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The impact of restaurant containment measures on consumer perceived service quality, satisfaction, and revisit intentions – A contribution to future pandemics.

Dissertação apresentada ao Departamento de Ciências Empresariais, com vista à obtenção do grau de mestre, no âmbito da realização do ciclo de estudos de Mestrado em Gestão de Negócios.

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Resumo

Este trabalho tem por objetivo identificar a influência que as precauções para a mitigação de uma pandemia têm na qualidade do serviço percebido, na satisfação do cliente e nas intenções de revisitar restaurantes. Para atingir este objetivo foram recolhidas 15.251 avaliações publicadas na página do TripAdvisor de 300 restaurantes, durante as medidas de contingência para a Covid-19. Os dados foram analisados por Text Mining e submetidos a uma análise estatística através do PLS-SEM. As precauções adotadas pelas entidades de saúde e governamentais e restauração, moderadas pelas crenças dos consumidores, influenciaram positivamente a qualidade do serviço percebido, a satisfação do cliente e as intenções de revisitar. O estudo contribui com informação relevante para os proprietários de restaurantes auxiliando estes na implementação de estratégias que permitam garantir a qualidade do serviço, a satisfação dos clientes, induzindo as intenções de revisitar, perante episódios pandémicos.

Palavras-chave

Pandemia; Satisfação; Restaurantes; Intenções de revisitar; Qualidade do serviço percebido.

Abstract

This study aims to identify the impact of the restaurants' pandemic mitigation precautions' influence on perceived service quality, consumer satisfaction, and revisit intentions. Accordingly, 15.251 reviews were collected from 300 TripAdvisors' restaurants' webpage during the Covid-19 contingency measures. The data were analyzed through Text Mining techniques and PLS-SEM to confirm the raised hypotheses. Results suggest that precautions taken by health and governmental entities and the restaurant industry positively influenced perceived service quality, consumer satisfaction, and revisit intentions. This study contributes relevant information to restaurant managers helping them implement strategies that guarantee service quality and consumer satisfaction, inducing revisit intentions towards pandemic episodes.

Keywords

Pandemic; Satisfaction; Restaurants; Revisit intentions; Perceived service quality

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1. Introduction

The tourism and hospitality industry has been affected by the epidemic and pandemic crisis, promoting new dynamics to prevent the spread of the virus (Furceri et al., 2022; Gössling et al., 2021). An example recently occurred in the year 2020 with the dawn of a pandemic caused by the appearance of a new coronavirus that soon spread throughout the world (Inegbedion, 2021; Zhao et al., 2020). On March 11st, 2020 World Health Organization (WHO) declared Covid-19 a pandemic. Since then it has been disseminated worldwide (United Nations News, 2020; Yang et al., 2020a). With the appearance of the first cases in Wuhan, China, SARS-Cov-2 has infected more than 600 million individuals worldwide, of which about 6.5 million have died by September 2022 (WHO, 2022).

Health and governmental entities applied multiple measures, promoting an inevitable economic regression to mitigate the virus spread (Stelter, 2020). Those entities developed containment plans, including confinement, social distancing, closing the commerce of non-essential goods and leisure establishments, and prohibiting tourist and leisure activities. These restrictions fostered a significant reduction in economic activities (Dirsehan & Cankat, 2021; Neise et al., 2021). The pandemic affected everyone's daily lives, forcing the population to live in different circumstances (Kim & Lee, 2020).

The hospitality industry was heavily affected, with daily losses estimated at approximately USD 534 million (Kostromitina et al., 2021). The pandemic strongly affected the restaurant sector, registering an abrupt drop in booking and restaurant visits (Yang et al., 2020b). In March 2020, there was a drop of approximately 100% in bookings and visits compared to 2019 (Hakim et al., 2021).

During the Covid-19 pandemic, the restaurant sector was forced to close as a preventive measure since there was a strong association between the risk of contracting the virus and the frequency of such establishments (Kim & Liu, 2022). Thus, consumers verified reluctance to visit restaurants (Kim et al., 2021). This situation provided changes in consumer behavior, which promoted substantial changes in the factors associated with the restaurant's perceived quality of service and consumer satisfaction (Byrd et al., 2021). With the Covid-19 pandemic and the beginning of restaurant reopening, restaurant managers had to implement safety measures, comply with health and governmental entities guidelines (Taylor Jr, 2020), promoting consumers' safety and comfort (Gursoy

& Chi, 2020). These measures included atmosphere changes that impact the perception of service quality (Kostromitina et al., 2021).

According to the scientific community, the risk of new pandemics is more significant than ever (Smith, 2021). Thus, it becomes relevant to learn with the Covid-19 pandemic new multifaceted approaches to achieve a successful response in future pandemics (The Lancet Respiratory Medicine, 2022). PANDEM-2 is an example of a project that incorporates international practices, simulations, pandemic communications, contact tracing, and training based on the scenarios of other pandemics, such as the Covid-19 pandemic (Pandem-2, 2021). Since restaurants have been gaining prominence in national tourist activities (Daries et al., 2021), assessing which factors impact service quality and contribute to customer satisfaction during pandemics is essential, providing important findings for future scenarios. This factor is particularly relevant in the pandemic context since there is evidence that these episodes will be increasingly frequent (Byrd et al., 2021; Kostromitina et al., 2021).

Several studies have tried to explain the influence of the pandemic on consumer behavior. For instance, Krostromitina et al. (2021) aimed to help restaurant managers improve their star ratings and provide information to researchers on how the pandemic has changed the desired satisfaction criteria. Byrd et al. (2021) aimed to understand the consumer's perceived risk in restaurants and packing during the pandemic. Kang et al. (2021) uncovered how consumers evaluate restaurant containment measures. However, there is no evidence of studies alluding to how pandemic containment measures influence the restaurants' perceived service quality, satisfaction, and revisit intentions.

To cover this gap in the literature, this study aims to understand the impact of pandemic containment measures on restaurants' perceived service quality, consumer satisfaction, and revisit intentions. TripAdvisor's online reviews published between March 2020 and December 2021 were collected from 300 Lisbon restaurants to achieve this aim. Data were analyzed through text mining techniques to create a word frequency matrix used as an input to Partial Least Squares Structural Equation Modeling (PLS-SEM). This study expects to help restaurant managers implement strategies to improve service quality, promote customer satisfaction, and induce revisit intentions during a pandemic. At the same time is aimed at preparing restaurant managers to implement the best strategies for future episodes once the risk of new pandemics occurring is higher than ever.

2. Literature Review

2.1. Influence of restaurant containment measures and health and governmental entities protocol on the restaurants' perceived service quality

Perceived service quality is the difference between customers' expectations and perceptions of the experienced service (Akhil & Suresh, 2021; Lupo & Bellomo, 2019). Service quality reflects the subjective judgments of the overall service and its attributes (Lee et al., 2020). It is an essential predictor of consumer satisfaction and a factor in gaining competitive advantages (Cheng et al., 2021) that determines revisit intentions (Sezgin, 2022).

To measure the service quality of an establishment and explain the process used by consumers to compare their expectations with their perceptions (Xu, 2021), Parasuraman et al. (1988) created the SERVQUAL model as a measuring tool composed of five quality dimensions: tangibles, reliability, responsiveness, assurance and empathy-of service quality. Stevens et al. (1995) adapted SERVQUAL to the restaurant context creating the DINESERV model. DINSERV involves five dimensions: tangible (appearance of physical facilities, equipment, personnel, and forms of communication), reliability (ability to perform a reliable and accurate service), responsiveness (willingness to help customers and provide thoughtful service), assurance (related to employees' knowledge and ability to convey trust and confidence), and empathy (referring to providing individualized care and attention to clients). This model is essential to help restaurant managers to examine their overall service quality and take precautions to meet the needs and expectations of their customers (Sezgin, 2022).

The risk of contracting the virus (Byrd et al., 2021; Chang et al., 2021) led to the reluctance to visit restaurants (Kim et al., 2021). Accordingly, restaurants had to adapt their business to a new context (Chuenyindee et al., 2022; Kostromitina et al., 2021), implementing health and governmental measures and creating safety conditions to reduce customers' perceived risk and fear of contracting Covid-19 (Chi et al., 2022). The *restaurant containment measures* include the availability of sanitizing hand stations, adoption of rigorous cleaning protocols, use of masks, and contactless payment (Byrd et al., 2021; Wu et al., 2021). Gursoy and Chi (2020) suggest that implementing social distancing and frequent cleaning are the most critical safety precautions customers expect from restaurants.

Moreover, government authorities and health professionals defined strategies and measures to mitigate the spread of the virus – *Health and governmental entities protocol* (Gössling et al., 2021). These strategies involved population confinement, social distancing, stay-at-home orders, and mobility restriction (Dirsehan & Cankat, 2021; Gursoy & Chi, 2020). According to the health and governmental entities protocol, the restaurant industry elaborated its containment plans – *Restaurant containment measures* (Centers for Disease Control and Prevention, 2021; Luo & Xu, 2021).

With the emergence of a vaccine and tests for pandemic control, the official health authorities of many countries define it as mandatory to present a valid Covid-19 Vaccination Certificate or a negative test to access the interior of restaurants (Crego et al., 2022; High Commission for Migration, 2022; Kelleher, 2021). Such measures caused some discouragement among restaurant managers. Managers considered containment measures would suggest that restaurants are a highly risky and contagious place of infection, increasing customers' hesitancy to come to a restaurant and influencing perceived service quality (Bizarro, 2021). Nevertheless, Gursoy et al. (2020) suggested that customers would only be willing to visit restaurants when sufficient and feasible testing and vaccine methods exist.

Since perceived service quality is the difference between consumers' expectations and perceptions (Akhil & Suresh, 2021), it is essential to acknowledge how government and restaurants' control measures impact the customers' perceived service quality.

Since containment plans create safe conditions for consumers (Kim & Liu, 2022; Zhang et al., 2021) and influence the consumer's perceptions (Kostromitina et al., 2021; Nilashi et al., 2021) can be inferred that:

H1: Restaurant containment measures positively influence the Perceived Service Quality.

Additionally, a health and governmental entities protocol was developed to control the virus spread (Neise et al., 2021). It impacted the restaurants' functioning and service (Kostromitina et al., 2021). Consequently, we can infer that:

H2: The health and governmental entities' protocol positively influence the restaurants' Perceived Service Quality.

2.2. Moderate effect of consumers' threats beliefs

According to pandemic context and recent evidence (Eroglu et al., 2022; Freeman et al., 2022) is vital to evaluate how consumers' threats during a pandemic influence the restaurant's perceived service quality once *Consumers' threat beliefs* under a pandemic scenario are defined as the relationship between the consumers' risk perceptions and consumer behaviors (Eroglu et al., 2022; Freeman et al., 2022).

The pandemic severity perception can positively influence customers' preventive behavior (Gursoy & Chi, 2020; Yang et al., 2020b). On the one hand, there are people concerned and committed to the severity of the virus, triggering anxious states and depression (Chuah et al., 2022; Şimşir et al., 2022) and hesitation in visiting restaurants (Chi et al., 2022). On the other hand, some individuals discard the severity of the virus, considering that it does not exist (Kellaris et al., 2020). These individuals ignore the health and governmental entities' protocol recommendations, leading to reluctance to comply, such as wearing masks and social distancing (Freeman et al., 2022).

Eroglu et al. (2022) evaluated the impact of crowdedness on shopping, moderated by the beliefs and risks related to the pandemic. The author suggested that satisfaction levels decreased for people concerned about the virus and perceived its severity when levels of crowdedness were high, with no evidence of control measures implemented. The opposite was verified for non-believers.

Since the risk perception of the virus is not the same for the entire population due to different beliefs, it is relevant to assess how:

H3a: Consumers' threat beliefs moderate the effect of restaurant containment measures and perceived service quality.

H3b: Consumers' threat beliefs moderate the effect of health and governmental entities' protocol and the perceived service quality.

2.3. Relationship between perceived service quality and consumer satisfaction

Perceived service quality strongly influences future consumer behavior and impacts consumer satisfaction (Lee et al., 2020). Accordingly, assessing the perceived service quality becomes relevant, considering the restaurant containment measures and pandemic health and governmental entities' protocol.

According to the expectation-disconfirmation theory, *consumer satisfaction* is a psychological state experienced by consumers when their expectations about a product or service are met or exceeded (Cheng et al., 2021; Lee et al., 2020). It is determined by the difference between expectations and perceived service quality. Additionally, the integrative service quality-satisfaction theory stresses the importance of three elements in Consumer Satisfaction: expectation, service, and quality (de Ruyter et al., 1997). It suggests the complementarity between service quality and consumer satisfaction. Consumers are satisfied when the reality of provided service meets or exceeds their expectations (Line et al., 2016; Xu, 2021).

Nilashi et al. (2021) suggested that perceived service quality impacts consumer satisfaction during the pandemic. The authors stressed that consumer satisfaction was enhanced when implementing preventive measures to control the pandemic were observed.

Prior to the emergence of Covid-19, studies suggested that perceived service quality influences consumer satisfaction (Keller & Kostromitina, 2020) and that in the pandemic context, this assumption is also true (Nilashi et al., 2021). Accordingly:

H4: Restaurant consumers' perceived service quality positively influences consumers' satisfaction.

2.4. Relationship between consumer satisfaction and revisit intentions

Providing a superior quality service induces consumer satisfaction, provoking the intention to revisit (Lee et al., 2020). It becomes relevant to acknowledge the influence of consumer satisfaction on revisit intentions under the impact of restaurant containment measures and pandemic health and governmental entities protocol. In addition, the restaurant industry has been concerned with adopting the best strategy to promote consumers' revisits (Chi et al., 2022; Gursoy & Chi, 2020).

Liking or disliking a product or service is the result of the experience. This result will determine consumer satisfaction, influencing future intentions (Han et al., 2009). *Revisit intentions* are defined as the consumer behavior of repeating a purchase of a product or service and are considered a satisfaction extension (Um et al., 2006). When the product or service performance exceeds the emotional consumer's needs, it enhances their satisfaction and a favorable post-purchase decision (Lee et al., 2020).

Some studies have suggested that consumer satisfaction is a powerful predictor of revisit intention (Konuk, 2019; Park et al., 2019). When a service exceeds expectations, it induces consumer satisfaction (Cheng et al., 2021). Consumer satisfaction will influence revisit intentions (Lee et al., 2020). Following this assumption, it can be inferred that:

H5: Restaurants' consumers' satisfaction positively influences revisit intentions.

Figure 2-1 shown below presents the conceptual model.

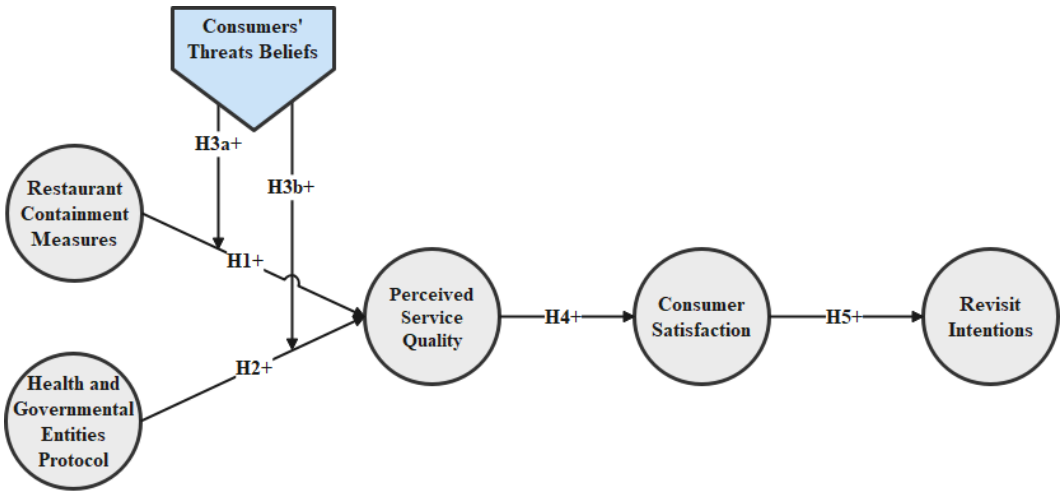

Figure 2-1 - Conceptual model.

3. Methodology

This study aims to identify pandemic mitigation precautions' influence on perceived service quality, consumer satisfaction, and revisit intentions. The sample comprised restaurant clients that shared their experience in one of the top 300 Lisbon restaurants' TripAdvisor webpage from March 2020 to December 2021. Lisbon restaurants were chosen due to the strong tourism dynamic and number of international visits. Additionally, we aimed to analyze the best-ranked restaurants from TripAdvisor from the customer's perspective. Data collection started in March 2020, when WHO (2020) declared Covid-19 a pandemic (United Nations News, 2020; Yang et al., 2020a). Founded in 2000, TripAdvisor is the leading travel website for sharing opinions on tourism experiences. This platform contains more than 859 million reviews and about 459 million monthly visitors (Hu et al., 2017; TripAdvisor, 2020). TripAdvisor's reviews have been used in multiple marketing studies, with exciting results (Bjørkelund et al., 2012; Casado-Díaz et al., 2020). Following the approach of Ramos et al. (2022), the methodology applies a mixed method approach by combining text mining techniques with Partial Least Squares - Structural Equation Modeling (PLS-SEM) to analyze restaurant customers' online reviews. Instead of a traditional questionnaire, this study captured the true spirit of the restaurant's customers' perceptions, expressed by free opinions (Furtado et al., 2022; Moro & Rita, 2018).

3.1. Data collection and preparation

For this study, 15,251 individual online reviews were collected through a web scrapper using the R software's package 'rvest'. The web scrapper iteratively crawls through TripAdvisor restaurants' web pages and automatically extracts the customers' reviews. The online reviews that were not written in English were translated using the Yandex translate API through the R package 'RYandexTranslate' (Piccinelli et al., 2021).

After collection, the reviews were transformed into a structure used as an input for PLS-SEM. A text mining technique prepared the dataset by eliminating stopwords (frequent words with no semantic value, such as "the", "and", "for"), adverbs, and articles; converting all words to lowercase; and applying stemming (i.e., merging similar words into a common term, e.g., "cheaper" or "cheapest" = "cheap"). The 'tm' package in R was used to conduct this process. Each term was counted and grouped into each of the models' theoretical constructs (e.g., lockdown, virus, and pandemic = 'Health and

Governmental Entities Protocol'), creating a dictionary. This approach has been used in multiple studies (Moro et al., 2015; Piccinelli et al., 2021; Ramos et al., 2019). Two approaches were conducted to validate the dictionary and eliminate the inherent subjectivity of creating a dictionary. Firstly, a random check of 5% of the reviews was conducted to confirm if the terms were associated with the items. Secondly, a panel of three independent marketing (2) and tourism (1) experts validated the dictionary (Ramos et al., 2022). The experts were free to add, eliminate or reallocate the terms to other theoretical constructs. Table 3-1 presents the dictionary reflecting the models' constructs, items, and a sample of terms associated with each item.

Table 3-1- Dictionary.

Construct	Items	Sample of terms
Restaurant Containment Measures	Restaurant Precautions	clean, safety, hygiene
Health and Governmental Entities Protocol	Health and Governmental Entities Protocol	vaccine, coronavirus, covid
Perceived Service Quality	Empathy	sympathy, cordial, gentil
	Reliability	helpful, loyal, honest
	Responsiveness	fast, help, efficacy
	Physical environment	decoration, atmosphere, comfort
	Facilities / Commodities	Wi-Fi, bathroom, TV
	Place / Convenience	sea, downtown, Lisbon
	Staff appearance	mask, glove, uniform
	Food Quality	delicious, tasteless, flavor
	Price	money, paycheck, cheap
Consumer Satisfaction	Satisfaction	good, brilliant, fabulous
	Emotions	love, happy, pleasant
Revisit Intentions	Revisit intentions	return, repeat, revisit
Consumers' Threats Beliefs	Covid-19 Believers	risk, caution, stress

Crossing the individual reviews with the dictionary, a word frequency matrix connected with each construct was built, creating continuous variables for each visitor's review (i.e., each value represented the frequency that a given construct was mentioned in the review). Each matrix line corresponds to an individual review, and the columns reflect the construct items listed in Table 3-1. In the word frequency matrix, each cell revealed the number of times the item was referred to in each review. The word frequency matrix was then used as an input for the PLS-SEM to evaluate the relationships between the theoretical constructs of the model. The methodological scheme is revealed in Figure 3-2.

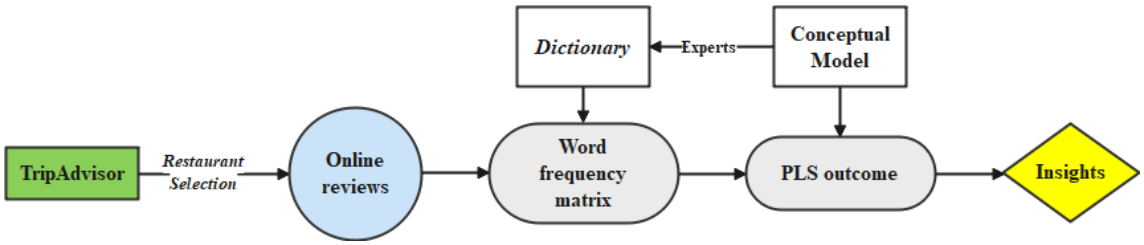

Figure 3-2 - Methodological approach.

3.2. Data analysis

Data were analyzed using PLS-SEM. PLS-SEM is a statistical analysis software that estimates the causal relationship between variables defined by a theoretical model (Hair et al., 2019). This analysis allows for studying complex relationships between variables through linear relationships. It is suitable software for secondary data, preferentially matric or quasi-metric data, allowing the use of single-items and formative measures (Hair et al., 2019; Richter et al., 2020). The variables Restaurant Containment Measures, Health and Governmental Entities Protocol, Revisit Intentions, and the moderate variable Consumers' Threat Beliefs were assessed using single-item measures. All items were measured using formative measures once items associated with each variable caused their formation, converging into a variable. Thus, each item gathers the specific aspects of the domain of the construct, determining the meaning of the construct (Hair et al., 2020).

After defining the measurement model, the model was evaluated according to the procedures recommended by Hair et al. (2020). Thus, the measurement model was evaluated, which analyzed convergent validity to verify the high correlation of the formative measure with the reflexive measure of the same construct for each variable. Values of path coefficients greater than 0.80 should be verified. Then multicollinearity (VIF < 3.0) was evaluated. To assess the significance, load, and item weight in the construction of the variable, Bootstrapping was applied to 10.000 subsamples. A 5% significance level was defined as critical for the *t*-values of the path coefficients (*t*-value > 1.96). The model's internal multicollinearity and direct effects were evaluated through a regression analysis, examining the size and significance of the path coefficients between the variables. Finally, the predictive capacity was evaluated based on R^2 and Q^2 values. Q^2 values were obtained from the Blindfolding test for a D value of 10. These results formed the basis for the discussion and conclusions of the research study.

4. Results and discussion

4.1. Measurement model evaluation

The measurement model showed that the formative measured constructs were highly correlated with their reflexive measure. Their path coefficients (β) were greater than 0.80 ($0.985 < \beta < 1.000$) for all constructs. Thus, all indicators heavily contributed to the variable explanation. For all indicators, external VIF values were below 3.0 ($1.000 < VIF < 1.256$), showing the absence of multicollinearity issues (Hair et al., 2020).

Table 4-2 shows the outer weights, outer loadings, and *t* values for a significance level of 5% (Hair et al., 2020). The indicators associated with the Perceived Service Quality variable were significant, except for the Empathy item. Empathy indicator is not significant in explaining Perceived Service Quality (*p*-value = 0.106 > *p*-value = 0.05; *t*-value = 1.616 < *t*-value recommended ≥ 1.96). Food Quality, Physical Environment, Responsiveness and Facilities/Commodities items had outer loadings values higher than 0.50, contributing to the Perceived Service Quality (0.766; 0.677; 0.553; 0.514, respectively). Although the Reliability, Place/Convenience, Staff Appearance and Price results outer loadings were lower than the recommended 0.50 criterion (Hair et al., 2019), they were statistically significant for the formative measure of Perceived Service Quality.

Table 4-2 - Outer weights, *t*-values, *p*-values, and outer loading to a 5% significance level.

Variable / Indicators	**Outer Weights**	***t*-values (*p*-values)**	**Outer Loadings**
Restaurant Containment Measures			
Restaurant Precautions	1.000	NA*	NA*
Health and governmental entities protocol			
Health and Governmental Entities Protocol	1.000	NA*	NA*
Perceived Service Quality			
Empathy	0.025	1.616 *(0.106)*	0.101
Reliability	0.073	3.903 (*0.000*)	0.206
Responsiveness	0.274	12.012 *(0.000)*	0.553
Physical Environment	0.345	16.647 *(0.000)*	0.677
Facilities / Commodities	0.174	7.239 *(0.000)*	0.514
Place / Convenience	0.167	9.067 *(0.000)*	0.459
Food Quality	0.467	23.710 (*0.000*)	0.766
Price	0.142	6.498 *(0.000)*	0.451
Consumer Satisfaction			
Satisfaction	0.751	44.151 *(0.000)*	0.848
Emotions	0.539	26.510 *(0.000)*	0.674
Revisit Intentions			
Revisit Intentions	1.000	NA*	NA*
Consumers' Threats Beliefs			
Covid-19 Believers	1.000	NA*	NA*

* NA = Not applicable.

Regarding the satisfaction variable, it is verified that two associated indicators are significant in explaining the variable. Outer loadings are higher than 0.50 (Satisfaction = 0.848; Emotions = 0.674), suggesting great influence in explaining Consumer Satisfaction.

According to Hair et al. (2017), when at the same time, there is no significance for an indicator, and the outer loading result is less than 0.50, it should be removed from the model. When the outer loading of an indicator is less than 0.50, but significant, it should be considered removing it. However, the removal of the indicator must be pondered since its elimination may omit unique parts of the variable's composition, reducing its theoretical validity (Ramos et al., 2022). Following these recommendations, the Empathy indicator was removed (outer loading = 0.101; *p*-value = 0.106). The indicators with outer loadings lower than 0.50 (Reliability, Place/Convenience, Staff Appearance, Price) but with significance were held. Food Quality and Physical Environment are the indicators with the highest outer loadings, 0.766 and 0.677, respectively, which means that these indicators were the ones that most impacted Perceived Service Quality. Thus, Perceived Service Quality is influenced by the same evaluation criteria, confirming previous studies (Gon et al., 2009; Parasuraman et al., 1988; Stevens, 1995).

4.2. Structural model evaluation

Internal VIF values of the structural model were less than 3.0 for all variables, revealing the absence of multicollinearity (Hair et al., 2019).

The structural model explains 14.3% (R^2 = 0.143) of Perceived Service Quality variance, 21.7% (R^2 = 0.217) of Consumer Satisfaction variance, and 4.2% (R^2 = 0.042) of Revisit Intentions. Since this study typology is related to consumer behavior, the model has a higher explanatory power on Consumer Satisfaction and Perceived Service Quality and a lower explanatory power to Revisit Intentions (Hair et al., 2017). Accordingly, the model reveals a good predictive capacity to evaluate the influence of Perceived Service Quality on Consumer Satisfaction and Revisit Intentions in the pandemic context. Q^2 values differ from 0 to the same variables (Table 4-3), reinforcing the predictive model's capacity.

Table 4-3 – Explain variance (R^2) and predictive capacity (Q^2).

Explained Variance		Predictive capacity
Variable	**R^2 value**	**Q^2 value**
Perceived Service Quality	0.143	0.039
Consumer Satisfaction	0.217	0.126
Revisit Intentions	0.042	0.041

Table 4-4 shows the path coefficients value (β) between the constructs and significance, supplying information about the relationship between variables and the validity of the hypotheses under study.

Table 4-4 – Path, coefficients, *t*-value, p-value, and confidence interval to a significance level of 5%.

Path	Coefficients (β)	*t*-value (*p*-value)	LLCI*	ULCI*
Restaurant Containment Measures -> Perceived Service Quality	0.274	20.521 *(0.000)*	0.249	0.302
Health and Governmental Entities Protocol -> Perceived Service Quality	0.200	9.712 *(0.000)*	0.162	0.241
Perceived Service Quality -> Consumer Satisfaction	0.466	43.454 *(0.000)*	0.444	0.486
Consumer Satisfaction -> Revisit Intentions	0.204	17.344 *(0.000)*	0.180	0.227
Moderate Effect Consumers' Threats Beliefs*Restaurant Containment Measures-> Perceived Service Quality	0.033	1.976 *(0.049)*	0.003	0.071
Moderate Effect Consumers' Threats Beliefs* Health and Governmental Entities Protocol -> Perceived Service Quality	-0.029	1.300 *(0.193)*	-0.067	0.013

* LLCI = lower-level confidence interval; ULCI = upper-level confidence interval

All relationships between variables are significant, except the moderation effect of the Consumers' Threats Beliefs between Health and Governmental Entities Protocol and Perceived Service Quality relationship. Thus, the structural model showed that Restaurant Containment Measures and Health and Governmental Entities Protocol influence Perceived Service Quality that, in turn, influence Consumer Satisfaction. Revisit Intentions are influenced by Consumer Satisfaction (Konuk, 2019; Park et al., 2019). Additionally, the pandemic Consumers' Threats Beliefs moderate the effect of Restaurant Containment Measures on Perceived Service Quality, confirming the results of Eroglu et al. (2022).

The results suggest that the Restaurant Containment Measures positively influence the Perceived Service Quality, validating the H1. This result suggests that containment plans (Chi et al., 2022; Kim & Lee, 2020; Wang et al., 2021) were pivotal to the perception of service quality. Physical Environment was one of the criteria with a higher impact on

Perceived Service Quality. This suggests that the adoption of the plans, which involves the layout reconfiguration, placement of dividers, and other space changes, were the ones that had the most influence on Perceived Service Quality. It can be deduced that consumers' expectations, often related to implementing distancing and frequent cleaning, were met.

The relationship between Health and Governmental Entities Protocol and Perceived Service Quality was verified. The first positively influences the second, validating the H2 (β = 0.200, *p*-value = 0.000). The government authorities and health professionals' strategies to mitigate the virus spread offered consumers a great sense of confidence, originating a positive impact on Perceived Quality Service (Crego et al., 2022; Gössling et al., 2021; High Commission for Migration, 2022; WHO, 2021). Thus, although restaurant managers felt that these obligations would harm their business (Bizarro, 2021), the results suggest that they provided a sense of security and comfort to consumers when visiting restaurants.

Consumers' Threats Beliefs results revealed a positive and significative moderation effect on Perceived Service Quality when influenced by Restaurant Containment Measures, supporting the H3a. However, though the moderate effect is significant, the β value showed that the relationship moderation was lower (β = 0.033, *p*-value = 0.049). This result suggests that Consumers' Threats Beliefs, characterized by fear, risk, and severity perception of contracting the virus (Chuah et al., 2022; Şimşir et al., 2022), positively moderate the impact of Restaurant Containment Measures on Perceived Service Quality. Consumers feeling threatened by the virus positively perceive the service quality when restaurants employ measures to mitigate the virus spread. Accordingly, restaurant containment measures were essential for those who believed in the pandemic. Additionally, it can be inferred that restaurant containment measures were important to reduce hesitation in visiting a restaurant due to the risk of contracting the virus (Byrd et al., 2021; Chang et al., 2021).

In turn, the moderation effect of Consumers' Threats Beliefs between Health and Governmental Entities Protocol and Perceived Service Quality relationship was not significant (β = -0.029, *p*-value = 0.193). So, H3b was revoked. The result suggests that, regardless of the consumer beliefs, the health and governmental entities' protocol in the restaurants did not influence the perceived service quality. Since these result measures

were applied to restaurants and all commercial activities, consumers were forced to comply (Kim et al., 2021; Taylor Jr, 2020). This might suggest that these measures became a standard in daily routine, not influencing the service perceptions.

The relationship between Perceived Service Quality and Consumer Satisfaction showed a significant path coefficient of 0.466. The result suggests that Perceived Service Quality strongly influenced Consumer Satisfaction, validating the H4. Perceived service quality influences future consumer behavior and impacts consumer satisfaction (Lee et al., 2020). Expectation, service, and quality are three determinants of consumer satisfaction - service quality-satisfaction theory (de Ruyter et al., 1997). Consumer satisfaction is achieved when products or services meet or exceed expectations, as suggested by the expectation-confirmation theory (Cheng et al., 2021). Perceived service quality is a pivotal factor in consumer satisfaction (Xu, 2021), which is corroborated by the higher path coefficient observed for this relationship to a 5% significant level.

Consumer Satisfaction positively influenced Revisit Intentions (β = 0.204, p-value = 0.000), supporting the H5. This result confirms previous studies (Lee et al., 2020; Line et al., 2016). When a service experienced by consumers meets or exceeds their expectations, it generates a psychological state of satisfaction – expectation-disconfirmation theory – and, consequently, a future repeat behavior (Cheng et al., 2021; Konuk, 2019; Park et al., 2019). The decrease in reluctance to visit restaurants (Kim et al., 2021) is evidenced by the positive effect that Consumer Satisfaction has on consumers' Revisit Intentions.

From the perspective of triggering future pandemics with similar characteristics, these results provide relevant input for restaurant managers. These containment measures will be relevant for good business performance at atypical times.

Figure 4-3 is a schematic structural model of results divulged and discussed previously.

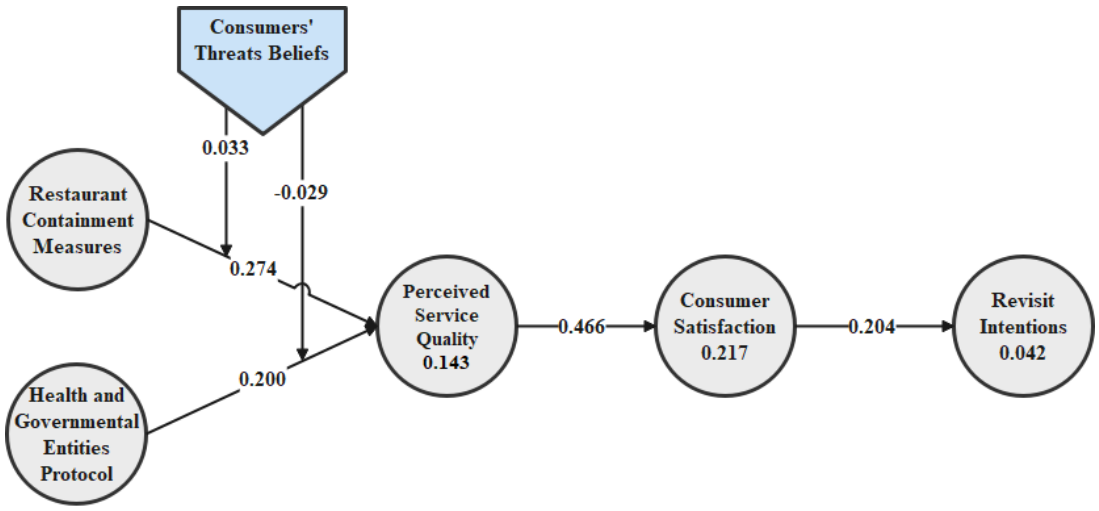

Figure 4-3 - Summary results of the structural model to significance level of 5%.

5. Conclusion

This study aimed to verify the impact of the pandemic crisis on restaurants' perceived service quality, consumer satisfaction, and revisit intentions. The results allow restaurant managers to establish strategies to improve the perceived service quality in similar future contexts once the risk of new pandemics is increasingly imminent (Byrd et al., 2021).

Past pandemics, such as Covid-19, affects consumers' behavior, leading to substantial changes in their perceptions. In such cases, restaurants are forced to adopt containment measures imposed by health and governmental entities to create safe consumer conditions (Kim et al., 2021).

The results suggested that the containment measures adopted by the restaurants, moderated by consumers' threatening beliefs, positively influenced perceived service quality. The health and governmental entities' protocol also positively influenced the perceived service quality. The reluctance of consumers to visit restaurants may have decreased due to the implemented measures. The perceived service quality, in turn, generated satisfaction and intentions to revisit the restaurants.

5.1. Theoretical and managerial implications

The research contributes relevant information both at a theoretical and practical level. From a theoretical point of view, it helps to better understand the pandemic crisis and its impact on the performance of the hospitality sector, with a special focus on the restaurant industry. Restaurant managers can use this valuable knowledge to understand how to strengthen their business during a pandemic period and with which measures can be implemented and developed to reduce the negative consequences. Accordingly, restaurant managers can consult the results of this work and adopt them, being thus prepared for future episodes that will be increasingly recurring.

5.2. Limitations and future research

Limitations should be considered when analyzing the results. Firstly, although a panel of experts validated the dictionary, this process will always have inherent subjectivity (Ramos et al., 2022). Secondly, the study was limited to the clients of 300 Lisbon Restaurants that posted their opinion on TripAdvisor. Future studies should confirm these results by conducting a study with primary data and an extensive sample from different

regions of the globe. Thirdly, the Covid-19 pandemic led to restaurant lockdowns (Chuenyindee et al., 2022; Kim et al., 2021). Accordingly, restaurant managers were forced to adapt to maintain their activities, implementing delivery and take-away services (Gössling et al., 2021). Thus, evaluating this type of quality service in future studies would be interesting to help restaurant managers to improve once the risk of new pandemics is increasingly imminent. Fourth, based on the results, it would be interesting to study the period after the deconfinement and reopen the restaurants with the necessary precautions to understand if the client's behavior suffered any changes.

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