, H3)
3. Evaluate the influence of different customer characteristics such as age, gender, income range, area of residency, frequency of hotel stays in one year and party size when staying in a hotel, in the PSQ of the Portuguese hotel industry		Hypotheses test (H2)
4. Analyse which of the service quality dimensions have more impact on perceived service quality in the Portuguese hotel industry	RQ2: To what extent do the SQ dimensions influence perceived service quality in the Portuguese hotel industry?	Multiple linear regression
5. Evaluate customer's satisfaction with the Portuguese hotel industry	RQ3: Is perceived service quality associated with customer satisfaction in the Portuguese hotel industry?	Descriptive analyses + Hypotheses tests (H5, H6, H7)
6. Analyse the strength of the association between overall perceived service quality and customer satisfaction within the Portuguese hotel industry		Correlation coefficient (H4)
7. Propose managerial recommendations for the service delivery in the Portuguese hotel industry to improve perceived service quality and customer satisfaction	RQ4: Which managerial recommendations regarding service delivery can be made in order to improve the perceived service quality and the customer satisfaction with the Portuguese hotel industry?	Qualitative approach

### 3.3 Investigation Model

The author created a model for this dissertation, inspired by the tool used to measure perceived service quality, SERVPERF, and its relationship with customer satisfaction, that is developed in the academic literature. All the five dimensions of perceived service quality, developed by Parasuraman *et al.* (1988), are contemplated. These were supported by numerous academics, including the authors of SERVPERF, Cronin and Taylor (1992). As it was also stated in the chapter 2.1.3.3, the tool selected to measure PSQ in a specific industry must have specific items related to it besides the typical five dimensions originally

identified. Therefore, the author included some items believing that these are the most suitable for the purpose of this investigation. As of result of the methodology presented and its respective hypotheses, the model for this research is as follows:

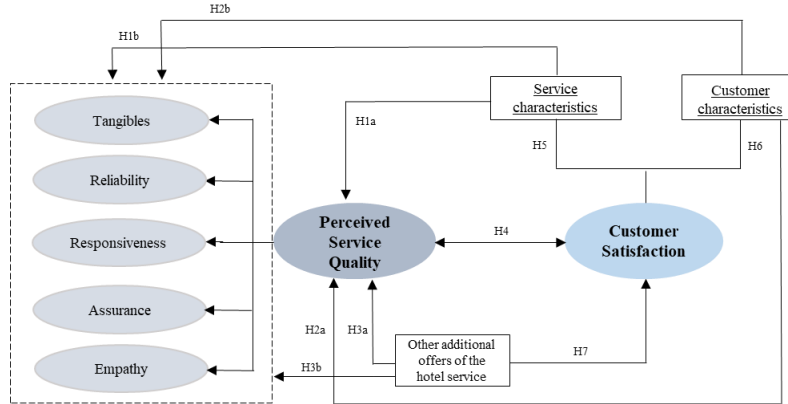


Figure 3. Thesis investigation model  
(Source: prepared by the author)

### 3.4 Model operationalization

To operationalize this model, the author developed a questionnaire. It is divided in three parts: (i) customer characterization, (ii) characterization of the hotel stay (iii) assessment of the PSQ of Portuguese hotel industry. The first part consists in a set of questions aimed to characterize the sample according to their socio-demographic data. The second part is regarding the characteristics of use, namely the frequency of hotels stay in one year, party size when staying in a hotel, hotel location, star rating, price range and existence or not of a set of additional service offers. These were included in the questionnaire as academic literature shows that these variables do have impact on PSQ and CS, Knutson *et al.* (1992), Getty and Getty (2003), Akbaba (2006), Wilkins *et al.* (2007) and Saleh and Ryan (1991), Atkinson (1988), Ananth *et. al* (1992), Barsky and Labagh (1992), Cadotte and Turgeon (1988), Knutson (1988), McCleary *et. al* (1993), Rivers (1991), Wilensky and Buttle (1988).

Table 5. Customer and service characteristics and its respective questionnaire items

Dimension	Nº of items	Description
<b>Customer characteristics</b>	6 items Q1 to Q6	Refer to the characterization of the customer profile
<b>Service characteristics</b>	4 items Q7 to Q10	Includes items related to tangible aspects such as location, price range and star rating of the hotel as well as items related to an additional set of offers that the hotel might have, such as gym, pool, spa, restaurant, breakfast included, parking-lot, free wi-fi and others



In the third part of the questionnaire, the scale of SERVPERF was used, opposed to SERVQUAL and industry-specific tools, such as HOLSERV, LODGSERV and LQI, due to their disadvantages. With this, the SERVPERF instrument was adapted to accommodate the hotel industry specifications in the 22 items. All the 22 items were aggregated into the five quality dimensions proposed by the authors Parasuraman *et al.* (1988) and Cronin and Taylor (1992). A seven-point Likert scale between “1 – Totally disagree” and “7 – Totally agree” was used. The following table illustrates the application of each quality dimension in the context of this study.

Table 6. SERVPERF SQ dimensions and its respective questionnaire items

<b>Dimension</b>	<b>Nº of items</b>	<b>Description</b>
<b><u>Tangibles</u></b>	4 items P1 to P4	Includes tangible and physical aspects such as the modern equipment, bedrooms and common areas, cleanliness, and comfort, as well as the appearance of the hotel staff
<b><u>Reliability</u></b>	5 items P5 to P9	Is related to the ability of the hotel staff to provide the promised service to its customers, as well as their ability to assist customers with promptness and reliability
<b><u>Responsiveness</u></b>	4 items P10 to P13	Considers the willingness of the hotel staff to assist customers promptly by providing information and by presenting themselves available to help them
<b><u>Assurance</u></b>	4 items P14 to P17	Contemplates the trustworthiness and confidence that the hotel staff transmits to their customers while providing the service
<b><u>Empathy</u></b>	5 items P18 to P22	Includes aspects such as personalized and customized attention given to each customer by the hotel staff as well as the understanding of their specific needs

The following item was used in this part of the questionnaire (P23 – *How would you classify, in general, the service quality provided by the Portuguese hotel industry, according to your experience?*) to assess the overall level of perceived service quality. This item was evaluated resorting to the same seven-point Likert scale meaning “1- Very weak” and “7 – Excellent”. To evaluate the satisfaction construct, another dimension was contemplated, in which five more items were added (P24, P25, P26, P27 and P28). These are based on the researches made by Babakus and Mangold (1992), and then mentioned in Andaleeb (2001) and Chatzoglou *et al.* (2014), where they built their evaluation of customers’ satisfaction in these items. These were also evaluated with the same 7-point Linkert-like scale, where “1 – Totally disagree” and “7 –Totally agree”.

### 3.5 Definition of independent variables

In order to characterize the sample, six independent variables were used: “Gender”, “Age”, “Income range”, “Area of residency”, “Frequency of hotel stays in a year” and “Party size when staying in a hotel”. It was also requested to the respondents to only consider the latest hotel experience while answering the questionnaire. This way, the answers provided are still quite faithful and aligned with the experiences the respondents had and are not misrepresented by the passage of timing (which ultimately ends up affecting the memories of the experience).

“Gender”, as a binomial variable, has feminine and masculine as response options.

“Age”, according to INE (2015), is divided into 6 categories: from 18-24 years old; 25-34 years old; 35-44 years old; 45-55 years old; 55-64 years old; 65 or more years old. To consider adults-only responses, the age groups start at a minimum age of 18 years old.

“Income range” the gross income range was categorized into 9 levels: currently unemployed, less than 1000€/month; from 1000€ to 1499€/month; from 1500€ to 1999€/month; from 2000€ to 2499€/month; from 2500€ to 2999€/month; from 3000€ to 3499€/month, 3500€ to 3999€/month 4000€/month or more. For the lower bound of income range (“less than 1000€/month”) it was assumed the Nacional minimum wage of 500€ (approximately) (PORDATA, 2016), and for the upper bound (“4000€/month or more”) it was assumed the limit of 8000€/month as large enough to determine a suitable mean point of that level.

“Area of residency”, according to INE (2015), considers Norte, Centro, Alentejo, Algarve, Região Autónoma dos Açores, Região Autónoma da Madeira and Lisboa and Vale do Tejo are the five Portuguese regions, one where can live in.

“Frequency of hotel stays in a year”, categorized into four levels, “1 hotel stay per year”, “2 hotel stays per year”, “3 hotel stays per year” and “4 or more hotel stays per year”.

“Party size when staying in a hotel”, in order to cover all companion possibilities when staying in a hotel, the following response options were considered “Alone”, “With group of friends”, “With partner”, “With partner and 1 child”, “With partner and more than one child”, “With parents”, “With children”.

### 3.6 Data collection methodology

The questionnaire was released online, with Google forms, through a link distributed via email and social media platforms. A total of 135 responses were collected between the 17th of September and the 14th of October. To be able to answer the questionnaire, the respondents had to be at least 18 years old and stayed in a hotel in Portugal in the last year. Since this was an online survey, the sample does not represent the population. Therefore, the analysis made will not be representative of the market, but only representative of the sample selected for this study.

### 3.7 Data analysis tools

After collecting all the necessary data, data analysis will be done through statistical analyses at different phases in this study. First and foremost, the hypotheses must be tested, followed by an analysis of the correlation between service quality and customer satisfaction. After all hypotheses' tests and correlation analyses, a multiple linear regression will also be done. All the statistical tests will be executed in SPSS software.

#### 3.7.1 Hypotheses testing

Hypotheses testing is the statistical technique used to test suppositions about a population, through the sample, Laureano (2013). These statistical tests are going to be applied to H1, H2, H3, H5, H6, and H7. According to Marôco (2018), hypotheses tests can be classified as either parametric or non-parametric; this depends on the data type (being either quantitative or qualitative, respectively). Parametric hypotheses are the most used, however, there are two assumptions that must be met:

- **Normality:** the dependent variable follows a normal distribution. To evaluate this assumption, we can resort to different tests (depending on the sample size). They are Shapiro-Wilk test (when  $n < 30$ ) and CLT (Central Limit Theorem, when  $n > 30$ ).

- **Homoscedasticity:** the variables follow a homogeneous variance. In the case of two different populations being compared, it is needed to test the homogeneity of their variances. To do so, Levine's test must be carried out. When it is more than two populations, one must resort to ANOVA's one-way test, Marôco (2018).

In case of these assumptions are not met, one can resort to non-parametric hypotheses (since these do have any assumptions). As a matter of fact, Marôco (2018) states that these tests should only be done in case the parametric ones are not possible (since these have greater reliability).

In the parametric tests, a t-student test is used to compare the two population means that come from two independent random samples. However, in the non-parametric tests, the Wilcoxon-Mann-Whitney test is applied. For the cases of more than two populations, the Kruskal-Wallis test substitutes the ANOVA test, in a context on non-parametric hypotheses. If the  $H_0$  is rejected, in both parametric and non-parametric tests, then one can conclude that one population mean differs from the others, which makes it necessary to evaluate such differences. This can be done through Post-hoc tests of Multiple Mean Comparison. Depending on the sample size there are two different tests to choose from; Tuckey's test for  $n \geq 30$  and Bonferroni's test for  $n < 30$ , Marôco (2018).

### 3.7.2 Correlation coefficient

To test  $H_4$ , a correlation coefficient must be used. In the case of parametric tests, the Pearson's correlation coefficient is the most suitable test to be used and it measures the degree (strength) of linear association between two quantitative variables. In the case of non-parametric tests, Spearman's correlation coefficient is the indicated tool to be used and it assess how well the relationship between the variables can be described by a monotonic function. According to Marôco (2018), a confidence interval of 95% should be used and within this, a coefficient is considered reliable enough when  $\rho > 0,5$  or  $\rho < -0,5$ . The coefficient value varies between  $-1 \leq \rho \leq 1$ , and the strength of association between the variables is as strong as the coefficient value is closer to 1 or -1. If the coefficient value is close to 1, then there is a strong positive association between the variables (positively correlated, and the variables follow the same behaviour and direction). If the coefficient value is close to -1, then there is a strong negative association between the variables (negatively correlated, and when one variable increases, the other decreases).

### 3.7.3 Multiple Linear Regression

A multiple linear regression analysis is made to predict the values of a dependent variable, given a set of explanatory variables, Marôco (2018). The mathematical equation for this model presents  $\beta$  as regression coefficients that measure the influence of  $X_i$  on  $Y_i$ , for each unit of variation of  $X_i$ . The bigger the  $\beta$  values, the bigger is the impact of that variable in influencing the dependent variable.

$$Y_i = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_{p-1} X_{i,p-1} + \varepsilon_i \quad (1)$$

This statistical analysis will be made to the SERVPERF instrument in order to better understand how the five service quality dimensions proposed by Parasuraman *et al.* (1988) can influence the overall level of service quality.

## Chapter 4. Data Analysis

In this chapter, the results for the perceived service quality in the Portuguese hotel industry assessment are presented from the consumer's point of view. The chapter begins with a sample characterization, followed by a descriptive analysis of the service. Afterwards, an assessment of the reliability of the instrument used for both constructs (PSQ and CS) is made. Later, tests will be conducted to answer the investigation hypotheses, as well as a multiple linear regression; the results are then evaluated. In the end, a qualitative approach is made to propose measures of improvement for the service delivery.

### 4.1 Sample characterization

In order to characterize the sample of 135 respondents, six independent variables were used, "Gender", "Age", "Income range", "Area of residency", "Frequency of hotel stays in Portugal" and "Party size when staying in a hotel". Regarding the variable "Gender", 54,5% are women, and 45,5% are men. The variable "Age" was divided into six groups, being the most populated one the group of "25 to 34 years old" with 38,8% of responses, followed by "18 to 24 years old" with 32,1% of responses, and "45 to 54 years old" with 11,9% responses. The age group with less responses is "65 years old or above", with 3% of responses. These results show that the sample is in fact young, which will influence the results presented in this chapter. Within the ten groups of possible responses for the variable "Income range", the one with the majority of answers is "1000€ to 1499€", with 36,6%, followed by "1500€ to 1999€" and "Less than 1000€", with 14,9% and 13,4% of responses, respectively. The option "Currently unemployed" has 3,7% of responses and the smallest percentage of answers is placed in the option "3500€ to 3999€", with 1,5%.

Passing to "Area of residency", the majority of the sample is located in "Lisbon and Tejo valley", which is aligned with the Portuguese population distribution in the country – Lisbon and Tejo Valley is the Portuguese region with more people living in it. For the variable "Frequency of hotel stays in Portugal", it

is safe to say that the majority of the respondents claims to stay in a hotel in Portugal either once or twice per year, since the responses are concentrated in those categories with 33,6% and 27,6%, respectively. Regarding the variable “Party size when staying in a hotel”, the majority of the respondent’s, actually more than a half (61,9%), chooses to stay in a hotel only with their partner, then followed by staying with a group of friends (10,4%).

## **4.2 Service characterization**

To characterize the service, it was also used independent variables, being “Hotel location”, “Hotel star rating”, “Price range” and “Additional set of service offers”. The respondents were asked to answer the questionnaire based on their last experience of a hotel stay in Portugal.

Table B.1, Annex B, presents the relative and absolute frequencies for the independent variables. Regarding the “Hotel location”, the respondents are quite well divided between both options (central location and remote one). However – even though by a slight difference – the central location was the one with more answers (53,7%). For the “Hotel star rating”, there is a big concentration in four-star hotels (61,2%), making the rest of the sample being divided between three and five stars (20,95 and 17,9%, respectively). There was only one record of a response placed for a two-star hotel. The third variable “Price range” indicated, approximately, the price practiced by the hotel for one night.

Looking at the results, it is fair to say that the respondents either payed “Between 100€ and 300€ per night” or “Between 50€ and 100€”, since the amount of answers gathered for those options were 48,5% and 43,3%, respectively. Finally, for the last variable related to an additional set of service offers, the additional hotel service offer that got most answers is “Breakfast included”, with 94,8%, closely followed by “Free wi-fi”, with 93,3%. These two, alongside “Parking lot” with 78,4% and “Pool” with 75,4%, were the top four additional services provided by the hotel.

## **4.3 Perceived service quality in the Portuguese hotel industry**

### **4.3.1 Reliability of the tool used for measuring PSQ**

To use SERVPERF dimensions and the satisfaction construct, one must assess their validity in the scope of the sample in use. This is done by resorting to a statistical test, more specifically a coefficient named Cronbach’s Alpha that measures the internal consistency of a set of items, Churchill (1979). According Marôco (2011), Cronbach’s Alpha is a reliability measure applicable to each and every dimension, thus evaluating the extent to which those variables can estimate a construct. The alpha’s value varies between

0 and 1, however an instrument is considered already reliable if their value is at least 0,70, Nunnally (1978). The higher it is the alpha value, then the greater the internal consistency of the set of items is.

Table 7. Cronbach's alpha values for the SQ dimensions and global instrument  
(Source: prepared by the author)

Dimension	Cronbach's Alpha
Tangibles	0.879
Reliability	0.853
Responsiveness	0.934
Assurance	0.889
Empathy	0.875
Global instrument	0.964

The table 7 above illustrates the alpha values for the five service quality dimensions as well as for the global instrument. As it is possible to see, all are above 0,70, allowing to conclude that this tool is indeed reliable and valid to study the reality of this dissertation.

In the Annex C, Table C.2, it is shown in detail the level of contribution of the satisfaction items in the global reliability of the instrument. This allows to conclude that if any of the items were to be removed or eliminated, then this would diminish the internal scale's reliability.

#### 4.3.2 Perceived service quality - overall and by dimension

In this subchapter, an analysis is made upon the SERVPERF's 22 items to analyse the perceived service quality in the Portuguese hotel industry. The mean and standard deviation of each of the 22 items was computed, as well as for the five service quality dimensions (visible in table 8). In the Annex C, Table C.1, it is possible to see in detail the responses distribution of each item, in the seven-point Likert scale.

From this analysis, it is possible to say that the highest perceived service quality item is *"P16. The hotel staff is polite and respectful"*, closely followed by *"P15. You felt safe during your hotel stay and during the services usage"*, with means of 6,45 and 6,36, respectively. Both items belong to Assurance dimension, that has a mean of 6,27, which is the highest value as well among the service quality dimensions. On the opposite side, the items with the lowest values of perceived service quality are *"P8. The hotel has a record of zero errors/complaints"*, followed by *"P22. The hotel understands your specific needs"*, with means of 5,20 and 5,76, respectively. These items are under Reliability (dimension with the lowest value – 5,86) and Empathy dimensions (mean of 6,00), respectively.

Table 8. Perceived service quality by dimension  
(Source: prepared by the author)

Dimension	Mean	SD
Tangibles	5,90	0,920
Reliability	5,86	0,960
Responsiveness	6,18	0,929
Assurance	6,27	0,812
Empathy	6,00	0,884

Regarding the consensus among hotel guests, it seems that Assurance is the dimension that has more consensus (standard deviation of 0,812) and contains the critical item with more consensus of them all, “P16. The hotel staff is polite and respectful” (SD of 0,835). The other critical item – the one with less consensus – is “P8. The hotel has a record of zero errors/complaints”, with a standard deviation of 1,480. The service quality dimension with less unanimity is Reliability (SD of 0,960). By looking at the values of Table 7, as well as the descriptive analysis in Table C.1, Annex C, it is safe to say that there is a positive and strong perception of the service quality, existing however different perceptions among its dimensions.

#### 4.3.3 Influence of each dimension on the global PSQ

In order analyse the influence of independent variables (Tangibles, Reliability, Responsiveness, Assurance and Empathy) on a dependent variable (PSQ), one must perform a multiple linear regression. To be able to do so, certain assumptions need to be verified: i) normal distribution (the sample must have a normal distribution); ii) linear association between the variables; iii) the mean of the residual component of the model is zero; iv) there is no correlation among the residual terms; v) there is no correlation among the explanatory variables (collinearity); vi) the variance of the random term is constant.

The first assumption can be verified by looking at Chart D.1., in Annex D, showing the data following a normal distribution. The second assumption is verified by computing Pearson’s correlation, evident in Annex D, Table D.2; that illustrates the linear association between variables (some stronger than others, but still there is an association). The third assumption is verified, visible in Table D.5, Annex D. Fourth assumption is met as the value for the Durbin-Watson is close to 2 (1,868), which allows to conclude that the residuals are indeed independent (data showed in Table D.6, Annex D). For the fifth assumption, the values for TOL (all above 0,1) and VIF (all under 10) allow to conclude that the independent variables are not correlated, hence this assumption is met. The sixth assumption is also met, by looking at the scatterplot, in Chart D.3, Annex D.



To test the validity of the model, an ANOVA test needs to be carried out (results in Table D.8, Annex D). According to its results, the model is indeed valid, and the independent variables explain the dependent variable. After all assumptions verified, the Stepwise method was applied to sort out which dimensions had more significance in explaining P23 (PSQ). The SPSS when performing this analysis, starts with the item with the highest correlation with the dependent variable (P23), and keeps on adding the other independent variables until reaching the point where there is no statistical need to add anymore variables to the linear regression model. After computing this method, Model 2 seemed the most appropriate one, including service quality dimensions Tangibles and Assurance.

The determination coefficient  $R^2$ , illustrates how much of the overall perceived service quality provided by the Portuguese hotel industry (P23) is explained by the independent variables. The adjusted determination coefficient, illustrates the variance of P23 explained by each dimension, varying between -1 and 1. According to Mâroco (2018), the closer is the coefficient to 1, the better; and as long as it is from 0,5 to a higher value, then it's sufficiently good. According to the table D.10, in Annex D, both coefficients are good.  $\overline{R^2}$  is 0,502, meaning 50,2% of the overall PSQ is explained by Tangibles and Assurance dimensions. By looking at the unstandardized  $\beta$  coefficients, we can see which SQ dimensions have a positive or negative impact in P23. In this case, we can see that both  $\beta$  coefficients are positive, meaning they have a positive impact on P23. Looking at the standardized  $\beta$  (values vary between -1 and 1) it is possible to see the magnitude of the effects of each SQ dimension on P23. In this case, it is possible to see in Table D.11, Annex D, that the most important SQ dimension in explaining P23 is Assurance (highest predictor) followed by Tangibles. Given the fact that the Sig. value must be below 0,05 to consider which independent variables should be kept explaining P23, the model equation is  $P23 = 0,581 Assurance + 0,246 Tangibles$

#### 4.4 Customer Satisfaction in the Portuguese hotel industry

In chapter 2 of this dissertation, it was mentioned the importance of customer satisfaction in the hotel industry as well as its association with perceived service quality, Babakus and Mangold (1992), Babakus and Mangold (1992), Parasuraman *et al.* (1985), Cronin and Taylor, (1992), Tam (2004). Therefore, before the association between these two concepts is explored ahead in this study, it was thought to be relevant to perform an analysis on the customer satisfaction itself with the Portuguese hotel industry. To so, the items suggested by Andaleeb (2001) and Chatzoglou *et al.* (2014) to measure customer satisfaction construct were used in the questionnaire applied.

#### 4.4.1 Reliability of the tool used for measuring customer satisfaction

To see if the satisfaction construct is valid, one must resort to the statistical test Cronbach’s alpha. It was applied to test the reliability of SEVRPERF in this study, and it was applied to the satisfaction construct as well.

Table 10. Cronbach's alpha coefficient for Satisfaction  
(Source: prepared by the author)

Cronbach's alpha	Cronbach's alpha based on standardized items	N of items
0,940	0,947	5

As it is possible to see in table 10, the alpha value is 0,940 (quite above 0,70), indicating good reliability and proving to be consistent to assess this construct. The table H.1 in Annex H, presents in more detail the contribution of each item in the global reliability of the satisfaction construct. This allows to understand the reliability of the dimension if each of the items were to be individually removed. As it is possible to see, by removing P28 the alpha value for the satisfaction dimension would improve since it would be 0,947. Therefore, the item P28 was not kept for this dimension in further analysis of this study.

#### 4.4.2 Results evaluation

In this subchapter, an analysis is made upon the satisfaction 5 items’ construct to analyse the customer satisfaction in the Portuguese hotel industry. The mean and standard deviation of each of the 5 items was computed, and in Annex C, Table C.2, it is possible to see in detail the responses distribution of each item, in the seven-point Likert scale. Table 9 indicates the mean and standard deviation values for all five items.

According to the results presented, the item with the highest level of satisfaction is P26 *“The comments I make about the service provided by the hotel, when talking to others, are positive”* with a mean score of 6,16, closely followed by P24 and P25 (both with 6,14 of mean). Meaning that the comments made about the hotel are indeed positive, to a level that the hotel guests are willing to stay at the hotel again, as well as recommend it to family/friends. Regarding the consensus in the answers, the item with more consensus is P26, which goes to show that this item is indeed the one weighing more on the overall level of satisfaction, both by its mean value and by the responses consensus. On the other hand, the item with the lowest mean is P28 *“This hotel is my first choice when looking for an accommodation, due to their services it offers”*. However, given the fact that in the sub-chapter above it was concluded that this

particular item was not statistically relevant, hence removed from this construct, it is possible to say that the item with lowest satisfaction levels is P27 *“The services provided by the hotel, are exactly what I was looking for, for my stay”* with a mean score of 6,02. The item with the most different answers about the level of satisfaction provided to customers is P25 *“I’m willing to stay in this hotel again”* (SD of 1,154).

Table 9. Results of the Satisfaction construct  
(Source: prepared by the author)

Satisfaction items	Mean	Std. Deviation
P24. I’m willing to recommend this hotel to family/friends	6,14	1,059
P25. I’m willing to stay in this hotel again	6,14	1,154
P26. The comments I make about the service provided by the hotel, when talking to others, are positive	6,16	0,937
P27. The services provided by the hotel, are exactly what I was looking for, for my stay	6,02	1,082
P28. This hotel is my first choice when looking for an accommodation, due to their services it offers	5,61	1,388
<b>Global level of satisfaction</b>	<b>6,01</b>	<b>1,018</b>

By looking at the overall score for overall satisfaction (mean score of 6,01), it is safe to say that customers are pleasantly satisfied – given that the highest level of the scale is 7 – and moreover in accordance regarding it (SD of 1,01).

#### 4.5 Hypotheses by independent variable

To answer the research questions, hypotheses tests will be conducted. As it was previously disclosed, to do so there are two assumptions that must be verified: normality and homoscedasticity of variance. According to these tests, the null hypotheses (H0) can be rejected with a significance level of 0,05, being Sig. > 0,05. If so, it is possible to conclude that the variable follows a normal distribution, Laureano (2011). If normality is confirmed, then a Levine test will be done to test the homoscedasticity, Mâroco (2018). Given the fact that some response options did not received many answers a recode of the variables that reflected this situation was made. The variables affected are: *i) Age* – divided into five groups being the last two categories 55-64 years old and 65 years old or above grouped into one: 55 years old or above; *ii) Income range* – divided into eight groups, where categories 2500€ to 2999€/month, 3000€ to 3499€/month and 3500€ to 3999€/month were fused into 2500€ to 399€/month; *iii) Area of residency* – divided into two groups, Lisboa e Vale do Tejo and Outside Lisboa e Vale do Tejo (which is composed by Norte, Centro, Algarve, Alentejo, Açores and Madeira); *iv Price per night* – got divided into three groups,

Less or equal to 50€, 50€-100€/night and 100€/night or above (that includes the previous categories 100€-300€/night, 300€-500€/night and Above 500€/night).

With the recoding done, the Kolmogorov-Smirnov test was applied to test for the normality assumption. Looking into Annex E, from tables E.1 to E.10.8, it is possible to see that no independent variable follows a normal distribution. Hence, the assumption regarding the homoscedasticity of variance does not need to be tested, and non-parametric tests will be conducted. The test Mann-Whitney will be used for variables Gender, Area of Residency, Hotel location and variables regarding Additional set of service offers and the Kruskal-Wallis test for the other seven independent variables: Age, Income range, Frequency of hotel stays, Party size when staying in a hotel, Star rating and Price per night.

#### 4.5.1 Gender

For this variable, the goal is to test if there are significant differences between the means of responses among both categories (male and female) of customers. In this test, hypotheses of the Mann-Whitney test are:  $H_0 = \mu_{\text{Male}} \neq \mu_{\text{Female}}$  and  $H_1 = \mu_{\text{Male}} = \mu_{\text{Female}}$

According to the results illustrated in the table 11 below, it is possible to say that  $H_0$  is rejected only for the satisfaction dimension, meaning that the gender has influence on this particular construct and not on the SQ dimensions nor overall level of the perceived service quality (P23).

Table 11. Mann-Whitney test for the independent variable “Gender” for the five service quality dimensions, PSQ and satisfaction

(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Mann-Whitney U</b>	2186.500	1965.500	1983.000	1862.000	1882.500	2023.000	1788.000
<b>Wilcoxon W</b>	4077.500	3856.500	3874.000	3753.000	3773.500	3914.000	3679.000
<b>Z</b>	-0,314	-1,294	-1,233	-1,781	-1,665	-1,144	-2,088
<b>Asymp. Sig. (2-tailed)</b>	0,754	0,196	,218	0,075	0,096	0,253	0,037

a. Grouping variable: Gender

Additionally, by looking into table G.1, Annex G, it is possible to see that satisfaction is higher for women (higher means). However, regarding consensus, men seemed to have more consensual answers than the women. These results show a partial rejection of H2a, H2b and a partial acceptance of H6.

#### 4.5.2 Age

For this variable, H2a, H2b and H6 will be tested resorting to the statistical test Kruskal-Wallis test, being: H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $I \neq j$  and  $i, j = \{18-24$  years old,  $25-34$  years old,  $35-44$  years old,  $45-54$  years old,  $55$  old or above}). According to the table F.1 in Annex F, this variable does not have influence on neither of the SQ dimensions, PSQ or satisfaction. Given the Sig. value, the H0 it is not rejected, allowing then to rejection of H2a, H2b and H6.

#### 4.5.3 Income range

Regarding the independent variable “Income range”, the aim is to test H2a, H2b and H6 resorting to Kruskal-Wallis test, where: H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $I \neq j$  and  $i, j = \{\text{Student, Currently unemployed, less than } 1000\text{€}/\text{month, from } 1000\text{€ to } 1499\text{€}/\text{month, from } 1500\text{€ to } 1999\text{€}/\text{month, from } 2000\text{€ to } 2499\text{€}/\text{month, from } 2500\text{€ to } 3499\text{€}/\text{month, } 4000\text{€}/\text{month or more}\}$ ). According to the table 12 below, this variable does not influence PSQ, satisfaction and none of the four service quality dimensions, except Reliability. Therefore, the H0 it is rejected for Reliability, but not for the other dimensions.

Table 12. Kruskal-Wallis test for the independent variable “Income range” for the five service quality dimensions, PSQ and satisfaction  
(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Kruskal-Wallis H</b>	13.222	17.157	15.596	7.472	9.310	10.026	8.323
<b>df</b>	9	9	9	9	9	9	9
<b>Asymp. Sig.</b>	0,153	0,046	0,076	0,588	0,409	0,348	,502
a. Kruskal Wallis Test							
b. Grouping variable: Income_range							

As it is possible to see in table G.2, Annex G, there are significant differences in the category’s “student”, “less than 1000€/month” and “1000€ to 1499€/month”. In table G.3, we can see that respondents with lower income ranges scored reliability with lower values, and respondents with above-middle income range “2500€ to 3499€/month”, placed the higher score for the perceived quality regarding reliability.

Given these results, it is possible to reject H6 and H2a, but not to reject H2b since this variable influences the dimension Reliability.

#### 4.5.4 Area of residency

For this variable, the Mann-Whitney test will be used, being the hypotheses the following: H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{Lisboa and Vale do Tejo, Outside Lisboa and Vale do Tejo}\}$ ). The results presented in Table F.2, Annex F, show that H0 is not rejected, meaning that the variable “Area of residency” does not have influence on neither of the service quality dimensions, PSQ or satisfaction. This allows to reject H2a, H2b and H6.

#### 4.5.5 Frequency of hotel stays

Regarding the independent variable “Frequency of hotel stays”, the aim is to test H2a, H2b and H6 resorting to Kruskal-Wallis test, where: H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{1 \text{ stay per year, 2 stays per year, 3 stays per year, 4 or more stays per year, less than one stay per year}\}$ ). By looking at the results presented in table 13 below, the H0 it is not rejected for P23, Satisfaction, Tangibles, Reliability, Assurance and Empathy. Meaning, the variable “Frequency of hotel stays” does not have influence on these dimensions. It does, however, have an influence on SQ dimension Responsiveness, since the sig < 0,05, allowing to reject H0.

Table 13. Kruskal-Wallis test for the independent variable “Frequency of hotel stays” for the five service quality dimensions, PSQ and satisfaction  
(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Kruskal-Wallis H</b>	2.648	4.522	9.604	1.759	3.628	3.021	2.079
<b>df</b>	4	4	4	4	4	4	4
<b>Asymp. Sig.</b>	0,618	0,340	0,048	0,780	0,459	0,554	0,721
a. Kruskal Wallis Test							
b. Grouping variable: Frequency of hotel stays							

By looking at the results in table G.4 and table G.5, Annex G, it is possible to say that the people that stay in a hotel 3 times per year, have a higher perceived quality of SQ Responsiveness than the ones with less frequent hotel stays per year. Such outcomes allow to fully reject H6 and H2a, and partially reject H2b.

#### 4.5.6 Party size when staying in a hotel

The purpose is to evaluate the effect of the independent variable “Party size when staying in a hotel” on perceived service quality, satisfaction and service quality dimensions. To do so, the Kruskal-Wallis test and t-student tests will be used to test the hypotheses H2a, H2b and H6. The hypotheses for the test are H0:

$\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i,j = \{\text{just with the partner, with 1 child and partner, with more than 1 child and partner, with children, alone, with parents, with a group of friends}\}$ ). According to the results presented in table 14, it is possible to conclude that H0 is not rejected for PSQ, satisfaction and all of the service quality dimensions with the exception of Tangibles, due to  $\text{Sig} < 0,05$ .

Table 14. Kruskal-Wallis test for the independent variable “Party size when staying in a hotel” for the five service quality dimensions, PSQ and satisfaction  
(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Kruskal-Wallis H</b>	15.740	10.562	5.432	6.827	7.102	2.284	8.984
<b>df</b>	6	6	6	6	6	6	6
<b>Asymp. Sig.</b>	0,015	0,103	0,490	0,337	0,312	0,892	0,174
a. Kruskal Wallis Test							
b. Grouping variable: Party_size_when_staying_in_a_ hotel							

According to the values in table G.6, Annex G, people who usually stay in hotels alone and with a group of friends, have a lower PSQ regarding Tangibles than the people who stay in a hotel with children and partner, or just a partner. These results lead to a full rejection of H6 and H2a, but a partial acceptance of H2b.

#### 4.5.7 Hotel location

For this variable, the Mann-Whitney test will be used, being the hypotheses the following: H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i,j = \{\text{Central, Remote}\}$ ). Looking into the results presented in table 15, it is possible to say that the SQ dimensions Reliability and Responsiveness are influenced by the variable “Hotel location”, opposing to PSQ, satisfaction and the rest of the SQ dimensions that are not influenced by this independent variable.

Analysing the results in table G.7, Annex G, the people that stayed in a hotel with a central location placed a lower value in Reliability and Responsiveness than the people who stayed in a hotel with remote location. Regarding consensus, people that stayed in a hotel with a remote location seem to agree more on the answers – lower SD values – than the people who stayed in a centrally located hotel. These results allow to reject H1a and H5, but partially accept H1b.

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Table 15. Mann-Whitney test for the independent variable “Hotel location” for the five quality service dimensions, PSQ and satisfaction  
(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Mann-Whitney U</b>	1839.500	1768.500	1778.500	2115.500	1995.500	2245.500	1978.500
<b>Wilcoxon W</b>	4540.500	4469.500	4479.500	4816.500	4696.500	4946.500	4679.500
<b>Z</b>	-1,883	-2,192	-2,178	-0,664	-1,187	-0,085	-1,265
<b>Asymp. Sig. (2-tailed)</b>	0,060	0,028	0,029	0,507	0,235	0,932	0,206

a. Grouping variable:  
Hotel\_location

4.5.8 Star rating

The purpose is to evaluate the effect of the independent variable “Star rating” on perceived service quality, satisfaction and the service quality dimensions. To do so the Kruskal-Wallis test and t-student tests will be used to test the investigation hypotheses H1a, H1b and H5. The tests hypotheses are H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{2 \text{ stars}, 3 \text{ stars}, 4 \text{ stars}, 5 \text{ stars}\}$ ). Following the Sig. values in table 16, the only dimension that it is not influenced by Star rating is PSQ (H0 not rejected since Sig > 0,05). All the SQ dimensions and satisfaction are influenced by this independent variable, due to Sig < 0,05, hence H0 is rejected.

Table 16. Kruskal-Wallis test for the independent variable “Star rating” for the five quality service dimensions, PSQ and satisfaction  
(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Kruskal-Wallis H</b>	39.993	25.460	31.938	9.260	15.574	5.268	17.657
<b>df</b>	3	3	3	3	3	3	3
<b>Asymp. Sig.</b>	0,000	0,000	0,000	0,026	0,001	0,153	0,001

a. Kruskal Wallis Test  
b. Grouping variable: Star\_rating

According to the values in table G.6, Annex G, the values for satisfaction and all SQ dimensions become higher as the number of hotel stars increases. The same applies to the answer’s consensus, meaning as the hotel stars number increases, so does the consensus in the answers given. Higher the number of hotel stars, the higher is the satisfaction as well as the perception of quality for all the SQ dimensions. These results allow to partially accept H5 and H1b and fully reject H1a.



#### 4.5.9 Price per night

The purpose is to evaluate the effect of the independent variable “Price per night” on perceived service quality, satisfaction and the service quality dimensions. To do so the Kruskal-Wallis test and t-student tests will be used to test the investigation hypotheses H1a, H1b and H5. The tests hypotheses are H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{Less or equal to 50€}, 50€ - 100€/\text{night}, 100€/\text{night or above}\}$ ). According to the values in table 17, given the Sig. values, it is possible to say that the only dimension that it is not influenced by Price per night is overall PSQ (H0 not rejected since Sig > 0,05). All the SQ dimensions and satisfaction are influenced by this independent variable, due to Sig < 0,05, hence H0 is rejected.

Table 17. Kruskal-Wallis test for the independent variable “Price per night” for the five quality service dimensions, PSQ and satisfaction  
(Source: prepared by the author)

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	P23	Satisfaction
<b>Kruskal-Wallis H</b>	15.553	28.488	12.619	7.491	8.487	3.744	14.302
<b>df</b>	2	2	2	2	2	2	2
<b>Asymp. Sig.</b>	0,000	0,000	0,002	0,024	0,014	0,154	0,001
a. Kruskal Wallis Test							
b. Grouping variable: Price per night							

According to the values in tables G.9 and G.10, Annex G, the values for satisfaction and all SQ dimensions become higher as the price per night increases. The same applies to the answer’s consensus, meaning as the price per night increases, so does the consensus in the answers given; with the only exception in the answers consensus for the Empathy dimension in categories “50€ – 100€ per night” and “100€/night or above”, having the same SD value (0,704). These results allow to partially accept H5 and H1b and fully reject H1a.

#### 4.5.10 Additional set of service offers

- Breakfast included

To understand the influence that the independent variable “Breakfast included” has on the PSQ, SQ dimensions and satisfaction, Mann-Whitney and t-student tests will be used, where: H0:  $\mu_i = \mu_j$  versus H1:  $\mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes}, \text{no}\}$ ). This will allow to reach conclusions regarding investigation hypotheses H3 and H7. According to the values in table F.10.1, Annex F, there are no statistically significant differences among SQ dimensions, overall PSQ and satisfaction. Meaning, the variable “Breakfast included” does not have influence in neither of the dimensions. This allows to partially reject H3 and H7.

- Restaurant

For this variable, the Mann-Whitney test will be used, being the hypotheses the following:  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.2, Annex F, it is safe to say that this independent variable does not have influence on any SQ dimension, overall PSQ and satisfaction. This allows to partially reject H3 and H7.

- Free wi-fi

For this variable, the Mann-Whitney test will also be used, to provide insights about investigation hypotheses H3 and H7. In this test, the hypotheses are  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.3, Annex F, it is possible to conclude that this variable does not have influence on overall PSQ, and the majority of SQ dimensions. It does, however, have an impact on Satisfaction and Responsiveness. According to the results in table G.11, Annex G, it is possible to conclude that the scores for Responsiveness and satisfaction are higher when the hotel provided free wi-fi, opposing to when it did not provide it. Regarding the consensus of the answers (SD values), respondents seem to agree more on the influence of responsiveness and satisfaction in hotels with free wi-fi. These results allow to partially accept both H3 and H7, since “Free wi-fi” does have an influence on satisfaction and in one of the SQ dimensions.

- Parking lot

For this variable, the Mann-Whitney test will be used, to provide insights about investigation hypotheses H3 and H7. In this test, the hypotheses are  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.4, Annex F, this variable has influence on all SQ dimensions and satisfaction; the only dimension that it is not influenced by this variable is its overall PSQ. According to the results presented in table G.12, Annex G, it is possible to conclude that the scores became higher in all SQ dimensions, as well as in satisfaction, when the hotel provided a parking lot to its guests. This allows to partially accept H3 and H7, since “Parking lot” has influence in all SQ dimensions and satisfaction.

- Gym

For this variable, the Mann-Whitney test will be used, to provide insights about investigation hypotheses H3 and H7. In this test, the hypotheses are  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.5, Annex F, it is visible that this variable has an influence on SQ dimensions Tangibles and Empathy, as well as on Satisfaction. As it is possible to see in table G.13, Annex G, the scores

became higher when in the cases where the hotel provided a gym to its guests, opposing to when it did not provide it. This is noticeable in both SQ dimensions as well as in satisfaction. The same reflection happens when it comes to answers consensus (lower values for SD). These results allow to partially accept H3 and H7, since “Gym” has influence in two SQ dimensions, Tangibles and Empathy, as well as satisfaction.

- Pool

For this variable, the Mann-Whitney test will be used, to provide insights about investigation hypotheses H3 and H7. In this test, the hypotheses are  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.6, Annex F, it is safe to say that this variable has influence in all SQ dimensions as well as in satisfaction, but not in overall PSQ (since its Sig. > 0,05). According to the results in table G.14, Annex G, the scores for all SQ dimensions and satisfaction, became higher in the cases where the hotel provided its guests a pool. The same applies to the answers’ consensus, meaning the respondents agree more in the cases where the hotel provided a pool as a service. These results allow to partially accept H3 and H7, since “Pool” has influence in all SQ dimensions and satisfaction.

- Spa

For this variable, the Mann-Whitney test will be used, to provide insights about investigation hypotheses H3 and H7. In this test, the hypotheses are  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.7, Annex F, it is possible to see that this variable has influence in all SQ dimensions and satisfaction, but not in overall PSQ. According to the results presented in table G.15, Annex G, the scores for all SQ dimensions and satisfaction, became higher in the cases where the hotel provided to its guests a spa. Regarding answers’ consensus, the same scenario applies. These results allow to partially accept H3 and H7, since “Spa” has influence in all SQ dimensions and satisfaction.

- Others

For this variable, the Mann-Whitney test will also be used, to provide insights about investigation hypotheses H3 and H7. In this test, the hypotheses are  $H_0: \mu_i = \mu_j$  versus  $H_1: \mu_i \neq \mu_j$  ( $i \neq j$  and  $i, j = \{\text{yes, no}\}$ ). Looking at the results in table F.10.8, Annex F, this variable has influence only on Tangibles, and none on the other SQ dimensions, satisfaction or overall PSQ. Looking at table G.16, Annex G, in the cases where the hotel provided another type of additional service, the score was higher for Tangibles. The consensus in the answers is also bigger in this scenario. Such results allow to partially accept H3 “Others” has influence in Tangibles, and fully reject H7 since it has no influence whatsoever on satisfaction.

#### 4.6 Association between Perceived Service quality and Customer satisfaction

To be able to reach a conclusion regarding investigation hypotheses H4, a statistical test was made to understand if there is an association between these two constructs. By looking at the results in tables I.1 and I.2, Annex I, it is possible to conclude that both variables do not follow a normal distribution, since  $Sig. < 0,05$ . Therefore, it is not possible to use Pearson’s correlation coefficient and Spearman correlation coefficient was computed instead. According to Marôco (2018), a correlation coefficient varies between -1 and 1 and the relation between both variables is stronger as the value is closer to -1 or 1. If the coefficient value is near -1, then it is a negative relation and if the coefficient value is close to 1, then it is a positive relation. This relation can be considered strong when  $p > 0,5$  (or the symmetric value).

Table 18. Spearman’s correlation coefficient for global perceived service quality and satisfaction  
(Source: prepared by the author)

			P23	Satisfaction
Spearman's rho	P23	Correlation coefficient	1.000	0,725
		Sig. (2-tailed)	.	0.000
		N	135	135
	Satisfaction	Correlation coefficient	0,725	1.000
		Sig. (2-tailed)	0.000	.
		N	135	135

According to the results shown in table 18, this correlation coefficient is 0,725 and the  $p$  - value is 0,000, therefore it is possible to say that there is a significant, strong and positive relationship between perceived global service quality and the hotel guests’ satisfaction. Hence, H4 cannot be rejected.

#### 4.7 Discussion

Throughout Chapter 4, perceived service quality and customer satisfaction in the Portuguese hotel industry have been evaluated from the customer’s perspective. This was done by resorting to different statistical and exploratory analysis of the 135 valid answers collected. After their discussion, it is relevant to summarize and highlight the main conclusions achieved. The sample analysed is quite balanced as it has 45,2% male respondents and 54,8% female respondents, most of them with ages between 18 and 34 years old (96 answers placed in these range of ages). Regarding income range, it is possible to say that the sample it is representative of the Portuguese middle class, as the majority of answers it is placed in categories 1000€ to 1499€/month and 1500€ to 1999€/month (with RF of 36,3% and 14,8%, respectively). It is also possible to see that most of the sample resides in Lisboa and Vale do Tejo (86,7%).

Regarding the frequency of hotel stays per year, there is a good distribution between the several options (1 stay with 33,3%, 2 stays with 28,1%, 3 stays 11,9% and 4 stays or more with 12,6%), although the majority of people stays only once in a hotel, per year. When it comes to the party size when staying in a hotel, more than a half of the sample stays in a hotel with only their partner (62,2%), followed by with a group of friends (10,4%). These results make sense since the sample is relatively young so the number of answers for staying in a hotel with children and partner are not so significant (22 answers). When asked about the hotel location, the sample is quite balanced, so it is safe to say the customers can easily stay in a hotel that is either centrally located (54,1%), or more remote (45,9%). The majority of the customers stays in 4 star hotels (60,7%), spending in average per night a price between 100€-300€ (48,1%) or 50€ - 100€ (43%), which is aligned with some way with the average income range of this sample. Regarding the additional set of service offers, almost all respondents said that their hotel had breakfast included (94,1%) as well as free wi-fi (93,3%). The other three variables provided by the hotel present in more than a half of the answers are parking lot (78,5%), pool (74,8%) and restaurant (63%).

The evaluation of the overall perceived service quality with the Portuguese hotel industry it is quite positive, with a mean of 5,93, in a scale from 1 to 7. Assurance is the dimension with the highest perceived service quality (6,27 of mean), whereas Reliability is the dimension with the lowest perceived service quality (5,86 of mean), containing the item with the lowest score, P8 (mean of 5,20).

Cronbach's alpha showed a strong reliability for all dimensions of the SERVPERF instrument, as well as for the satisfaction construct. An additional test was conducted for the satisfaction construct, to understand the reliability of all five items. The data resulted from such test indicated that item P28 if removed from this coefficient, the reliability of the Satisfaction construct would improve from 0,940 to 0,947. Hence, P28 was removed from this dimension construct. In addition to this, a multiple linear regression was done. According to its results, 50,2% of the variance of overall perceived service quality is explained by two dimensions (Assurance and Tangibles), as the others were not considered statistically relevant.

Resorting to statistical tests, correlation coefficients and linear regression models, several points were verified regarding statistical relevancies.

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Table 19. Statistical relevance of independent variables  
(Source: prepared by the author)

	PSQ (P23)	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
Gender							x
Age							
Income range			x				
Area of Residency							
Freq. hotel stays				x			
Party size for hotel stays		x					
Hotel location			x	x			
Star rating		x	x	x	x	x	x
Price per night		x	x	x	x	x	x
Breakfast included							
Restaurant							
Free wi-fi				x			x
Parking lot		x	x	x	x	x	x
Gym		x				x	x
Pool		x	x	x	x	x	x
Spa		x	x	x	x	x	x
Others		x					

In table 11 it is possible to see the statistical relevance of independent variables in each of the five service quality dimensions, PSQ and customer satisfaction. The variables “Age”, “Area of residency”, “Breakfast included” and “Restaurant” did not register any statistically significant differences. Whereas “Star rating”, “Price per night”, “Parking lot”, “Pool” and “Spa” had relevance in quite a lot SQ dimensions as well as satisfaction.

Table 20. Summary of hypotheses decisions'  
(Source: prepared by the author)

H1a	Rejection
H1b	<b>Non-rejection</b>
H2a	Rejection
H2b	<b>Partial rejection</b> - rejection for "Age" and "Area of residency", non-rejection for the remaining independent variables
H3a	Rejection
H3b	<b>Partial rejection</b> - rejection for "Breakfast included" and "Restaurant", non-rejection for the other independent variables
H4	<b>Non-rejection</b>
H5	<b>Partial rejection</b> - rejection for "Hotel location", non-rejection for the remaining independent variables
H6	<b>Partial rejection</b> - non-rejection for "Gender" and rejection for the remaining independent variables
H7	<b>Partial rejection</b> - rejection for "Breakfast included" and "Restaurant" and non-rejection for the remaining independent variables

After these results were analysed, it was possible to see which investigation hypotheses could be rejected or not. Table 12 provides a summary regarding these conclusions. Following these tests, a reliability analysis was carried out to understand the relationship between perceived service quality and customer satisfaction within the Portuguese hotel industry. According to the results obtained from Spearman's correlation coefficient, the existence of this relationship was verified. In fact, it was proven to be a strong relationship with a coefficient of 0,725.

## **Chapter 5. Conclusions and discussion**

This final chapter contains the main conclusions of this research. The research questions will be answered as well as if the objectives were met given the data resulted from the analyses done in the previous chapter. Afterwards, the limitations of the study will be presented and identified, followed by suggestions for future research. Lastly, implications for both academic and managerial field will take place according to the results presented in the previous chapter, aiming to increase perceived service quality of the Portuguese hotel industry.

### **5.1 Answers to the Research questions**

#### **5.1.1 Research question 1**

*“What is the Portuguese customer's perception of the service quality provided in the Portuguese hotel industry?”*

By the descriptive analysis carried out in the previous chapter, it was possible to identify a level of overall perceived service quality (P23) quite high and positive (5,93 in a scale of 1 to 7). In a general way, costumers demonstrated high considerations regarding the quality of the service provided, as it is possible to conclude from the scores placed in all of the five service quality dimensions suggested by Parasuraman *et al.* (1988). From a SQ dimensions perspective, all five of them present solid scores of perceived service quality. Assurance has the highest value (6,27) close to highest score in the scale (from 1 to 7), closely followed by Responsiveness (6,18) and Empathy (6,00). In fact, these three dimensions present higher perceptions of quality than the overall PSQ (P23). Facing these results, it is safe to say that customers really value and appreciate aspects related to feeling safe and trusting that the staff is there to help and make the hotel stay as pleasant as possible. The high importance placed in the dimensions Assurance and

Responsiveness is aligned with the studies carried out in this field, as they also conclude that both dimensions have significant levels of PSQ, Kutson *et. al* (1990) and Wong *et. al* (1999). On the other hand, the dimension with the lowest perceived quality is Reliability (5,86), which is linked to sticking with scheduled timings and working hours for certain services, as well as being able to solve issues on a timely manner. This leads to believe that despite the confidence placed on the hotel staff, the ability to provide a prompt service at a promised time needs to be improved.

From an item point of view, the item with the highest perceived service quality is P16 *“The hotel staff is polite and respectful”* (mean of 6,45), closely followed by P15 *“You felt safe during your hotel stay and during the services usage”* (mean of 6,36), which comes as a no surprise since they both belong to Assurance dimension, hence linked with the hotel guest’s confidence on the hotel personnel.

The items with the lowest perceived service quality are P8 *“The hotel has a record of zero errors/complaints”* (mean of 5,20) and P22 *“The hotel understands your specific needs”* (mean of 5,76). Such results suggest that there should be a focus on providing the services at the promised timings and being able to solve issues reported by the hotel guests as well as a focus on the hotel guests’ specific needs, meaning improving and investing in engagement with the customer. With these results, objective 1 is met.

When it comes to objective 2, it is possible to see that according to the results stated in table 11, as well as the analyses presented in the chapter above, both star rating and price per night have an influence on satisfaction as well as on all SQ dimensions (higher the number of hotel stars, the higher is the satisfaction as well as the perception of quality for all the SQ dimensions; the values for satisfaction and perception of quality for all SQ dimensions also become higher as the price per night increases) oppose to hotel location that has influence only on Reliability and Responsiveness (people that stayed in a hotel with a central location placed a lower value in Reliability and Responsiveness than the people who stayed in a hotel with remote location).

Regarding the variables linked to an additional set of service offers, statistical tests such as Mann-Whitney and Kruskal-Wallis were computed to be able to answer this part of the question. The results in table 11 allow to see that only *Restaurant* and *Breakfast-included* did not had any influence on any SQ dimension, satisfaction nor overall PSQ. *Free wi-fi* has influence on satisfaction and responsiveness, *Parking-lot* has influence on satisfaction and all SQ dimensions; *Gym* has influence on satisfaction, tangibles and empathy, both *Pool* and *Spa* have influence on all SQ dimensions and satisfaction; and *Others* has influence only on tangibles.

Facing these conclusions, objective 2 is met.



By looking at the results presented in table 11, variables such as gender, age and area of residency do not have any influence whatsoever on any dimension nor overall PSQ. However, income range, frequency of stays and party size when staying a hotel do have an influence on dimensions such as Reliability, Responsiveness and Tangibles, respectively. For income range, respondents with lower income ranges scored reliability with lower values, and respondents with above-middle income range “2500€ to 3499€/month”, placed a higher score for the perceived quality regarding reliability.

For frequency of stays, people that stay in a hotel 3 times per year, have a higher perceived quality of SQ Responsiveness than the ones with less frequent hotel stays per year. For party size when staying a hotel, people who usually stay in hotels alone and with a group of friends, have a lower PSQ regarding Tangibles than the people who stay in a hotel with children and partner, or just a partner. These results allow to meet objective 3.

At last, all these conclusions and analyses allow to answer to research question 1.

#### 5.1.2 Research question 2

*“To what extent do the service quality dimensions’ influence perceived service quality in the Portuguese hotel industry? “*

To answer a part of this question, a multiple linear regression was computed so it was possible to see which SQ dimensions are more suitable in explaining PSQ. According to the results presented in sub-chapter 4.3.3, the most important SQ dimension in explaining P23 is Assurance (highest predictor) followed by Tangibles. With this, the model explaining PSQ is  $P23 = 0,581 Assurance + 0,246 Tangibles$ . Meaning, 58,1% of PSQ is explained by the dimension Assurance and 24,6% is explained by Tangibles. In this sense, it is safe to say that Reliability, Responsiveness and Empathy do not present enough weight on influencing PSQ. These results are aligned with the study carried out by Wong *et. al* (1999) and Knutson *et. al* (1999) where it was concluded that these two SQ dimensions are the best predictors of PSQ, as well as the study performed by Wuest *et. al* (1996), where he concluded the same for the SQ Tangibles. These results allow to meet objective 4 and answer RQ2.

### 5.1.3 Research question 3

*“Is perceived service quality associated with customer satisfaction in the Portuguese hotel industry?”*

As presented in the previous chapter, the Spearman’s correlation coefficient obtained of 0,725 shows the existence of a positive and strong relationship between perceived global service quality and customer’s satisfaction. This result is fully aligned with the academic literature claiming that there is a strong positive association between these two constructs, Lee *et. al* (2011), Zeithmail (2006), McDougall and Levesque (2000), Oliver (1980), Oh (1999). Such results allow to meet the partial objective 6.

Regarding objective 5, by the results presented in the chapter above, more precisely sub-chapter 4.4.2, the item with the highest level of satisfaction is P26 *“The comments I make about the service provided by the hotel, when talking to others, are positive”* with a mean score of 6,16, and the item with the lowest satisfaction is P27 *“The services provided by the hotel, are exactly what I was looking for, for my stay”* with a mean score of 6,02. Regarding gender, this variable was noted to have an influence on the level of satisfaction and that women respondents had a better level of satisfaction (6,08 of mean) than the male respondents (5,94 of mean). The overall score for overall satisfaction is 6,01, which is quite close to the highest score (7). Therefore, one can say that even if the hotel management was not 100% focused and engaged with the customer’s specific needs, the hotel guests seem to be pleasantly satisfied with the overall service provided.

According to the results presented in table 11 in the previous chapter, the variables linked to service characteristics that have an influence on the levels of the hotel guest’s satisfaction are free wi-fi, parking-lot, gym, pool and spa. Meaning this set of attributes being provided as services boosts the guest’s levels of satisfaction, in a positive way, with their hotel stays. These conclusions are aligned with academic studies, Atkinson (1988) Ananth *et al.* (1992), Barsky and Labagh (1992), Cadotte and Turgeon, (1988), Knutson B. (1988), McCleary *et al.* (1993), Rivers *et al.* (1991), Wilensky and Buttle (1988), Yang *et. al* (2011), Magnini *et. al* (2011), Nam *et. al* (2011), Han *et. al* (2011), Fu (2011), Ramanathan (2012).

The variables star rating and price per night, were noted to have a proportional effect on the levels of satisfaction, meaning, as the number of hotel stars and price per night got higher, the level of satisfaction with the hotel stay also became higher.

All these results allow to meet both objectives and answer RQ 3.

#### 5.1.4 Research question 4

*“Which managerial recommendations regarding service delivery can be made in order to improve the perceived service quality and the customer satisfaction within the Portuguese hotel industry?”*

After the analysis made and based on results presented and conclusions reached, it is possible to make some managerial recommendations to improve the perceived service quality of hotel guests' and better satisfy their needs. By looking at the data analysed in sub-chapter 4.3.3, the dimension with the lowest PSQ is Reliability, which is linked to the hotel's capacity of response and ability to provide a prompt service when requested by the customer or promised by the hotel itself. Overall, hotel guests have a high perception of the service quality provided, however the responsiveness and reliability of the service falls short and clearly it is an area that could be improved. If necessary, the hotels could invest in hiring more personnel so that there would be enough workforce to attend as many hotel guests as possible.

Another dimension with a substantial weight on PSQ (in fact, it is a predictor) and a not-so-good (when compared to the other SQs) score is Tangibles. This stands out as good point for a hotel management to focus on, since it is a critical dimension for the hotel guest when perceiving the overall service quality provided. Perhaps a nicer décor could be putted into place as well as modern equipment in the rooms and in common areas. Given the massive influence of this dimension on PSQ, it is indeed a dimension that a hotel management should invest on, since the decoration and physical attractiveness of a hotel works as a welcome card. If it is not appealing at a first encounter, then the perception of the hotel guest will be already tinted.

Regarding the satisfaction, since the item with the lowest score was linked to the provision of services that match entirely the needs of the hotels guest's – in some way this is also related with the outlines of Reliability dimension – this is also a point where the focus should be directed to. Perhaps, a more in-depth engagement with the customer needs to take place so that the hotel management/personnel can provide the best service possible, aligned with the guests' needs and desires.

## **5.2 Limitations of the study**

The first limitation that can be pointed out is the reduced number of elements in the sample and the fact that the data was collected via an online questionnaire. Therefore, the sample is not randomly selected, and it is not representative of the population. Hence, the results presented and discussed can only serve for the purpose of this investigation. In addition to this, the sample did not meet the requirements for the use of parametric tests, so it was necessary to resort to non-parametric tests. The results of such tests may be less robust. Nonetheless, these tests were the ones used and served the purpose of this investigation research settings.

Another limitation that can be mentioned is that this study focuses only on customer's perspective. Therefore, it is being explored and studied only one prism of the whole.

## **5.3 Suggestions for future research**

The scope of this investigation is based only on the latest experiences people had during their hotel stays. Therefore, it could be interesting in the future to take on another approach as, for example, the best experience/hotel stay, which could provide an insight on the best-case scenario for the industry. Another approach could be to apply this study but on specific hotels chains and perhaps do some benchmark analysis and see which hotel chain has a better performance than the others.

One perspective that could also be of interest, is to include the service provider's insight, meaning, the hotel management and personnel. This could allow to explore the service providers' perception of themselves and their perceptions of the customer's perceptions. This could even result in a comparison of both perceptions and assemble results to obtain conclusions. One interesting result of this study was that people who stayed more often in hotels tend to perceive the quality as higher. This could lead to different investigations, where customer loyalty can be associated with perceived service quality as well as customer satisfaction.

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## **Annexes**

### **Annex A – Questionnaire**

#### Perceived service quality in the Portuguese hotel industry

Purpose of the study

This questionnaire is an integrated part of a dissertation of the master in Management, lectured in ISCTE-IUL. Its purpose is to investigate the perceived service quality, from the customer's eyes, of the portuguese hotel industry. It will also be evaluated which dimensions have more impact in the service quality, as well as on the costumer satisfaction. Kindly ask you to answer the survey accoridng to the latest experience you had in a portuguese hotel.

The results are anonimous and will be only used for the purpose of this investigation.

In case of any doubts, please revert them for the following e-mail: [bgcas@iscte-iul.pt](mailto:bgcas@iscte-iul.pt)

Thank you in dvance for your time and cooperation.

#### **Costumer characterization**

Statistical data

Please fill below the socio-demographical data:

- Gender:

Female

Male

- Age:

18 - 24 years old

25 - 34 years old

35 - 44 years old

45 - 54 years old

55 - 64 years old

65 years old or above

- Income range:

Student

Currently unemployed

Less than 1000€/month

1000€ to 1499€/month

1500€ to 1999€/month

2000€ to 2499€/month

2500€ to 2999€/month

3000€ to 3499€/month

3500€ to 3999€/month

4000€/month or above

- Which one is your area of residency?

Alentejo

Centro

Lisboa e Vale do Tejo

Algarve

Norte

Madeira

Açores

- With which frequency to you stay in a hotel in Portugal?

Less than 1 stay per year

1 stay per year

2 stay per year

3 stay per year

4 stay per year

- Party size when staying in a hotel

Please indicate below the option that indicates with whom you usually stay in a hotel

Just with the partner (boyfriend/girlfriend, wife/husband)

With 1 child and partner

With more than 1 child and partner

With children

Alone

With parents

With a group of friends

### **Characterization of the hotel stay**

Please answer the following questions according to the latest experience you had in a hotel, in Portugal.

- What was the location of the hotel?

Central, near city center

Remote, far from city center

- What was the star rating?

2 stars

3 stars

4 stars

5 stars

- Did the hotel offer an additional set of services? If so, please indicate below which services it offered. You can choose more than one option.

Breakfast included

Restaurant

Free wi-fi

Parking lot

Gym

Pool



Spa

- What is, approximatedely, the price charged by the hotel, per night?

Less or equal to 50€

50€ - 100 €/night

100€ - 300€/night

300€ - 500€/night

Above 500€/night

**Assessment of the perceived service quality**

1. Please indicate below your level of agreement with the following statements concerning the hotel's service quality. Consider the scale as 1 = "Strongly disagree" and 7 = "Strongly agree"

Scale	1	2	3	4	5	6	7
1.The hotel has modern equipment (such as ketcards to open doors, coffe machines in every room, etc)							
2. The hotel decoration is visually appealing, clean and confortable							
3. The hotel staff has a neat and professional appearance							
4. The materials associated with the services provided are user-friendly (TV and phone in the room, WC, AC, lights, etc)							

Scale	1	2	3	4	5	6	7
5. The hotel promises to do something in a proper time, and it does so (services such as wake-up calls. or leaving extra towels in the WC due to guests requests, etc)							
6. As an hotel guest, when faced with a problem, the hotel is available to solve it (problems such as the keycard not working, or any other equipment like the shower, for example)							
7. The hotel performs the services correctly at the first time it is requested							
8. The hotel has a record of zero errors/complaints							
9. The hotel provides the services at the promised hour (for example, services such as the breakfast or other meals served at the restaurant, working hours for the front desk, as well as for the pool, spa and gym)							

Scale	1	2	3	4	5	6	7
10. The hotel informs the guests about the time of when the services will be provided							
11. The hotel staff provides a prompt service							
12. The staff do hotel is always willing to help you							

Perceived Service Quality Within the Portuguese Hotel Industry

13. The staff do hotel is always available to answer any of your questions							
--	--	--	--	--	--	--	--

Scale	1	2	3	4	5	6	7
14. The behaviour of the hotel staff is trustworthy							
15. You felt safe during your hotel stay and during the services usage							
16. The hotel staff is polite and respectful							
17. The hotel staff has the proper knowledge and necessary competences to answer your questions (them being regarding sightseeing places or any other questions about the service/hotel)							

Scale	1	2	3	4	5	6	7
18. The hotel staff gives undivided attention to you							
19. The hotel and its facilities have convenient working hours and timetable							
20. The hotel has your best interest at heart							
21. The hotel provides a personalized service (for example, during the check-out a staff member carefully explains the bill, or during check-in carefully explains the hotel facilities)							
22. The hotel understands your specific needs (for example, leaving a crib in the hotel eroom because you're travelling with a baby, or left a floral arrangement in your bed becaus eyou're in a honeymoon)							

2. Please answer the following question, considering the scale as 1 = "Extremelly weak" and 7 = "Excellent"

Scale	1	2	3	4	5	6	7
23. How would you classify, in general, the quality of the service provided by the portuguese hotel inustry, taking into account your experience?							

3. Please answer the following question, considering the scale as 1 = " Strongly disagree" and 7 = "Strongly agree"

Scale	1	2	3	4	5	6	7
24. I'm willing to recommed this hotel to family/friends							
25. I'm willing to stay in this hotel again							
26. The comments I make about the service provided by the hotel, when talking to others, are positive							
27. The services provided by the hotel, are exactly what I was looking for, for my stay							
28. This hotel is my first choice when looking for an accomodation, due to their services it offers							

Thank you very much for your time and collaboration!

**Annex B – Sample and service characterization**

Table B.1. Frequencies for the independent variables of sample characterization

Independent variable		AF	RF (%)
GENDER	Male	61	45,2%
	Female	74	54,8%
<b>Total</b>		<b>135</b>	<b>100%</b>
AGE	18 - 24 years old	44	32,6%
	25 - 34 years old	52	38,5
	35 - 44 years old	10	7,4%
	45 - 54 years old	16	11,9%
	55 - 64 years old	9	6,7%
	65 years old or above	4	3%
<b>Total</b>		<b>135</b>	<b>100%</b>
INCOME RANGE	Student	9	6,7%
	Currently unemployed	5	3,7%
	Less than 1000€/month	18	13,3%
	1000€ to 1499€/month	49	36,3%
	1500€ to 1999€/month	20	14,8%
	2000€ to 2499€/month	14	10,4%
	2500€ to 2999€/month	5	3,7%
	3000€ to 3499€/month	4	3%
	3500€ to 3999€/month	2	1,5%
4000€/month or above	9	6,7%	
<b>Total</b>		<b>135</b>	<b>100%</b>
AREA OF RESIDENCY	Alentejo	5	3,7%
	Centro	4	3%
	Lisboa e Vale do Tejo	117	86,7%
	Algarve	5	3,7%
	Norte	3	2,2%
	Madeira	0	0%
	Açores	1	0,7%
<b>Total</b>		<b>135</b>	<b>100%</b>
FREQUENCY OF HOTEL STAYS	Less than 1 stay per year	19	14,1%
	1 stay per year	45	33,3%
	2 stay per year	38	28,1%
	3 stay per year	16	11,9%
	4 stay per year	17	12,6%
<b>Total</b>		<b>135</b>	<b>100%</b>
PARTY SIZE WHEN STAYING IN A HOTEL	Just with the partner (boyfriend/girlfriend, wife/husband)	84	62,2%
	With 1 child and partner	10	7,4%
	With more than 1 child and partne	11	8,1%
	With children	1	0,7%
	Alone	7	5,2%
	With parents	8	5,9%
	With a group of friends	14	10,4%
<b>Total</b>		<b>135</b>	<b>100%</b>

(Source: prepared by the author)

Table B.2 Frequencies for the independent variables of service characterization

Independent variable		AF	RF (%)
HOLTE LOCATION	Central	73	54,1%
	Remote	62	45,9%
<b>Total</b>		<b>135</b>	<b>100%</b>
STAR RATING	2 stars	1	0,75%
	3 stars	28	20,7%
	4 stars	82	60,7%
	5 stars	24	17,8%
<b>Total</b>		<b>135</b>	<b>100%</b>
PRICE PER NIGHT	Less or equal to 50€	9	6,7%
	50€ - 100 €/night	58	43%
	100€ - 300€/night	65	48,1%
	300€ - 500€/night	3	2,2%
	Above 500€/night	0	0%
<b>Total</b>		<b>135</b>	<b>100%</b>

(Source: prepared by the author)

Independent variable		AF	RF (%)	AF	RF (%)
		YES		NO	
ADDITIONAL SET OF SERVICE OFFERS	Breakfast included	127	94,1%	8	5,9%
	Restaurant	85	63%	50	37%
	Free wi-fi	126	93,3%	9	6,7%
	Parking lot	106	78,5%	29	21,5%
	Gym	51	37,8%	84	62,2%
	Pool	101	74,8%	34	25,2%
	Spa	64	47,4%	71	52,6%
	Others	19	14,1%	116	85,9%
<b>Total</b>		<b>135</b>	<b>100%</b>	<b>135</b>	<b>100%</b>

(Source: prepared by the author)

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**Annex C – Descriptive Analysis of Perceived Service Quality and Satisfaction**

Table C.1 Perceived service quality by item and dimension

	Mean	SD	Scale - RF (%)						
			1	2	3	4	5	6	7
<b>Tangibles</b>	<b>5,90</b>	<b>0,920</b>							
P1. The hotel has modern equipment	5,81	1,080	0,7	0	2,2	8,1	20	40,7	28,1
P2. The hotel decoration is visually appealing, clean and comfortable	5,91	1,129	1,5	0	0,7	7,4	19,3	36,3	34,8
P3. The hotel staff has a neat and professional appearance	6,03	1,036	0,7	0,7	0,7	3,7	17,8	39,3	37
P4. The materials associated with the services provided are user-friendly	5,88	1,051	0,7	0	1,5	6,7	21,5	38,5	31,1
<b>Reliability</b>	<b>5,86</b>	<b>0,96</b>							
P5. The hotel promises to do something in a proper time, and it does so	5,87	1,183	0,7	0,7	0,7	10,4	23	25,2	39,3
P6. As an hotel guest, when faced with a problem, the hotel is available to solve it	5,99	1,237	1,5	0	1,5	10,4	14,1	26,7	45,9
P7. The hotel performs the services correctly at the first time it is requested	6,18	0,984	0,7	0	0	5,9	11,9	36,3	45,2
P8. The hotel has a record of zero errors/complaints	5,20	1,480	2,2	3,7	8,1	12,6	23,7	30,4	19,3
P9. The hotel provides the services at the promised hour	6,07	1,117	0,7	0	3,7	3,7	14,1	34,1	43,7
<b>Responsiveness</b>	<b>6,18</b>	<b>0,929</b>							
P10. The hotel informs the guests about the time of when the services will be provided	6,21	1,059	0,7	0	1,5	6,7	7,4	34,1	49,6
P11. The hotel staff provides a prompt service	6,04	1,018	0,7	0	2,2	3	16,3	41,5	36,3
P12. The staff do hotel is always willing to help you	6,23	1,007	0,7	0	2,2	2,2	10,4	36,3	48,1
P13. The staff do hotel is always available to answer any of your questions	6,27	0,988	0,7	0	2,2	1,5	9,6	35,6	50,4
<b>Assurance</b>	<b>6,27</b>	<b>0,81</b>							
P14. The behaviour of the hotel staff is trustworthy	6,23	0,962	0,7	0	0,7	3	12,6	35,6	47,4
P15. You felt safe during your hotel stay and during the services usage	6,36	0,926	0,7	0	0	3	11,1	28,9	56,3
P16. The hotel staff is polite and respectful	6,45	0,835	0,7	0	0	0,7	8,9	30,4	59,3
P17. The hotel staff has the proper knowledge and necessary competences to answer your questions	6,04	1,021	0,7	0	0,7	3,7	23	31,1	40,7
<b>Empathy</b>	<b>6,00</b>	<b>0,88</b>							
P18. The hotel staff gives undivided attention to you	6,14	0,932	0,7	0	0	2,2	19,3	36,3	41,5
P19. The hotel and its facilities have convenient working hours and timetable	6,02	1,082	0,7	0,7	0,7	4,4	20,7	31,9	40,7
P20. The hotel has your best interest at heart	6,25	0,887	0,7	0	0	2,2	11,9	40	45,2
P21. The hotel provides a personalized service	5,87	1,260	0,7	1,5	2,2	8,9	20	25,2	41,5
P22. The hotel understands your specific needs	5,76	1,206	0,7	0,7	3	11,1	17,8	35,6	31,1
<b>P23. How would you classify, in general, the quality of the service provided by the portuguese hotel industry, taking into account your experience?</b>	<b>5,93</b>	<b>0,903</b>	0,7	0	1,5	2,2	17,8	54,8	23

(Source: prepared by the author)

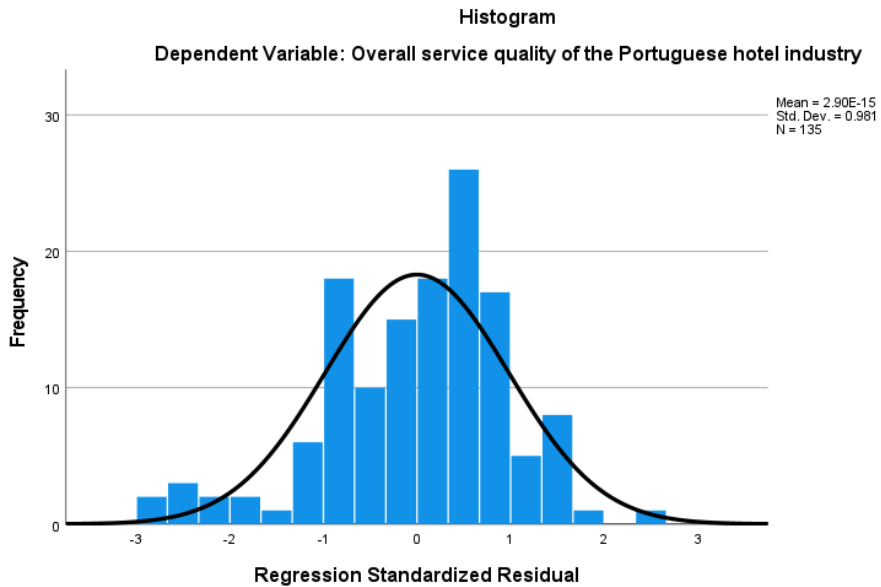
Table C.2 Perceived service quality by item of satisfaction dimension

Satisfaction	Mean	SD	Scale - RF (%)						
			1	2	3	4	5	6	7
P24. I'm willing to recommed this hotel to family/friends	6,14	1,059	0,7	0,7	2,2	1,5	13,3	37,8	43,7
P25. I'm willing to stay in this hotel again	6,14	1,154	1,5	0	3,7	3	6,7	40	45,2
P26. The comments I make about the service provided by the hotel, when talking to others, are positive	6,16	0,937	0,7	0	0	5,9	8,1	45,9	39,3
P27. The services provided by the hotel, are exactly what I was looking for, for my stay	6,02	1,082	0,7	0,7	1,5	5,2	14,1	40	37,8
P28. This hotel is my first choice when looking for an accomodation, due to their services it offers	5,61	1,388	1,5	3	4,4	10,4	13,3	40	27,4

(Source: prepared by the author)

**Annex D – Multiple linear regression model for SERVPERF instrument**

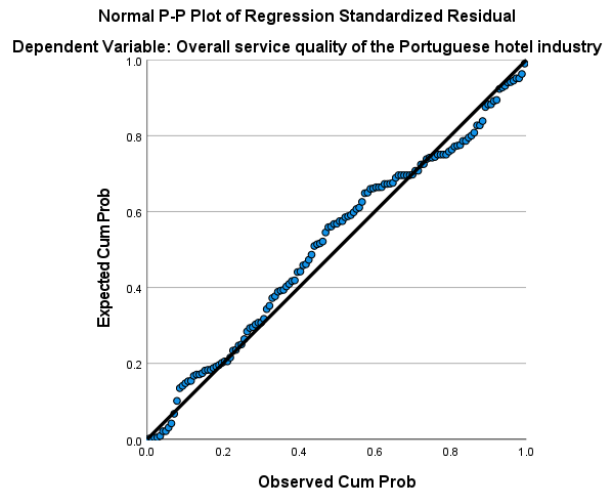
Chart D.1 – Normality histogram



(Source: graphic from SPSS software)

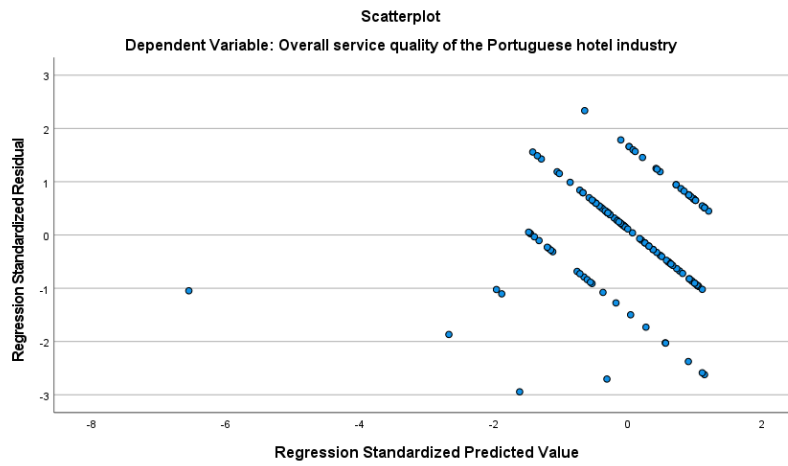
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Chart D.2 Multiple linear regression P-plot for SERVPERF instrument



(Source: graphic from SPSS software)

Chart D.3 Multiple linear regression Scatterplot for SERVPERF instrument



(Source: graphic from SPSS software)

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Table D.4 Pearson's correlation matrix for SERVPERF instrument

		Correlations					
		P23	Tangibles	Reliability	Responsiveness	Assurance	Empathy
Pearson correlation	P23	1,000	0,596	0,614	0,606	0,688	0,648
	Tangibles	0,596	1,000	0,715	0,717	0,659	0,715
	Reliability	0,614	0,715	1,000	0,789	0,762	0,771
	Responsiveness	0,606	0,717	0,789	1,000	0,845	0,796
	Assurance	0,688	0,659	0,762	0,845	1,000	0,838
	Empathy	0,648	0,715	0,771	0,796	0,838	1,000

(Source: prepared by the author)

Table D.5 Residual component of the model

**Residuals Statistics<sup>a</sup>**

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.67	6.71	5.93	.651	135
Residual	-1.879	1.490	.000	.626	135
Std. Predicted Value	-6.545	1.209	.000	1.000	135
Std. Residual	-2.943	2.335	.000	.981	135

a. Dependent Variable: Overall service quality of the Portuguese hotel industry

(Source: Results table from SPSS software)

Table D.6 Correlation of residual terms: Durbin-Watson for all SQ dimensions and PSQ

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.720 <sup>a</sup>	.519	.500	.638	1.944

a. Predictors: (Constant), Empathy, Tangibles, Reliability, Responsiveness, Assurance

b. Dependent Variable: Overall service quality of the Portuguese hotel industry

(Source: Results table from SPSS software)



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Table D.7 Correlation of exploratory variables for all SQ dimensions and PSQ

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.834	.441		1.890	.061		
	Tangibles	.208	.095	.212	2.197	.030	.400	2.501
	Reliability	.109	.105	.116	1.037	.302	.296	3.379
	Responsiveness	-.124	.127	-.128	-.974	.332	.217	4.607
	Assurance	.531	.149	.478	3.567	.001	.208	4.818
	Empathy	.110	.129	.107	.850	.397	.234	4.279

a. Dependent Variable: Overall service quality of the Portuguese hotel industry

(Source: Results table from SPSS software)

Table D.8 ANOVA test for all SQ dimensions and PSQ

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	63.843	6	10.640	29.989	.000 <sup>b</sup>
	Residual	45.417	128	.355		
	Total	109.259	134			

a. Dependent Variable: Overall service quality of the Portuguese hotel industry

b. Predictors: (Constant), Satisfaction, Assurance, Tangibles, Reliability, Empathy, Responsiveness

(Source: Results table from SPSS software)

Table D.9 Stepwise method

**Variables Entered/Removed<sup>a</sup>**

Model	Variables Entered	Variables Removed	Method
1	Assurance		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	Tangibles		Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: Overall service quality of the Portuguese hotel industry

(Source: Results table from SPSS software)

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Table D.10 Correlation of residual terms: Durbin-Watson for Tangibles, Assurance and PSQ

**Model Summary<sup>c</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change	Durbin-Watson
						F Change	df1	df2		
1	.688 <sup>a</sup>	.474	.470	.657	.474	119.859	1	133	.000	
2	.714 <sup>b</sup>	.510	.502	.637	.036	9.579	1	132	.002	1.924

a. Predictors: (Constant), Assurance

b. Predictors: (Constant), Assurance, Tangibles

c. Dependent Variable: Overall service quality of the Portuguese hotel industry

(Source: Results table from SPSS software)

Table D.11 Correlation of exploratory variables for Assurance, Tangibles and PSQ

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	1.129	.442		2.556	.012					
	Assurance	.765	.070	.688	10.948	.000	.688	.688	.688	1.000	1.000
2	(Constant)	.827	.439		1.883	.062					
	Assurance	.581	.090	.523	6.458	.000	.688	.490	.394	.566	1.767
	Tangibles	.246	.079	.251	3.095	.002	.596	.260	.189	.566	1.767

a. Dependent Variable: Overall service quality of the Portuguese hotel industry

(Source: Results table from SPSS software)

Table D.12 ANOVA test for Tangibles, Assurance and PSQ

**ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	51.790	1	51.790	119.859	.000 <sup>b</sup>
	Residual	57.469	133	.432		
	Total	109.259	134			
2	Regression	55.679	2	27.839	68.585	.000 <sup>c</sup>
	Residual	53.580	132	.406		
	Total	109.259	134			

a. Dependent Variable: Overall service quality of the Portuguese hotel industry

b. Predictors: (Constant), Assurance

c. Predictors: (Constant), Assurance, Tangibles

(Source: Results table from SPSS software)

**Annex E – Assumption’s tests for the use of parametric tests for the independent variables in the five service quality dimensions, overall PSQ and satisfaction**

Table E.1 Normality test for the independent variable “Gender” for the five service quality dimensions, global PSQ and satisfaction

<b>Tests of Normality</b>							
	Gender	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	Male	.118	61	.035	.942	61	.006
	Female	.155	74	.000	.853	74	.000
Reliability	Male	.103	61	.174	.938	61	.004
	Female	.150	74	.000	.852	74	.000
Responsiveness	Male	.189	61	.000	.812	61	.000
	Female	.221	74	.000	.745	74	.000
Assurance	Male	.143	61	.003	.925	61	.001
	Female	.232	74	.000	.707	74	.000
Empathy	Male	.085	61	.200 <sup>*</sup>	.945	61	.008
	Female	.177	74	.000	.817	74	.000
Overall service quality of the Portuguese hotel industry	Male	.390	61	.000	.678	61	.000
	Female	.254	74	.000	.786	74	.000
Satisfaction	Male	.187	61	.000	.875	61	.000
	Female	.214	74	.000	.765	74	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table E.2 Normality test for the independent variable “Age” for the five service quality dimensions, global PSQ and satisfaction

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Agefinal	Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	18-24 years old	.223	44	.000	.831	44	.000
	25-34 years old	.131	52	.026	.944	52	.016
	35-44 years old	.187	10	.200*	.852	10	.062
	45-54 years old	.182	16	.164	.873	16	.030
	55 years old or above	.185	13	.200*	.893	13	.107
Reliability	18-24 years old	.169	44	.003	.857	44	.000
	25-34 years old	.147	52	.007	.906	52	.001
	35-44 years old	.154	10	.200*	.945	10	.610
	45-54 years old	.207	16	.066	.906	16	.099
	55 years old or above	.165	13	.200*	.915	13	.212
Responsiveness	18-24 years old	.251	44	.000	.761	44	.000
	25-34 years old	.152	52	.004	.854	52	.000
	35-44 years old	.280	10	.026	.768	10	.006
	45-54 years old	.171	16	.200*	.883	16	.043
	55 years old or above	.222	13	.078	.851	13	.029
Assurance	18-24 years old	.222	44	.000	.732	44	.000
	25-34 years old	.190	52	.000	.886	52	.000
	35-44 years old	.232	10	.137	.879	10	.127
	45-54 years old	.232	16	.022	.840	16	.010
	55 years old or above	.240	13	.039	.854	13	.032
Empathy	18-24 years old	.162	44	.005	.811	44	.000
	25-34 years old	.136	52	.017	.935	52	.007
	35-44 years old	.193	10	.200*	.858	10	.073
	45-54 years old	.135	16	.200*	.924	16	.193
	55 years old or above	.176	13	.200*	.893	13	.107
Satisfaction	18-24 years old	.214	44	.000	.777	44	.000
	25-34 years old	.157	52	.003	.859	52	.000
	35-44 years old	.333	10	.002	.724	10	.002
	45-54 years old	.221	16	.035	.874	16	.032
	55 years old or above	.207	13	.132	.813	13	.010

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.3 Normality test for the independent variable “Income range” for the five service quality dimensions, overall PSQ and satisfaction

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
Income_range_final		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	Student	.179	9	.200*	.933	9	.514
	Currently unemployed	.329	5	.082	.778	5	.053
	Less than 1000€/month	.192	18	.077	.930	18	.190
	1000€ to 1499€/month	.147	49	.010	.932	49	.007
	1500€ to 1999€/month	.189	20	.060	.908	20	.057
	2000€ to 2499€/month	.185	14	.200*	.846	14	.019
	2500€ to 3999€/month	.248	11	.058	.892	11	.149
	4000€/month or more	.256	9	.092	.914	9	.345
Reliability	Student	.278	9	.044	.742	9	.004
	Currently unemployed	.347	5	.049	.866	5	.252
	Less than 1000€/month	.138	18	.200*	.937	18	.261
	1000€ to 1499€/month	.190	49	.000	.874	49	.000
	1500€ to 1999€/month	.100	20	.200*	.941	20	.247
	2000€ to 2499€/month	.270	14	.007	.829	14	.012
	2500€ to 3999€/month	.191	11	.200*	.882	11	.112
	4000€/month or more	.213	9	.200*	.934	9	.522
Responsiveness	Student	.331	9	.005	.779	9	.012
	Currently unemployed	.197	5	.200*	.943	5	.685
	Less than 1000€/month	.203	18	.048	.875	18	.022
	1000€ to 1499€/month	.218	49	.000	.761	49	.000
	1500€ to 1999€/month	.171	20	.127	.891	20	.028
	2000€ to 2499€/month	.205	14	.116	.790	14	.004
	2500€ to 3999€/month	.209	11	.196	.831	11	.024
	4000€/month or more	.201	9	.200*	.920	9	.395
Assurance	Student	.249	9	.115	.752	9	.006
	Currently unemployed	.237	5	.200*	.961	5	.814
	Less than 1000€/month	.203	18	.048	.890	18	.039
	1000€ to 1499€/month	.255	49	.000	.802	49	.000
	1500€ to 1999€/month	.221	20	.012	.898	20	.037
	2000€ to 2499€/month	.184	14	.200*	.867	14	.038
	2500€ to 3999€/month	.191	11	.200*	.898	11	.177
	4000€/month or more	.153	9	.200*	.931	9	.492
Empathy	Student	.316	9	.010	.765	9	.008
	Currently unemployed	.250	5	.200*	.865	5	.246
	Less than 1000€/month	.203	18	.047	.832	18	.004
	1000€ to 1499€/month	.162	49	.003	.896	49	.000
	1500€ to 1999€/month	.143	20	.200*	.964	20	.631
	2000€ to 2499€/month	.155	14	.200*	.891	14	.084
	2500€ to 3999€/month	.119	11	.200*	.943	11	.555
	4000€/month or more	.145	9	.200*	.957	9	.771
Satisfaction	Student	.319	9	.009	.762	9	.007
	Currently unemployed	.226	5	.200*	.910	5	.468
	Less than 1000€/month	.170	18	.181	.917	18	.114
	1000€ to 1499€/month	.159	49	.003	.860	49	.000
	1500€ to 1999€/month	.252	20	.002	.772	20	.000
	2000€ to 2499€/month	.230	14	.043	.754	14	.001
	2500€ to 3999€/month	.249	11	.056	.907	11	.224
	4000€/month or more	.228	9	.195	.857	9	.090

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.4 Normality test for the independent variable “Area of residency” for the five service quality dimensions, overall PSQ and satisfaction

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Area_of_residency_final	Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	Outside Lisboa e Vale do Tejo	.242	18	.007	.856	18	.011
	Lisboa e Vale do Tejo	.124	117	.000	.938	117	.000
Reliability	Outside Lisboa e Vale do Tejo	.269	18	.001	.845	18	.007
	Lisboa e Vale do Tejo	.133	117	.000	.936	117	.000
Responsiveness	Outside Lisboa e Vale do Tejo	.301	18	.000	.783	18	.001
	Lisboa e Vale do Tejo	.162	117	.000	.856	117	.000
Assurance	Outside Lisboa e Vale do Tejo	.248	18	.005	.741	18	.000
	Lisboa e Vale do Tejo	.185	117	.000	.879	117	.000
Empathy	Outside Lisboa e Vale do Tejo	.186	18	.100	.836	18	.005
	Lisboa e Vale do Tejo	.108	117	.002	.941	117	.000
Satisfaction	Outside Lisboa e Vale do Tejo	.242	18	.007	.790	18	.001
	Lisboa e Vale do Tejo	.148	117	.000	.870	117	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.5 Normality test for the independent variable “Frequency of hotel stays” for the five service quality dimensions, overall PSQ and satisfaction

		Tests of Normality					
Frequency_of_hotel_stays_in_Portugal		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	1 stay per year	.186	45	.000	.827	45	.000
	2 stays per year	.117	38	.200*	.918	38	.009
	3 stays per year	.256	16	.006	.831	16	.007
	4 or more stays per year	.270	17	.002	.861	17	.016
	Less than one stay per year	.158	19	.200*	.942	19	.282
Reliability	1 stay per year	.171	45	.002	.862	45	.000
	2 stays per year	.107	38	.200*	.939	38	.038
	3 stays per year	.254	16	.007	.831	16	.007
	4 or more stays per year	.270	17	.002	.873	17	.025
	Less than one stay per year	.144	19	.200*	.949	19	.373
Responsiveness	1 stay per year	.220	45	.000	.748	45	.000
	2 stays per year	.155	38	.022	.882	38	.001
	3 stays per year	.285	16	.001	.641	16	.000
	4 or more stays per year	.186	17	.122	.856	17	.013
	Less than one stay per year	.173	19	.136	.945	19	.322
Assurance	1 stay per year	.224	45	.000	.713	45	.000
	2 stays per year	.195	38	.001	.848	38	.000
	3 stays per year	.220	16	.037	.863	16	.021
	4 or more stays per year	.302	17	.000	.798	17	.002
	Less than one stay per year	.124	19	.200*	.940	19	.267
Empathy	1 stay per year	.167	45	.003	.798	45	.000
	2 stays per year	.123	38	.160	.924	38	.013
	3 stays per year	.181	16	.168	.841	16	.010
	4 or more stays per year	.175	17	.173	.914	17	.118
	Less than one stay per year	.183	19	.095	.929	19	.164
Overall service quality of the Portuguese hotel industry	1 stay per year	.313	45	.000	.762	45	.000
	2 stays per year	.279	38	.000	.800	38	.000
	3 stays per year	.330	16	.000	.778	16	.001
	4 or more stays per year	.196	17	.083	.840	17	.007
	Less than one stay per year	.384	19	.000	.637	19	.000
Satisfaction	1 stay per year	.258	45	.000	.789	45	.000
	2 stays per year	.177	38	.004	.803	38	.000
	3 stays per year	.146	16	.200*	.900	16	.081
	4 or more stays per year	.234	17	.014	.842	17	.008
	Less than one stay per year	.127	19	.200*	.966	19	.692

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.6 Normality test for the independent variable “Party size when staying in a hotel” for the five service quality dimensions, overall PSQ and satisfaction

Tests of Normality <sup>c,d,e,f,g,h,i</sup>							
	Party_size_when_staying_in_a_hotel	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	Just with the partner (boyfriend/girlfriend, wife/husband)	.126	84	.002	.853	84	.000
	With 1 child and partner	.190	10	.200*	.873	10	.108
	With more than 1 child and partner	.231	11	.104	.919	11	.312
	Alone	.214	7	.200*	.932	7	.570
	With parents	.193	8	.200*	.882	8	.199
	With a group of friends	.238	14	.030	.921	14	.228
Reliability	Just with the partner (boyfriend/girlfriend, wife/husband)	.138	84	.000	.850	84	.000
	With 1 child and partner	.185	10	.200*	.884	10	.146
	With more than 1 child and partner	.216	11	.158	.865	11	.067
	Alone	.200	7	.200*	.928	7	.538
	With parents	.268	8	.094	.847	8	.089
	With a group of friends	.145	14	.200*	.967	14	.833
Responsiveness	Just with the partner (boyfriend/girlfriend, wife/husband)	.210	84	.000	.736	84	.000
	With 1 child and partner	.161	10	.200*	.891	10	.175
	With more than 1 child and partner	.232	11	.100	.774	11	.004
	Alone	.219	7	.200*	.915	7	.432
	With parents	.219	8	.200*	.819	8	.045
	With a group of friends	.276	14	.005	.856	14	.027
Assurance	Just with the partner (boyfriend/girlfriend, wife/husband)	.221	84	.000	.717	84	.000
	With 1 child and partner	.213	10	.200*	.870	10	.100
	With more than 1 child and partner	.205	11	.200*	.931	11	.421
	Alone	.198	7	.200*	.865	7	.168
	With parents	.239	8	.198	.877	8	.176
	With a group of friends	.219	14	.066	.890	14	.082
Empathy	Just with the partner (boyfriend/girlfriend, wife/husband)	.160	84	.000	.817	84	.000
	With 1 child and partner	.200	10	.200*	.896	10	.199
	With more than 1 child and partner	.158	11	.200*	.943	11	.556
	Alone	.192	7	.200*	.983	7	.974
	With parents	.166	8	.200*	.922	8	.449
	With a group of friends	.274	14	.006	.845	14	.019
Overall service quality of the Portuguese hotel industry	Just with the partner (boyfriend/girlfriend, wife/husband)	.333	84	.000	.735	84	.000
	With 1 child and partner	.246	10	.089	.874	10	.111
	With more than 1 child and partner	.279	11	.017	.822	11	.018
	Alone	.357	7	.007	.777	7	.024
	With parents	.327	8	.012	.810	8	.037
	With a group of friends	.300	14	.001	.801	14	.005
Satisfaction	Just with the partner (boyfriend/girlfriend, wife/husband)	.194	84	.000	.768	84	.000
	With 1 child and partner	.268	10	.040	.741	10	.003
	With more than 1 child and partner	.188	11	.200*	.943	11	.562
	Alone	.183	7	.200*	.909	7	.387
	With parents	.165	8	.200*	.941	8	.620
	With a group of friends	.174	14	.200*	.892	14	.087

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



Perceived Service Quality Within the Portuguese Hotel Industry

Table E.7 Normality test for the independent variable “Hotel location” for the five service quality dimensions, overall PSQ and satisfaction

	Hotel_location	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	Central	.143	73	.001	.856	73	.000
	Remote	.171	62	.000	.861	62	.000
Reliability	Central	.108	73	.035	.892	73	.000
	Remote	.135	62	.007	.904	62	.000
Responsiveness	Central	.177	73	.000	.797	73	.000
	Remote	.220	62	.000	.733	62	.000
Assurance	Central	.194	73	.000	.750	73	.000
	Remote	.181	62	.000	.875	62	.000
Empathy	Central	.130	73	.004	.839	73	.000
	Remote	.130	62	.011	.900	62	.000
Overall service quality of the Portuguese hotel industry	Central	.330	73	.000	.701	73	.000
	Remote	.287	62	.000	.838	62	.000
Satisfaction	Central	.146	73	.001	.847	73	.000
	Remote	.242	62	.000	.736	62	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table E.8 Normality test for the independent variable “Star rating” for the five service quality dimensions, overall PSQ and satisfaction

	Star_rating	Kolmogorov-Smirnov <sup>b</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	3 stars	.134	28	.200*	.963	28	.416
	4 stars	.107	82	.022	.960	82	.012
	5 stars	.249	24	.000	.783	24	.000
Reliability	3 stars	.174	28	.030	.956	28	.281
	4 stars	.127	82	.002	.944	82	.001
	5 stars	.256	24	.000	.834	24	.001
Responsiveness	3 stars	.249	28	.000	.850	28	.001
	4 stars	.144	82	.000	.874	82	.000
	5 stars	.432	24	.000	.634	24	.000
Assurance	3 stars	.131	28	.200*	.916	28	.027
	4 stars	.185	82	.000	.880	82	.000
	5 stars	.227	24	.002	.826	24	.001
Empathy	3 stars	.140	28	.173	.934	28	.079
	4 stars	.110	82	.016	.940	82	.001
	5 stars	.262	24	.000	.862	24	.004
Overall service quality of the Portuguese hotel industry	3 stars	.325	28	.000	.836	28	.000
	4 stars	.292	82	.000	.798	82	.000
	5 stars	.274	24	.000	.806	24	.000
Satisfaction	3 stars	.171	28	.035	.912	28	.022
	4 stars	.138	82	.001	.886	82	.000
	5 stars	.256	24	.000	.878	24	.008

\*. This is a lower bound of the true significance.

a. Tangibles is constant when Star\_rating = 2 stars. It has been omitted.

b. Lilliefors Significance Correction

d. Reliability is constant when Star\_rating = 2 stars. It has been omitted.

e. Responsiveness is constant when Star\_rating = 2 stars. It has been omitted.

f. Assurance is constant when Star\_rating = 2 stars. It has been omitted.

g. Empathy is constant when Star\_rating = 2 stars. It has been omitted.

h. Overall service quality of the Portuguese hotel industry is constant when Star\_rating = 2 stars. It has been omitted.

i. Satisfaction is constant when Star\_rating = 2 stars. It has been omitted.

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.9 Normality test for the independent variable “Price per night” for the five service quality dimensions, overall PSQ and satisfaction

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Price_per_night_final	Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	Less or equal to 50€	.237	9	.157	.884	9	.173
	50€-100€/night	.127	58	.021	.957	58	.040
	100€/night or above	.204	68	.000	.890	68	.000
Reliability	Less or equal to 50€	.140	9	.200*	.934	9	.516
	50€-100€/night	.108	58	.090	.969	58	.151
	100€/night or above	.181	68	.000	.867	68	.000
Responsiveness	Less or equal to 50€	.255	9	.095	.851	9	.077
	50€-100€/night	.193	58	.000	.894	58	.000
	100€/night or above	.192	68	.000	.817	68	.000
Assurance	Less or equal to 50€	.236	9	.159	.812	9	.028
	50€-100€/night	.141	58	.006	.929	58	.002
	100€/night or above	.214	68	.000	.841	68	.000
Empathy	Less or equal to 50€	.238	9	.151	.809	9	.026
	50€-100€/night	.091	58	.200*	.972	58	.189
	100€/night or above	.146	68	.001	.909	68	.000
Satisfaction	Less or equal to 50€	.232	9	.179	.874	9	.136
	50€-100€/night	.198	58	.000	.882	58	.000
	100€/night or above	.174	68	.000	.847	68	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table E.10 Normality tests for the independent variables related to additional set of service offers for the five service quality dimensions, overall PSQ and satisfaction

Table. E.10.1 Independent variable breakfast included

		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Breakfast_included	Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.246	8	.169	.816	8	.042
	Yes	.123	127	.000	.878	127	.000
Reliability	No	.211	8	.200*	.888	8	.222
	Yes	.119	127	.000	.889	127	.000
Responsiveness	No	.205	8	.200*	.857	8	.112
	Yes	.193	127	.000	.770	127	.000
Assurance	No	.320	8	.015	.767	8	.012
	Yes	.185	127	.000	.785	127	.000
Empathy	No	.168	8	.200*	.917	8	.409
	Yes	.131	127	.000	.865	127	.000
Overall service quality of the Portuguese hotel industry	No	.228	8	.200*	.835	8	.067
	Yes	.317	127	.000	.765	127	.000
Satisfaction	No	.159	8	.200*	.934	8	.555
	Yes	.180	127	.000	.818	127	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.10.2 Independent variable Restaurant

Tests of Normality							
	Restaurant	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.128	50	.039	.934	50	.008
	Yes	.128	85	.001	.845	85	.000
Reliability	No	.129	50	.038	.926	50	.004
	Yes	.121	85	.004	.851	85	.000
Responsiveness	No	.160	50	.003	.842	50	.000
	Yes	.211	85	.000	.733	85	.000
Assurance	No	.170	50	.001	.903	50	.001
	Yes	.216	85	.000	.712	85	.000
Empathy	No	.118	50	.078	.919	50	.002
	Yes	.139	85	.000	.833	85	.000
Overall service quality of the Portuguese hotel industry	No	.329	50	.000	.801	50	.000
	Yes	.298	85	.000	.719	85	.000
Satisfaction	No	.191	50	.000	.848	50	.000
	Yes	.172	85	.000	.779	85	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table E.10.3 Independent variable Free wi-fi

Tests of Normality							
	Free_wifi	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.223	9	.200*	.954	9	.739
	Yes	.123	126	.000	.867	126	.000
Reliability	No	.211	9	.200*	.942	9	.605
	Yes	.121	126	.000	.888	126	.000
Responsiveness	No	.320	9	.008	.887	9	.186
	Yes	.198	126	.000	.762	126	.000
Assurance	No	.141	9	.200*	.962	9	.820
	Yes	.193	126	.000	.769	126	.000
Empathy	No	.157	9	.200*	.950	9	.691
	Yes	.138	126	.000	.854	126	.000
Overall service quality of the Portuguese hotel industry	No	.336	9	.004	.830	9	.045
	Yes	.307	126	.000	.756	126	.000
Satisfaction	No	.243	9	.134	.897	9	.235
	Yes	.173	126	.000	.804	126	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Perceived Service Quality Within the Portuguese Hotel Industry

Table E.10.4 Independent variable Parking lot

Tests of Normality							
Parking_lot	Statistic	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.160	29	.057	.959	29	.304
	Yes	.141	106	.000	.841	106	.000
Reliability	No	.119	29	.200*	.975	29	.693
	Yes	.141	106	.000	.846	106	.000
Responsiveness	No	.297	29	.000	.829	29	.000
	Yes	.219	106	.000	.730	106	.000
Assurance	No	.083	29	.200*	.965	29	.434
	Yes	.221	106	.000	.705	106	.000
Empathy	No	.125	29	.200*	.971	29	.600
	Yes	.151	106	.000	.811	106	.000
Overall service quality of the Portuguese hotel industry	No	.311	29	.000	.850	29	.001
	Yes	.306	106	.000	.731	106	.000
Satisfaction	No	.200	29	.004	.900	29	.010
	Yes	.185	106	.000	.771	106	.000

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table E.10.5 Independent variable Gym

Tests of Normality							
Gym	Statistic	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.137	84	.001	.871	84	.000
	Yes	.156	51	.003	.892	51	.000
Reliability	No	.127	84	.002	.880	84	.000
	Yes	.134	51	.024	.935	51	.008
Responsiveness	No	.218	84	.000	.763	84	.000
	Yes	.203	51	.000	.803	51	.000
Assurance	No	.179	84	.000	.781	84	.000
	Yes	.214	51	.000	.845	51	.000
Empathy	No	.121	84	.004	.855	84	.000
	Yes	.176	51	.000	.885	51	.000
Overall service quality of the Portuguese hotel industry	No	.320	84	.000	.769	84	.000
	Yes	.284	51	.000	.796	51	.000
Satisfaction	No	.172	84	.000	.851	84	.000
	Yes	.151	51	.005	.897	51	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

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Table E.10.6 Independent variable Pool

Tests of Normality							
	Pool	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.200	34	.001	.866	34	.001
	Yes	.132	101	.000	.915	101	.000
Reliability	No	.170	34	.014	.909	34	.008
	Yes	.143	101	.000	.931	101	.000
Responsiveness	No	.267	34	.000	.805	34	.000
	Yes	.176	101	.000	.843	101	.000
Assurance	No	.154	34	.039	.793	34	.000
	Yes	.204	101	.000	.862	101	.000
Empathy	No	.181	34	.006	.840	34	.000
	Yes	.132	101	.000	.920	101	.000
Overall service quality of the Portuguese hotel industry	No	.362	34	.000	.709	34	.000
	Yes	.277	101	.000	.819	101	.000
Satisfaction	No	.166	34	.019	.884	34	.002
	Yes	.166	101	.000	.816	101	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table E.10.7 Independent variable Spa

Tests of Normality							
	Spa	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.125	71	.007	.895	71	.000
	Yes	.151	64	.001	.927	64	.001
Reliability	No	.117	71	.018	.902	71	.000
	Yes	.175	64	.000	.901	64	.000
Responsiveness	No	.231	71	.000	.795	71	.000
	Yes	.211	64	.000	.777	64	.000
Assurance	No	.172	71	.000	.786	71	.000
	Yes	.224	64	.000	.847	64	.000
Empathy	No	.125	71	.007	.850	71	.000
	Yes	.151	64	.001	.876	64	.000
Overall service quality of the Portuguese hotel industry	No	.296	71	.000	.795	71	.000
	Yes	.315	64	.000	.777	64	.000
Satisfaction	No	.188	71	.000	.848	71	.000
	Yes	.161	64	.000	.903	64	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

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Table E.10.8 Independent variable Others

		Tests of Normality					
		Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Others	Statistic	df	Sig.	Statistic	df	Sig.
Tangibles	No	.126	116	.000	.882	116	.000
	Yes	.197	19	.052	.872	19	.015
Reliability	No	.118	116	.000	.896	116	.000
	Yes	.186	19	.082	.926	19	.149
Responsiveness	No	.188	116	.000	.783	116	.000
	Yes	.236	19	.007	.802	19	.001
Assurance	No	.185	116	.000	.784	116	.000
	Yes	.182	19	.099	.864	19	.012
Empathy	No	.130	116	.000	.868	116	.000
	Yes	.188	19	.074	.917	19	.101
Overall service quality of the Portuguese hotel industry	No	.320	116	.000	.764	116	.000
	Yes	.241	19	.005	.814	19	.002
Satisfaction	No	.181	116	.000	.822	116	.000
	Yes	.188	19	.077	.893	19	.036

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

**Annex F – Non-parametric tests for the independent variables in the five service quality dimensions, PSQ and satisfaction**

Table F.1 – Kruskal-Wallis test for the independent variable “Age” for the five service quality dimensions, PSQ and satisfaction

Test Statistics <sup>a,b</sup>							
	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Kruskal-Wallis H	4.137	2.454	2.765	.464	1.219	2.249	3.221
df	4	4	4	4	4	4	4
Asymp. Sig.	.388	.653	.598	.977	.875	.690	.522

a. Kruskal Wallis Test

b. Grouping Variable: Age

(Source: Results table from SPSS software)

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Table F.2 – Mann-Whitney test for the independent variable “Area of residency” for the five service quality dimensions, PSQ and satisfaction

**Test Statistics<sup>a</sup>**

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction_final
Mann-Whitney U	822.000	901.000	871.500	901.000	888.000	1050.000	997.000
Wilcoxon W	993.000	1072.000	1042.500	1072.000	1059.000	1221.000	1168.000
Z	-1.505	-.988	-1.196	-1.003	-1.074	-.021	-.365
Asymp. Sig. (2-tailed)	.132	.323	.232	.316	.283	.983	.715

a. Grouping Variable: Area\_of\_residency\_final

(Source: Results table from SPSS software)

Table F.3 – Mann-Whitney tests for the independent variables regarding additional set of service offers for the five quality dimensions, PSQ and satisfaction

Table F.3.1 Independent variable Breakfast included

**Test Statistics<sup>a</sup>**

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	449.500	497.500	476.500	469.500	480.000	452.500	465.000
Wilcoxon W	485.500	533.500	512.500	8597.500	8608.000	8580.500	8593.000
Z	-.549	-.098	-.299	-.366	-.262	-.572	-.404
Asymp. Sig. (2-tailed)	.583	.922	.765	.714	.793	.567	.687

a. Grouping Variable: Breakfast\_included

(Source: Results table from SPSS software)

Table F.3.2 Independent variable Restaurant

**Test Statistics<sup>a</sup>**

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	2056.000	2037.000	1871.000	1818.500	2120.500	2118.500	2121.000
Wilcoxon W	3331.000	3312.000	3146.000	3093.500	3395.500	3393.500	3396.000
Z	-.317	-.403	-1.178	-1.424	-.021	-.033	-.018
Asymp. Sig. (2-tailed)	.752	.687	.239	.154	.984	.974	.985

a. Grouping Variable: Restaurant

(Source: Results table from SPSS software)

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Table F.3.3 Independent variable Free wi-fi

**Test Statistics<sup>a</sup>**

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	356.000	458.500	331.500	378.000	372.000	441.000	336.000
Wilcoxon W	401.000	503.500	376.500	423.000	417.000	486.000	381.000
Z	-1.874	-.961	-2.115	-1.700	-1.729	-1.229	-2.052
Asymp. Sig. (2-tailed)	.061	.337	.034	.089	.084	.219	.046

a. Grouping Variable: Free\_wifi

(Source: Results table from SPSS software)

Table F.3.4 Independent variable Parking lot

**Test Statistics<sup>a</sup>**

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	973.500	857.000	856.000	853.000	918.500	1287.500	1032.000
Wilcoxon W	1408.500	1292.000	1291.000	1288.000	1353.500	1722.500	1467.000
Z	-3.040	-3.657	-3.714	-3.737	-3.331	-1.478	-2.724
Asymp. Sig. (2-tailed)	.002	.000	.000	.000	.001	.139	.006

a. Grouping Variable: Parking\_lot

(Source: Results table from SPSS software)

Table F.3.5 Independent variable Gym

**Test Statistics<sup>a</sup>**

	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	1548.500	1995.000	1745.000	1767.000	1699.500	1873.500	1491.000
Wilcoxon W	5118.500	5565.000	5315.000	5337.000	5269.500	5443.500	5061.000
Z	-2.712	-.670	-1.834	-1.736	-2.019	-1.348	-2.975
Asymp. Sig. (2-tailed)	.007	.503	.067	.083	.043	.178	.003

a. Grouping Variable: Gym

(Source: Results table from SPSS software)



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Table F.3.6 Independent variable Pool

Test Statistics <sup>a</sup>							
	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	1088.000	1099.000	1050.500	1116.500	1056.000	1408.500	1039.000
Wilcoxon W	1683.000	1694.000	1645.500	1711.500	1651.000	2003.500	1634.000
Z	-3.210	-3.145	-3.439	-3.104	-3.368	-1.729	-3.461
Asymp. Sig. (2-tailed)	.001	.002	.001	.002	.001	.084	.001

a. Grouping Variable: Pool

(Source: Results table from SPSS software)

Table F.3.7 Independent variable Spa

Test Statistics <sup>a</sup>							
	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	1620.500	1651.500	1449.000	1767.000	1562.500	2006.500	1688.500
Wilcoxon W	4176.500	4207.500	4005.000	4323.000	4118.500	4562.500	4244.500
Z	-2.891	-2.745	-3.692	-2.269	-3.143	-1.294	-2.589
Asymp. Sig. (2-tailed)	.004	.006	.000	.023	.002	.196	.010

a. Grouping Variable: Spa

(Source: Results table from SPSS software)

Table F.3.8 Independent variable Others

Test Statistics <sup>a</sup>							
	Tangibles	Reliability	Responsiveness	Assurance	Empathy	Overall service quality of the Portuguese hotel industry	Satisfaction
Mann-Whitney U	770.000	948.000	870.500	997.000	934.000	992.500	901.500
Wilcoxon W	7556.000	7734.000	7656.500	7783.000	7720.000	7778.500	7687.500
Z	-2.115	-.978	-1.491	-.678	-1.069	-.766	-1.277
Asymp. Sig. (2-tailed)	.034	.328	.136	.498	.285	.444	.201

a. Grouping Variable: Others

(Source: Results table from SPSS software)

**Annex G – Multiple comparison of mean tests for independent variables in quality dimensions, PSQ and satisfaction**

Table G.1 – Means for the independent variable “Gender” by Satisfaction

Satisfaction				
Gender	Mean	N	Std. Deviation	Median
Male	5.94	61	.803	6.00
Female	6.08	74	1.167	6.40
Total	6.01	135	1.018	6.20

(Source: Results table from SPSS software)

Table G.2 – Tukey test for the multiple comparison of means for the independent variable “Income range” by Reliability

Dependent Variable: Reliability

Tukey HSD

(I) Income_range_final	(J) Income_range_final	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Student	Currently unemployed	-.520	.514	.972	-2.10	1.06
	Less than 1000€/month	-1.244*	.376	.026	-2.40	-.08
	1000€ to 1499€/month	-1.233*	.334	.008	-2.26	-.20
	1500€ to 1999€/month	-1.000	.370	.131	-2.14	.14
	2000€ to 2499€/month	-1.243*	.394	.041	-2.46	-.03
	2500€ to 3999€/month	-1.291*	.414	.045	-2.57	-.01
	4000€/month or more	-.711	.434	.727	-2.05	.63
Currently unemployed	Student	.520	.514	.972	-1.06	2.10
	Less than 1000€/month	-.724	.466	.776	-2.16	.71
	1000€ to 1499€/month	-.713	.433	.721	-2.05	.62
	1500€ to 1999€/month	-.480	.461	.967	-1.90	.94
	2000€ to 2499€/month	-.723	.480	.803	-2.20	.76
	2500€ to 3999€/month	-.771	.497	.778	-2.30	.76
	4000€/month or more	-.191	.514	1.000	-1.78	1.39
Less than 1000€/month	Student	1.244*	.376	.026	.08	2.40
	Currently unemployed	.724	.466	.776	-.71	2.16
	1000€ to 1499€/month	.012	.254	1.000	-.77	.79
	1500€ to 1999€/month	.244	.299	.992	-.68	1.17
	2000€ to 2499€/month	.002	.328	1.000	-1.01	1.01
	2500€ to 3999€/month	-.046	.353	1.000	-1.13	1.04
	4000€/month or more	.533	.376	.848	-.63	1.69
1000€ to 1499€/month	Student	1.233*	.334	.008	.20	2.26
	Currently unemployed	.713	.433	.721	-.62	2.05
	Less than 1000€/month	-.012	.254	1.000	-.79	.77
	1500€ to 1999€/month	.233	.245	.980	-.52	.99
	2000€ to 2499€/month	-.010	.279	1.000	-.87	.85
	2500€ to 3999€/month	-.058	.307	1.000	-1.01	.89
	4000€/month or more	.522	.334	.773	-.51	1.55

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1500€ to 1999€/month	Student	1.000	.370	.131	-.14	2.14
	Currently unemployed	.480	.461	.967	-.94	1.90
	Less than 1000€/month	-.244	.299	.992	-1.17	.68
	1000€ to 1499€/month	-.233	.245	.980	-.99	.52
	2000€ to 2499€/month	-.243	.321	.995	-1.23	.75
	2500€ to 3999€/month	-.291	.346	.990	-1.36	.78
	4000€/month or more	.289	.370	.994	-.85	1.43
2000€ to 2499€/month	Student	1.243*	.394	.041	.03	2.46
	Currently unemployed	.723	.480	.803	-.76	2.20
	Less than 1000€/month	-.002	.328	1.000	-1.01	1.01
	1000€ to 1499€/month	.010	.279	1.000	-.85	.87
	1500€ to 1999€/month	.243	.321	.995	-.75	1.23
	2500€ to 3999€/month	-.048	.371	1.000	-1.19	1.10
	4000€/month or more	.532	.394	.877	-.68	1.75
2500€ to 3999€/month	Student	1.291*	.414	.045	.01	2.57
	Currently unemployed	.771	.497	.778	-.76	2.30
	Less than 1000€/month	.046	.353	1.000	-1.04	1.13
	1000€ to 1499€/month	.058	.307	1.000	-.89	1.01
	1500€ to 1999€/month	.291	.346	.990	-.78	1.36
	2000€ to 2499€/month	.048	.371	1.000	-1.10	1.19
	4000€/month or more	.580	.414	.856	-.70	1.86
4000€/month or more	Student	.711	.434	.727	-.63	2.05
	Currently unemployed	.191	.514	1.000	-1.39	1.78
	Less than 1000€/month	-.533	.376	.848	-1.69	.63
	1000€ to 1499€/month	-.522	.334	.773	-1.55	.51
	1500€ to 1999€/month	-.289	.370	.994	-1.43	.85
	2000€ to 2499€/month	-.532	.394	.877	-1.75	.68
	2500€ to 3999€/month	-.580	.414	.856	-1.86	.70

\*. The mean difference is significant at the 0.05 level.

(Source: Results table from SPSS software)

Table G.3 – Means for the independent variable “Income range” by Reliability

Reliability			
	N	Mean	Std. Deviation
Student	9	4.80	1.640
Currently unemployed	5	5.32	1.026
Less than 1000€/month	18	6.04	.620
1000€ to 1499€/month	49	6.03	.893
1500€ to 1999€/month	20	5.80	.779
2000€ to 2499€/month	14	6.04	1.062
2500€ to 3999€/month	11	6.09	.807
4000€/month or more	9	5.51	.762
Total	135	5.86	.961

(Source: Results table from SPSS software)

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Table G.4 – Tukey test for the multiple comparison of means for the independent variable “Frequency of hotel stays” by Responsiveness

Dependent Variable: Responsiveness  
Tukey HSD

(I) Frequency_of_hotel_stays_in_Portugal	(J) Frequency_of_hotel_stays_in_Portugal	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1 stay per year	2 stays per year	-.307	.204	.561	-.87	.26
	3 stays per year	-.384	.269	.612	-1.13	.36
	4 or more stays per year	-.360	.263	.649	-1.09	.37
	Less than one stay per year	.088	.253	.997	-.61	.79
2 stays per year	1 stay per year	.307	.204	.561	-.26	.87
	3 stays per year	-.077	.276	.999	-.84	.69
	4 or more stays per year	-.053	.270	1.000	-.80	.69
	Less than one stay per year	.395	.260	.552	-.32	1.11
3 stays per year	1 stay per year	.384	.269	.612	-.36	1.13
	2 stays per year	.077	.276	.999	-.69	.84
	4 or more stays per year	.024	.322	1.000	-.87	.92
	Less than one stay per year	.472	.314	.562	-.40	1.34
4 or more stays per year	1 stay per year	.360	.263	.649	-.37	1.09
	2 stays per year	.053	.270	1.000	-.69	.80
	3 stays per year	-.024	.322	1.000	-.92	.87
	Less than one stay per year	.448	.309	.596	-.41	1.30
Less than one stay per year	1 stay per year	-.088	.253	.997	-.79	.61
	2 stays per year	-.395	.260	.552	-1.11	.32
	3 stays per year	-.472	.314	.562	-1.34	.40
	4 or more stays per year	-.448	.309	.596	-1.30	.41

(Source: Results table from SPSS software)

Table G.5 – Means for the independent variable “Frequency of hotel stays” by Responsiveness

Responsiveness

Frequency_of_hotel_stays_in_Portugal	Mean	N	Std. Deviation	Median
1 stay per year	6.02	45	1.266	6.50
2 stays per year	6.33	38	.607	6.38
3 stays per year	6.41	16	1.008	7.00
4 or more stays per year	6.38	17	.553	6.25
Less than one stay per year	5.93	19	.623	6.00

(Source: Results table from SPSS software)

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Table G.6 – Means for the independent variable “Party size when staying in a hotel” by Tangibles

Tangibles				
Party_size_when_staying_in_a_hotel	Mean	N	Std. Deviation	Median
Just with the partner (boyfriend/girlfriend, wife/husband)	5.90	84	.963	6.00
With 1 child and partner	6.03	10	1.044	6.25
With more than 1 child and partner	6.23	11	.564	6.50
With children	7.00	1	.	7.00
Alone	5.50	7	.540	5.50
With parents	6.50	8	.551	6.63
With a group of friends	5.45	14	.889	5.50

(Source: Results table from SPSS software)

Table G.7 – Means for the independent variable “Hotel location” by Reliability and Responsiveness

Hotel_location		Reliability	Responsiveness
Central	Mean	5.70	6.05
	N	73	73
	Std. Deviation	1.041	1.018
	Median	5.80	6.00
Remote	Mean	6.05	6.34
	N	62	62
	Std. Deviation	.824	.793
	Median	6.00	6.50

(Source: Results table from SPSS software)

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Table G.8 – Means for the independent variable “Star rating” by SQ dimensions and satisfaction

Star_rating		Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
2 stars	Mean	1.00	1.00	1.00	1.00	1.00	1.00
	N	1	1	1	1	1	1
	Std. Deviation	.	.	.	.	.	.
	Median	1.00	1.00	1.00	1.00	1.00	1.00
3 stars	Mean	5.19	5.33	5.66	6.03	5.70	5.40
	N	28	28	28	28	28	28
	Std. Deviation	.939	.914	1.039	.826	.868	1.241
	Median	5.25	5.50	5.75	6.13	5.70	5.70
4 stars	Mean	6.01	5.92	6.25	6.33	6.04	6.14
	N	82	82	82	82	82	82
	Std. Deviation	.639	.815	.703	.642	.747	.786
	Median	6.00	6.00	6.38	6.38	6.20	6.20
5 stars	Mean	6.60	6.48	6.79	6.58	6.48	6.49
	N	24	24	24	24	24	24
	Std. Deviation	.489	.517	.351	.452	.517	.445
	Median	6.75	6.60	7.00	6.75	6.60	6.70
Total	Mean	5.91	5.86	6.19	6.27	6.01	6.01
	N	135	135	135	135	135	135
	Std. Deviation	.921	.961	.930	.813	.884	1.018
	Median	6.00	6.00	6.25	6.50	6.00	6.20

(Source: Results table from SPSS software)

Table G.9 – Means for the independent variable “Price per night” by SQ dimensions and satisfaction

Price_per_night_final		Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
Less or equal to 50€	Mean	5.08	4.82	5.11	5.39	5.40	5.04
	N	9	9	9	9	9	9
	Std. Deviation	1.949	1.912	2.180	1.985	2.110	2.092
	Median	6.00	4.80	6.25	5.50	6.40	6.00
50€-100€/night	Mean	5.69	5.54	6.02	6.18	5.86	5.79
	N	58	58	58	58	58	58
	Std. Deviation	.770	.782	.790	.638	.704	.961
	Median	5.75	5.60	6.00	6.13	5.90	6.00
100€/night or above	Mean	6.20	6.27	6.47	6.46	6.22	6.33
	N	68	68	68	68	68	68
	Std. Deviation	.721	.699	.609	.596	.704	.700
	Median	6.50	6.50	6.63	6.75	6.40	6.40
Total	Mean	5.91	5.86	6.19	6.27	6.01	6.01
	N	135	135	135	135	135	135
	Std. Deviation	.921	.961	.930	.813	.884	1.018
	Median	6.00	6.00	6.25	6.50	6.00	6.20

(Source: Results table from SPSS software)

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Table G.10 – Tukey test for the multiple comparison of means for the independent variable “Price per night” by SQ dimensions and satisfaction

Dependent Variable		(I) Price_per_night_final	(J) Price_per_night_final	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Tangibles	Tukey HSD	Less or equal to 50€	50€-100€/night	-.611	.310	.124	-1.35	.12
			100€/night or above	-1.119*	.307	.001	-1.85	-.39
		50€-100€/night	Less or equal to 50€	.611	.310	.124	-.12	1.35
			100€/night or above	-.508*	.155	.004	-.88	-.14
		100€/night or above	Less or equal to 50€	1.119*	.307	.001	.39	1.85
			50€-100€/night	.508*	.155	.004	.14	.88
	Bonferroni	Less or equal to 50€	50€-100€/night	-.611	.310	.153	-1.36	.14
			100€/night or above	-1.119*	.307	.001	-1.86	-.37
		50€-100€/night	Less or equal to 50€	.611	.310	.153	-.14	1.36
			100€/night or above	-.508*	.155	.004	-.88	-.13
		100€/night or above	Less or equal to 50€	1.119*	.307	.001	.37	1.86
			50€-100€/night	.508*	.155	.004	.13	.88
Reliability	Tukey HSD	Less or equal to 50€	50€-100€/night	-.723	.307	.052	-1.45	.00
			100€/night or above	-1.448*	.304	.000	-2.17	-.73
		50€-100€/night	Less or equal to 50€	.723	.307	.052	.00	1.45
			100€/night or above	-.726*	.153	.000	-1.09	-.36
		100€/night or above	Less or equal to 50€	1.448*	.304	.000	.73	2.17
			50€-100€/night	.726*	.153	.000	.36	1.09
	Bonferroni	Less or equal to 50€	50€-100€/night	-.723	.307	.060	-1.47	.02
			100€/night or above	-1.448*	.304	.000	-2.18	-.71
		50€-100€/night	Less or equal to 50€	.723	.307	.060	-.02	1.47
			100€/night or above	-.726*	.153	.000	-1.10	-.35
		100€/night or above	Less or equal to 50€	1.448*	.304	.000	.71	2.18
			50€-100€/night	.726*	.153	.000	.35	1.10
Responsiveness	Tukey HSD	Less or equal to 50€	50€-100€/night	-.910*	.309	.011	-1.64	-.18
			100€/night or above	-1.359*	.306	.000	-2.09	-.63
		50€-100€/night	Less or equal to 50€	.910*	.309	.011	.18	1.64
			100€/night or above	-.449*	.154	.012	-.81	-.08
		100€/night or above	Less or equal to 50€	1.359*	.306	.000	.63	2.09
			50€-100€/night	.449*	.154	.012	.08	.81
	Bonferroni	Less or equal to 50€	50€-100€/night	-.910*	.309	.011	-1.66	-.16
			100€/night or above	-1.359*	.306	.000	-2.10	-.62
		50€-100€/night	Less or equal to 50€	.910*	.309	.011	.16	1.66
			100€/night or above	-.449*	.154	.013	-.82	-.07
		100€/night or above	Less or equal to 50€	1.359*	.306	.000	.62	2.10
			50€-100€/night	.449*	.154	.013	.07	.82

(Source: Results table from SPSS software)

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Assurance	Tukey HSD	Less or equal to 50€	50€-100€/night	- .792*	.276	.013	-1.45	-1.14
			100€/night or above	-1.074*	.274	.000	-1.72	-4.43
		50€-100€/night	Less or equal to 50€	.792*	.276	.013	.14	1.45
			100€/night or above	-.282	.138	.105	-.61	.04
		100€/night or above	Less or equal to 50€	1.074*	.274	.000	.43	1.72
			50€-100€/night	.282	.138	.105	-.04	.61
	Bonferroni	Less or equal to 50€	50€-100€/night	- .792*	.276	.014	-1.46	-1.12
			100€/night or above	-1.074*	.274	.000	-1.74	-4.41
		50€-100€/night	Less or equal to 50€	.792*	.276	.014	.12	1.46
			100€/night or above	-.282	.138	.128	-.62	.05
		100€/night or above	Less or equal to 50€	1.074*	.274	.000	.41	1.74
			50€-100€/night	.282	.138	.128	-.05	.62
Empathy	Tukey HSD	Less or equal to 50€	50€-100€/night	-.455	.307	.303	-1.18	-.27
			100€/night or above	-.821*	.304	.021	-1.54	-1.10
		50€-100€/night	Less or equal to 50€	.455	.307	.303	-.27	1.18
			100€/night or above	-.365*	.153	.048	-.73	.00
		100€/night or above	Less or equal to 50€	.821*	.304	.021	.10	1.54
			50€-100€/night	.365*	.153	.048	.00	.73
	Bonferroni	Less or equal to 50€	50€-100€/night	-.455	.307	.422	-1.20	.29
			100€/night or above	-.821*	.304	.024	-1.56	-.08
		50€-100€/night	Less or equal to 50€	.455	.307	.422	-.29	1.20
			100€/night or above	-.365	.153	.056	-.74	.01
		100€/night or above	Less or equal to 50€	.821*	.304	.024	.08	1.56
			50€-100€/night	.365	.153	.056	-.01	.74
Satisfaction_final	Tukey HSD	Less or equal to 50€	50€-100€/night	-4.021*	1.547	.028	-7.69	-3.35
			100€/night or above	-6.379*	1.531	.000	-10.01	-2.75
		50€-100€/night	Less or equal to 50€	4.021*	1.547	.028	.35	7.69
			100€/night or above	-2.358*	.772	.008	-4.19	-.53
		100€/night or above	Less or equal to 50€	6.379*	1.531	.000	2.75	10.01
			50€-100€/night	2.358*	.772	.008	.53	4.19
	Bonferroni	Less or equal to 50€	50€-100€/night	-4.021*	1.547	.031	-7.77	-.27
			100€/night or above	-6.379*	1.531	.000	-10.09	-2.67
		50€-100€/night	Less or equal to 50€	4.021*	1.547	.031	.27	7.77
			100€/night or above	-2.358*	.772	.008	-4.23	-.49
		100€/night or above	Less or equal to 50€	6.379*	1.531	.000	2.67	10.09
			50€-100€/night	2.358*	.772	.008	.49	4.23

\*. The mean difference is significant at the 0.05 level.

(Source: Results table from SPSS software)

Table G.11 – Means for the independent variable “Free wi-fi” by Responsiveness and Satisfaction

Free_wifi		Responsiveness	Satisfaction
No	Mean	5.64	5.31
	N	9	9
	Std. Deviation	1.054	1.269
	Median	5.75	5.60
Yes	Mean	6.23	6.06
	N	126	126
	Std. Deviation	.912	.985
	Median	6.38	6.20
Total	Mean	6.19	6.01
	N	135	135
	Std. Deviation	.930	1.018
	Median	6.25	6.20

(Source: Results table from SPSS software)



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Table G.12 – Means for the independent variable “Parking lot” by SQ dimensions and Satisfaction

Parking_lot		Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
No	Mean	5.53	5.32	5.74	5.84	5.55	5.59
	N	29	29	29	29	29	29
	Std. Deviation	.834	.928	.946	.730	.908	1.085
	Median	5.50	5.40	6.00	5.75	5.80	6.00
Yes	Mean	6.01	6.01	6.31	6.39	6.13	6.13
	N	106	106	106	106	106	106
	Std. Deviation	.920	.920	.891	.798	.839	.972
	Median	6.25	6.00	6.50	6.75	6.20	6.20
Total	Mean	5.91	5.86	6.19	6.27	6.01	6.01
	N	135	135	135	135	135	135
	Std. Deviation	.921	.961	.930	.813	.884	1.018
	Median	6.00	6.00	6.25	6.50	6.00	6.20

(Source: Results table from SPSS software)

Table G.13 – Means for the independent variable “Gym” by Tangibles, Empathy and Satisfaction

Gym		Tangibles	Empathy	Satisfaction
No	Mean	5.75	5.90	5.79
	N	84	84	84
	Std. Deviation	.972	.944	1.166
	Median	6.00	6.00	6.00
Yes	Mean	6.17	6.20	6.38
	N	51	51	51
	Std. Deviation	.769	.748	.552
	Median	6.25	6.40	6.40
Total	Mean	5.91	6.01	6.01
	N	135	135	135
	Std. Deviation	.921	.884	1.018
	Median	6.00	6.00	6.20

(Source: Results table from SPSS software)

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Table G.14 – Means for the independent variable “Pool” by SQ dimensions and Satisfaction

Pool		Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
No	Mean	5.44	5.33	5.65	5.83	5.53	5.44
	N	34	34	34	34	34	34
	Std. Deviation	1.182	1.253	1.310	1.148	1.144	1.312
	Median	5.50	5.50	6.00	5.88	5.60	5.70
Yes	Mean	6.07	6.04	6.37	6.42	6.17	6.21
	N	101	101	101	101	101	101
	Std. Deviation	.758	.768	.678	.602	.715	.819
	Median	6.25	6.00	6.50	6.50	6.20	6.40
Total	Mean	5.91	5.86	6.19	6.27	6.01	6.01
	N	135	135	135	135	135	135
	Std. Deviation	.921	.961	.930	.813	.884	1.018
	Median	6.00	6.00	6.25	6.50	6.00	6.20

(Source: Results table from SPSS software)

Table G.15 – Means for the independent variable “Spa” by SQ dimensions and Satisfaction

Spa		Tangibles	Reliability	Responsiveness	Assurance	Empathy	Satisfaction
No	Mean	5.66	5.65	5.94	6.11	5.80	5.75
	N	71	71	71	71	71	71
	Std. Deviation	1.075	1.056	1.058	.945	.956	1.219
	Median	5.75	5.80	6.00	6.25	5.80	6.00
Yes	Mean	6.18	6.10	6.46	6.45	6.24	6.31
	N	64	64	64	64	64	64
	Std. Deviation	.611	.782	.671	.591	.740	.618
	Median	6.25	6.20	6.50	6.75	6.40	6.40
Total	Mean	5.91	5.86	6.19	6.27	6.01	6.01
	N	135	135	135	135	135	135
	Std. Deviation	.921	.961	.930	.813	.884	1.018
	Median	6.00	6.00	6.25	6.50	6.00	6.20

(Source: Results table from SPSS software)

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Table G.16 – Means for the independent variable “Others” by Tangibles

Tangibles				
Others	Mean	N	Std. Deviation	Median
No	5.84	116	.943	6.00
Yes	6.30	19	.659	6.50
Total	5.91	135	.921	6.00

(Source: Results table from SPSS software)

**Annex H – Cronbach’s alpha coefficient for Satisfaction**

Table H.1 Cronbach’s alpha coefficient if item deleted

Satisfaction items	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
P24. I’m willing to recommend this hotel to family/friends	0,852	0,924
P25. I’m willing to stay in this hotel again	0,883	0,917
P26. The comments I make about the service provided by the hotel, when talking to others, are positive	0,877	0,923
P27. The services provided by the hotel, are exactly what I was looking for, for my stay	0,872	0,920
P28. This hotel is my first choice when looking for an accommodation, due to their services it offers	0,773	0,947

(Source: prepared by the author)

**Annex I – Relationship between global perceived service quality and customer satisfaction**

Table I.1 Normality test for global perceived service quality

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Overall service quality of the Portuguese hotel industry	.310	135	.000	.772	135	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)

Table I.2 Normality test for satisfaction

	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Satisfaction_final	.182	135	.000	.808	135	.000

a. Lilliefors Significance Correction

(Source: Results table from SPSS software)