

Determinants of satisfaction with online food delivery providers and their impact on restaurant brands

Online food
delivery
providers

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Abstract

Purpose – This paper aims to analyze the spillover effects between online food delivery providers' (OFDs) performance and restaurant brands. It proposed a model of three determinants for e-satisfaction with OFDs and related these variables to restaurants' brand satisfaction, image and loyalty.

Design/methodology/approach – A survey was designed, and 332 responses from delivery apps users in Ecuador were collected. A partial least squares structural equations model was applied.

Findings – The three proposed determinants of OFD satisfaction were significant: e-service quality, personal aspects of delivery workers and perceived food quality. Regarding the spillover effects, e-service quality and personal aspects had an influence on perceived food quality, mediating a chain of effects on restaurants' brand satisfaction, image and loyalty.

Research limitations/implications – Data were collected before COVID-19. Further studies will need to be undertaken in the context of the COVID-19 pandemic because minimal contact between delivery workers and customers is expected. In addition, food quality perceptions may include new concerns about biosafety norms.

Practical implications – Practices aiming to improve the service experience with OFDs are suggested, including proper training, supervision and improvement of delivery workers' conditions. On the other hand, because restaurants do not control OFD's performance, their contractual agreements should focus on avoiding service failures that erode restaurants' brand equity.

Originality/value – This paper fulfills the need to study the spillover effects in the context of the collaborative economy, where delivery companies, delivery workers and restaurants work together to provide a service, and the performance of one of the parties impacts the consumers' perceptions of the other party.

Keywords Online food delivery provider, E-service quality, Personal aspects, Perceived food quality, Restaurant brand equity

Paper type Research paper

在线食品配送提供商满意度的决定因素及其对餐厅品牌的影响

摘要

研究目的 – 本调查旨在分析在线食品配送提供商 (OFD) 绩效与餐厅品牌之间的溢出效应。它提出了 OFD 电子满意度的三个决定因素模型, 并将这些变量与餐厅的品牌满意度、形象和忠诚度相关联。

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研究设计/方法/途径 – 本研究设计了一项调查,并收集了来自厄瓜多尔交付应用程序用户的332份回复。应用PLS结构方程模型。

研究发现 – OFD满意度的三个拟议决定因素非常重要:电子服务质量、送货员的个人方面和感知的食品质量。关于溢出效应,电子服务质量和个人方面对感知食品质量有影响,调节对餐厅品牌满意度、形象和忠诚度的连锁影响。

研究局限性/影响 – 本研究数据是在 COVID-19 之前收集。由于预计送货员和顾客之间的接触最少,因此需要在 COVID-19 大流行的背景下进行进一步研究。此外,食品质量认知可能包括生物安全规范的新担忧。

实践意义 – 本研究建议采取旨在改善 OFD 服务体验的做法,包括适当的培训、监督和改善送货工人的条件。另一方面,由于餐厅不控制 OFD 的绩效,因此他们的合同协议应着重于避免服务失败而损害餐厅的品牌资产。

研究原创性/价值 – 本文满足了研究协作经济背景下溢出效应的需要,在这种情况下,送货公司、送货工人和餐馆共同提供服务,其中一方的表现会影响消费者的对方的看法。

关键词 关键词 在线送餐供应商、电子服务质量、个人方面、感知食品质量、餐厅品牌资产

文章类型 研究型论文

1. Introduction

Since the increase in online sales and connectivity worldwide, delivery services have gained great attention. In the USA, e-commerce, as a percentage of retail sales, has almost tripled in the past 10 years, reaching 14% in 2020 (U.S. Census Bureau, 2021). The rapid increase in connections has given immediacy and convenience a more prominent role among consumers, who can now order services and products, such as food, digitally (Euromonitor, 2019). Some studies report that the food ordering and delivery segment has emerged as the leader in instant delivery in the USA (Netzer *et al.*, 2017) and Europe (Dablanc *et al.*, 2017). By the end of 2022, online food delivery revenues were estimated at \$323.3bn worldwide, with an expected cumulative growth of 44.2% through 2027, where the platform-to-consumer delivery segment would have the largest share (65%) (Statista, 2022). Some restaurants deliver their products with their own employees, and others make it through crowdsourced delivery, where independent people use their available resources – time and means of transportation – to complement the provision of the service, connected by an online delivery provider (OFD), such as Uber Eats or Glovo.

OFDs provide order services, payment, monitoring of the process and delivery, but they are not responsible for food preparation. OFDs have been inserted in the restaurant value chain, controlling most aspects of delivery, with the consequent appropriation of knowledge about consumer preferences (Rivera, 2019). However, restaurants have little control over OFD's performance, which raises an interesting question. Which effects could the performance of OFDs have on restaurant brands? From the customers' point of view, OFDs should be assessed based on their own experiences interacting with the platform and the delivery workers because the latter is recognized as one of the main factors of service evaluation (Wall and Berry, 2007; Voon *et al.*, 2013; Alhelalat *et al.*, 2017) without being sufficiently analyzed in OFDs. In this regard, a survey revealed that:

- for most U.S. consumers, retailers are responsible for choosing a delivery partner that represents their brand and customer service values; and
- a significant percentage of respondents (up to 79%) would not purchase from a retailer again due to delivery failures or unprofessional delivery workers (Dropoff, 2018).

Therefore, restaurant brand managers need to be aware of the risks faced in this collaborative context because the eventual failures of delivery partners may cause brand dilution (Loken and John, 2010).

Existing literature about the OFD segment is scarce and still developing (Shankar *et al.*, 2022). Therefore, analyzing the trade-offs from the collaboration between OFDs and restaurants is a valuable research field that would give restaurant managers more comprehensive knowledge about the determinants of customers' perceptions and attitudes in this novel context (Rivera, 2019). Based on these antecedents, this study aims:

- to analyze the effect of three proposed determinants: e-service quality (e-SQ), personal aspects of delivery workers and perceived food quality (PFQ) on customer satisfaction with OFD; and
- to determine whether these determinants affect restaurant brand satisfaction and brand equity outcomes.

Previous works have focused on the attitudes toward OFDs (Cho *et al.*, 2019; Yeo *et al.*, 2017), intention to use (Okumus *et al.*, 2018; Yeo *et al.*, 2017), adoption (Okumus and Bilgihan, 2014), choice (Saad, 2021) and the association between mobile food app attributes and final conversion (Kapoor and Vij, 2018). However, these studies examined the preconsumption stage. Our study instead analyzes customers who have already adopted OFDs, placed orders and consumed the food, further focusing on customer satisfaction with OFDs (e-satisfaction) and restaurants. Thus, motivations or precursors for adopting OFDs are not part of our research.

Regarding e-satisfaction, Wang *et al.* (2019) analyzed determinants from information systems and marketing mix, but only in same-restaurant apps. In addition, Alalwan (2020) incorporated detailed functional aspects of the OFD, while Suhartanto *et al.* (2019) and Annaraud and Berezina (2020) examined e-SQ and food quality as determinants of e-satisfaction. In contrast, our study includes personal aspects as a proposed determinant of OFD satisfaction, similar to the reliability dimension of the service quality scale for OFDs presented by Cheng *et al.* (2021). Moreover, our work differentiates itself from previous studies on OFD satisfaction by analyzing the eventual spillover effects on restaurant outcomes. Dirsehan and Cankat (2021) explored the relationship between OFD satisfaction and restaurant satisfaction and loyalty; however, our study separately analyzes the effects of the three proposed determinants on restaurant outcomes, providing a more complete picture of the phenomenon. Therefore, we have taken a marketing perspective to address this research problem, integrating e-service, satisfaction spillover and brand equity literature within a more comprehensive model.

Section 2 of the study presents the theoretical framework, followed by the proposed conceptual model and hypotheses development. Section 3 describes the applied methodology. Section 4 shows the results, and finally, Section 5 discusses the research findings and shows the conclusions.

2. Theoretical framework and hypotheses

Customer evaluation of service in electronic contexts has been theoretically described based on the Means-End-Chain (MEC) theory (Parasuraman *et al.*, 2005; Fassnacht and Koese, 2006). MEC is a cognitive model that allows understanding consumer behavior by proposing that services or products are acquired as a means to achieve consumer ends or values. Product/service attributes are evaluated according to the consumer's perceived consequences and experiences, which leads to the achievement of goals or values (Olson and Reynolds, 2001). The concept of e-SQ was coined to refer to the customer's assessment of the quality of services provided in electronic contexts. This evaluation brings consequences at the level of the consumer's mind, such as satisfaction and perceived value, which trigger intentions and behaviors (Parasuraman *et al.*, 2005; Blut *et al.*, 2015).

However, the concept of e-SQ is insufficient to assess the OFD service because there are other meeting points beyond the consumers' interaction with the electronic app. Figure 1 depicts the service encounter for the OFD service, which also includes consumer interaction with delivery workers and the consumption of delivered food. Following *Blut et al.'s (2015)* conceptual framework, also rooted in MEC theory, customer satisfaction is an immediate outcome of service evaluation. Considering that two brands collaborate in the service provision (OFD and restaurant), we study the effects of three proposed determinants (e-SQ, personal aspects of delivery workers and PFQ) not only on OFD satisfaction but also on restaurant brand satisfaction and brand equity outcomes. Both this delimitation and description of the online food delivery service are necessary to propose a model that comprehensively evaluates the OFD service itself and its effects on restaurant brands.

To meet the two research objectives, some theories should be incorporated to describe the possible transmission of effects in the consumer's mind from one brand to another and to explain the impact on restaurants' brand equity outcomes, such as brand image and brand loyalty.

Satisfaction spillover theory mainly focuses on how satisfaction with one object or life domain can "spill over" other related objects or domains (*Brady, 1980; Sirgy et al., 2001; Ilies et al., 2009*). This theory has been used in several fields to explain the relationship between the satisfaction of neighboring or sub/supra-domains. For example, evidence of spillover effects has been found from job satisfaction to career satisfaction among physician assistants (*Brady, 1980*), from job satisfaction to daily marital satisfaction at home (*Ilies et al., 2009*), from employee perception of corporate social responsibility to job satisfaction and overall quality of life (*Kim et al., 2018*) and from employees IT satisfaction to job satisfaction (*Wang et al., 2020*). In the marketing field, *Loken and John (2010)* reported spillover effects in inconsistent brand extensions, and in brand alliances when the negative behavior of one brand spills over the other brand. *Schumann et al. (2014)* established that service failure by one program partner within coalition loyalty programs negatively impacts customer loyalty toward the whole program. Based on this framework, it is expected that the experience with one phase of the OFD service could affect customers' perception regarding other phases and the entire experience.

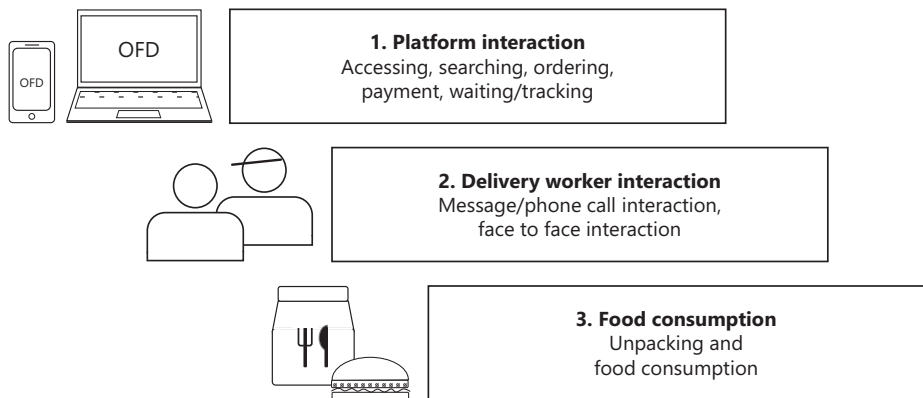


Figure 1.
Components of
service encounter in
the ODP context

Source: Authors' own creation

The customer-based brand equity literature can explain how consumers' exposure to the different stages of the service encounter affects the restaurant brand. Brand equity is defined as a perception of added value that a brand gives a product or service compared to the same unbranded product/service (Aaker, 1991; Keller, 1993; Davcik *et al.*, 2015). Brand equity has a cognitive and affective basis in the customer's mind, making brand image a concept of primary importance for building brand equity (Aaker, 1991; Keller, 1993). Brand image is the consumer perception of a brand supported by a broad set of brand associations regarding product attributes (e.g. food quality), benefits, sensations and experiences, which can vary in strength, favorability and distinctiveness (Aaker, 1991; Keller, 1993). It describes how consumers think and feel about a brand and is developed by satisfactory or unsatisfactory experiences (Ansary and Hashim, 2018).

Within brand equity literature, brand loyalty is recognized as an attitudinal or behavioral construct representing the extent to which the consumer is attached to the brand (Aaker, 1991). Oliver (1999) distinguishes two conceptualizations for loyalty: behavioral, related to repeated purchases, and psychological, associated with the commitment to consume brand products (Oliver, 1999) or the intention to select the brand as the first choice (Yoo and Donthu, 2001). Jacoby and Chestnut (1978) suggest studying "true" brand loyalty (psychological), arguing that the behavioral conceptualization could be invalid due to casual purchases, preference for convenience or seemingly inconsistent purchases when consumers are multibrand loyal. This study uses the psychological conceptualization of loyalty, consistent with several previous studies (Yoo and Donthu, 2001; Martínez *et al.*, 2009; Buil *et al.*, 2013). According to this framework, loyalty is supported by the belief that a brand is preferred over its competitors based on attribute information; reflects liking and positive attitudes toward the brand; and is consolidated from cumulatively satisfying usage occasions or experiences (Oliver, 1999).

2.1 Online food delivery provider satisfaction and e-service variables

OFD satisfaction is an overall assessment of OFD service performance compared to prior expectations (Suhartanto *et al.*, 2019). Adapting previous definitions (Parasuraman *et al.*, 2005) to the OFD context, we propose that e-SQ is the extent to which an OFD facilitates efficient and effective searching, purchasing and delivery of products and services. e-SQ can be broken down into four perceptual dimensions (Parasuraman *et al.*, 2005): *efficiency*, the ease and speed of accessing and using the site; *fulfillment*, the extent to which the site's promises about delivery and item availability are fulfilled; *system availability*, the correct technical functioning of the site; and *privacy*, the degree to which the site is safe and protects customer information. Perceptual-level attributes are preferred over concrete technical/design aspects influencing e-SQ evaluation because the formers are more enduring evaluative elements that do not change as fast as technological features (Parasuraman *et al.*, 2005). Also, not all customers might be capable of evaluating design/technological features. In line with the MEC theory, which emphasizes customer experience in owning or using a product or service, perceptual attributes are more experiential than technical and, therefore, are more suitable to this theoretical framework. We also include delivery time as an element of particular importance for OFDs and restaurants. Faster delivery time is an attribute desired by consumers (Dropoff, 2018) and contributes to the OFD's value proposition (Netzer *et al.*, 2017).

It has been demonstrated that e-SQ positively influences customer satisfaction in online settings (Jeon and Jeong, 2017; Suhartanto *et al.*, 2019; Annaraud and Berezina, 2020). Furthermore, specific characteristics such as OFD's design, trustworthiness and variety of food options have significantly explained perceived value and attitudes toward OFDs (Aslam *et al.*, 2021). Cheng *et al.* (2021) also assert that system operation, order traceability

and timely and accurate order fulfillment positively impact customer satisfaction with OFDs. Therefore, the following hypothesis is proposed:

H1. E-service quality positively influences satisfaction with OFDs.

Delivery workers' personal aspects include neat and tidy appearance, personal hygiene, smile, friendliness, entertaining behavior, comfortable manners, politeness, linguistic skills and overall cordiality (Alhelalat *et al.*, 2017). It is recognized that service providers' look is a tool that shapes the brand value proposition and differentiates it from competitors by influencing consumers' feelings, attitudes and behaviors (Pounders *et al.*, 2015). Restaurant employees–customers interaction is crucial in evaluating service quality (Kim, 2014) and experience (Wall and Berry, 2007). Some studies show that service staff's personal aspects more significantly contribute to customer satisfaction with restaurants than other service aspects (Alhelalat *et al.*, 2017; Wall and Berry, 2007; Voon *et al.*, 2013). In the USA, 75% of consumers agree that the professionalism of the delivery worker is important, and 70% of them consider that when the delivery worker is dressed in uniform, their trust in the service increases (Dropoff, 2018). It has been argued and demonstrated that the appearance and behavior of frontline staff influence customer satisfaction in the food industry (Alhelalat *et al.*, 2017; Jang and Namkung, 2009; Wall and Berry, 2007). Saad (2021) found that the attitude of delivery workers is a relevant factor in choosing an OFD in Bangladesh. Also, Cheng *et al.* (2021) included a reliability dimension in the proposed service quality scale for OFDs related to the appearance and behavior of delivery workers, showing a positive relationship with customer satisfaction. Hence, the following hypothesis is formulated:

H2. Personal aspects positively influence satisfaction with OFDs.

Perceived quality is one of the main drivers of brand equity (Davicik *et al.*, 2015), defined as the overall perception of excellence or superiority of a brand over its competitors (Aaker, 1991). We refer to food quality as the overall performance of food to fulfill customer needs (Suhartanto *et al.*, 2019), comprising several factors: menu variety, presentation, size, healthiness, taste, freshness and food temperature. Furthermore, there is evidence that PFQ influences satisfaction with OFDs (Suhartanto *et al.*, 2019; Annaraud and Berezina, 2020), even though the restaurant brand provides the food. Therefore, the following hypothesis is proposed:

H3. Perceived food quality positively influences satisfaction with OFDs.

2.2 Online food delivery providers' performance, food quality and restaurants' brand satisfaction

According to the spillover theory, satisfaction in one area of life may influence satisfaction in other aspects (Sirgy *et al.*, 2001). In the context of this study, customers' experiences in the initial or middle phases of the service encounter could affect their perception of the final stage (consumption) because customers likely incorporate information (good or bad experience) about one phase into their appraisal of other phases and the entire process. Based on this framework, Suhartanto *et al.* (2019) evidenced a spillover effect from e-SQ to PFQ, as we argue could also occur from delivery workers' personal aspects to PFQ. In addition, satisfaction with the restaurant brand, conceptualized as an overall assessment, could also be influenced by the interaction experienced with the platform and the delivery workers. Therefore, we formulate these hypotheses:

H4. E-service quality positively influences perceived food quality.

- H5. Personal aspects positively influence perceived food quality.
- H6. E-service quality positively influences restaurants' brand satisfaction.
- H7. Personal aspects positively influence restaurants' brand satisfaction.

Because satisfaction is a subjective assessment of product or service performance concerning prior expectations, PFQ should be essential in customer satisfaction with the restaurant brand. Several studies have shown that food quality affects customer experience (Liu *et al.*, 2017) and satisfaction (Han and Hyun, 2017; Namin, 2017; Namkung and Jang, 2007) in the restaurant industry. Therefore, we pose the following hypothesis:

- H8. Perceived food quality positively influences restaurants' brand satisfaction.

2.3 Impact on restaurants' brand equity variables

Brand image was conceptualized as the consumer perception of a brand supported by a broad set of brand associations regarding product attributes (e.g. food quality), benefits, sensations and experiences, which can vary in strength, favorability and distinctiveness (Aaker, 1991; Keller, 1993). Etemad-Sajadi and Rizzuto (2013) explain that service quality influences restaurant brand image because image development is primarily experience-based; therefore, positive or negative disconfirmation may strengthen or weaken consumers' impression of the brand. In the OFD setting, we propose that PFQ and satisfaction with the restaurant brand should influence postconsumption image development. Thus, the following hypotheses are presented:

- H9. Perceived food quality positively influences restaurant brand image.
- H10. Satisfaction with the restaurant brand positively influences its brand image.

We also hypothesize that the experience with the other aspects of service, i.e. e-SQ and personal aspects, could directly affect restaurant brand image. According to the associative network theory, which is the base for brand equity literature, the information in the consumer's memory is stored in networks consisting of nodes (e.g. restaurant brand and its distinctive aspects) connected by links (Teichert and Schöntag, 2010). Associations could be attached to or modify an existing network by a triggering experience. Based on this theory, we propose that the sequential aspects of the whole service experience (interaction with platform and delivery workers, food unpacking and consumption) would confirm, add to, or modify some associations within the brand network either positively or negatively. Therefore, we propose these hypotheses:

- H11. E-service quality positively influences restaurant brand image.
- H12. Personal aspects positively influence restaurant brand image.

Regarding brand loyalty, we adopt the psychological definition as the long-term commitment to repurchase or repatronize a brand, involving favorable attitudes (Martinez *et al.*, 2009). As an attitudinal construct, loyalty depends on the evaluative judgment and the strength of beliefs about the brand (Keller, 1993). A positive and strong brand image contributes to achieving a competitive advantage in the market, allowing brand differentiation in the consumer's mind and triggering positive attitudes and behaviors toward the brand (Aaker, 1991; Keller, 1993; Buil *et al.*, 2013). As brand image improves and customer satisfaction increases, we can suggest that consumers are more likely to choose a

brand over its competitors and repeat this behavior in the future. [Ansary and Hashim \(2018\)](#) demonstrated that brand image positively affects brand attachment and attitudes. [Macias and Cerviño \(2018\)](#) found that the strength and favorable content of brand associations contribute to more brand loyalty. Moreover, the positive influence of brand image and customer satisfaction on loyalty to fast-food restaurants has been proven ([Etemad-Sajadi and Rizzuto, 2013](#); [Liu et al., 2017](#)). Thus, we pose the following hypotheses:

H13. Restaurant brand image is positively associated with loyalty.

H14. Satisfaction with the restaurant brand is positively associated with loyalty.

The previous hypotheses are illustrated in [Figure 2](#).

3. Methodology

3.1 Procedures and respondents

An unrestricted self-selective internet-based survey ([Fricker, 2008](#)) was used in the present study. This convenience sampling is justified considering the limitation to determining the sampling frame, given that there was no access to OFD databases and that OFD users are people with internet connectivity. Data were collected in February 2020 in Ecuador. Respondents used an OFD for ordering food within the 15 days before the survey.

3.2 Measurement

The scale of e-SQ was adopted from [Suhartanto et al. \(2019\)](#) and [Ryu et al. \(2012\)](#), suiting [Parasuraman et al.'s \(2005\)](#) conceptualization. The personal aspects factor was measured with [Alhelalat et al.'s \(2017\)](#) scale. The PFQ scale was based on [Ryu et al. \(2012\)](#) and included one item on food temperature from [Namkung and Jang \(2007\)](#). OFD and restaurant brand satisfaction (e-SAT, BSAT) were measured with scales from [Möhlmann \(2015\)](#) and [Ryu et al. \(2012\)](#), respectively. [Martínez et al. \(2009\)](#) provided the scales for restaurant brand image (IMA) and loyalty (LOY). Previous overall brand image was included as a control variable (single item based on [Chang and Liu, 2009](#)) for restaurant brand image. All items were measured on five-point Likert scales (ranging from 1 = strongly disagree to 5 = strongly agree) ([Table 2](#)).

First, items were translated from English to Spanish. Then, three experts in the field of research systematically judged whether each item contributed to the measurement of its construct and that no aspect of the domain was overlooked. Based on the experts' feedback and after a pilot study ($n = 18$) aimed to check respondents' understanding of the

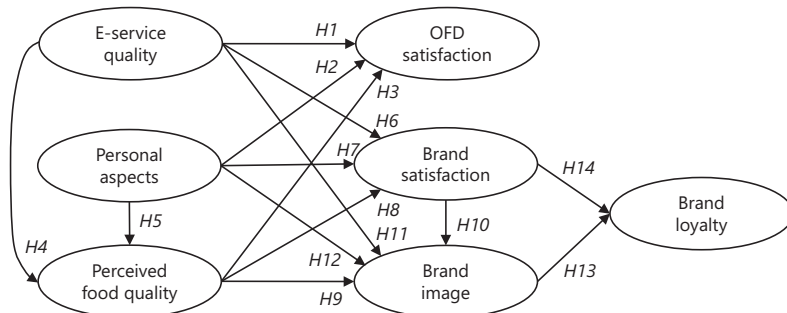


Figure 2.
Conceptual model

Source: Authors' own creation

terminology used in the questionnaire, we made slight modifications to the initial version. Finally, the questionnaire was back-translated, and we found a high level of coincidence with the original English version of the items.

3.3 Evaluation of common method and social desirability biases

According to Podsakoff *et al.* (2003), a potential for common method bias (CMB) could be assessed because the measurements share the variance of the method. We carried out Harman's one-factor test, finding that the total variance explained by the single factor is 37.56%, which suggests a low risk of CMB (Podsakoff *et al.*, 2003). The social desirability bias (SDB) occurs when subjects change their answers for (a) impression management, IM (to look better to others), (b) self-deception, SD (to feel good about themselves) or (c) identity definition, ID (Larson, 2019). The variables in this study are not related to IM, SD or ID strategies. The SDB in surveys can be reduced by increasing survey anonymity, decreasing respondents' concerns about the risks of truthfulness, raising awareness of the importance of the study and reducing interviewer bias (Krumpal, 2013; Wheeler *et al.*, 2019). Because these recommendations were considered in this research's design, we argue that the probability of SDB is minimal.

3.4 Data analysis

Structural equation modeling (SEM) was conducted by partial least squares (PLS) methods with SmartPLS (Ringle *et al.*, 2015) to test the proposed model. PLS-SEM is suitable when the researcher aims to explore a new theory rather than confirming established theoretical models in complex models with many indicators and relationships, nonnormal data or small sample sizes (Hair *et al.*, 2017). The measurement model was assessed by analyzing the reliability, convergent and discriminant validity of the constructs.

4. Results

The final sample size reached 332 observations. Table 1 shows the descriptive statistics. The most used OFD among respondents was Glovo (55.4%), and most orders were placed in McDonald's (18.4%).

4.1 Measurement model

Construct reliability was assessed with Cronbach's alpha and composite reliability (CR). Both indicators exceeded the 0.7 thresholds (Hair *et al.*, 2017). The average variance extracted (AVE) for all the constructs was greater than 0.50 (Hair *et al.*, 2017), showing convergent validity. Some items with low factor loadings were removed to meet this criterion, carefully ensuring not to affect content validity. For discriminant validity, the square root of the AVE was greater than its correlation with any other construct (Hair *et al.*, 2017), and the heterotrait–monotrait ratios were below the maximum threshold of 0.9 (Henseler *et al.*, 2015), after removing one item from LOY with high correlations with IMA items. Finally, all standardized factor loadings were significant. Tables 2–4 show these findings.

4.2 Structural model

Variance inflation factors were lower than 5, showing no multicollinearity problems (Hair *et al.*, 2017). The PLS-SEM procedure used 5,000 bootstrap samples, as recommended by Hair *et al.* (2017). Table 5 reports path coefficients and significance tests. E-SQ, PASP and PFQ were significant determinants of e-SAT, supporting H1, H2 and H3. E-SQ and PASP

Variables	<i>N</i>	%
<i>Gender</i>		
Female	180	54.2
Male	151	45.5
Other	1	0.3
<i>Education</i>		
Primary school	2	0.6
Secondary education	112	33.7
Tertiary (bachelor's degree)	124	37.3
Tertiary (graduate)	94	28.3
<i>Monthly household income</i>		
\$400 or less	26	7.8
\$401–\$700	41	12.3
\$701–\$1200	77	23.2
\$1201–\$2500	87	26.2
\$2501–\$4800	62	18.7
More than \$4800	39	11.7
<i>Age</i>		
Mean		29.62
Median		27
Std. deviation		9.45
<i>Most used OFDs</i>		
Glovo	184	55.4
Uber Eats	103	31.0
Rappi	10	3.0
Others	35	10.5
<i>Most bought brands</i>		
McDonald's	61	18.4
KFC	24	7.2
Domino's Pizza	13	3.9
Others (120+ brands)	234	70.5

Table 1.
Profile of the
respondents

Source: Authors' own creation

showed spillover effects on PFQ, supporting *H4* and *H5*. Another significant direct spillover effect was from e-SQ on BSAT (*H6*). BSAT was also influenced by PFQ (*H8*) but not by PASP (*H7* not supported). None of the service components showed a significant direct influence over IMA (*H9*, *H11* and *H12*, not supported); however, a positive and significant relation with BSAT was found (*H10*). IMA and BSAT had significant effects on LOY, providing evidence for *H13* and *H14*, respectively. Finally, the control variable was significant.

The in-sample predictive power was assessed with the coefficient of determination (R^2) of every endogenous variable in the model, ranging from 0.356 to 0.554 and indicating moderate to substantial power. Almost all statistically significant relationships showed meaningful effect sizes ($f^2 \geq 0.02$), except the direct relation between e-SQ and BSAT ($f^2 < 0.02$). On the other hand, some of the relationships showed medium ($0.15 \leq f^2 < 0.35$) or large ($f^2 \geq 0.35$) effect sizes (Hair *et al.*, 2017). The greatest effects were evidenced in the relationships between IMA \rightarrow LOY and PFQ \rightarrow BSAT. The predictive

Constructs and items	Factor loading	Cronbach's α	CR	AVE
<i>E-service quality (e-SQ) (Subhartanto et al., 2019; Ryu et al., 2012)</i>				
esq1 In the app, I can easily find what I need	0.763	0.880	0.905	0.545
esq2 The app makes it easy to get anything	0.747			
esq3 The app is easy to use	0.778			
esq4 Whenever I need, I can access the app	0.736			
esq5 The app launches straight away	0.746			
esq6 The app accurately informs the delivery time and conditions	0.748			
esq7 The payment information is safe in this app	0.698			
esq8 The ordered products were delivered within the estimated time	0.685			
<i>Personal aspects (PASP) (Alhelalat et al., 2017)</i>				
pas1 The delivery worker had a clean and well-kept physical appearance	0.783	0.916	0.934	0.704
pas2 The delivery worker's clothes looked clean and tidy	0.765			
pas3 The delivery worker showed friendly facial expressions	0.859			
pas4 The delivery worker expressed himself in a friendly and warm way	0.889			
pas5 The delivery worker expressed himself courteously and respectfully	0.849			
pas6 Overall, the attitude of the delivery worker was cordial	0.881			
<i>Perceived food quality (PFQ) (Ryu et al., 2012; Namkung and Jang, 2007)</i>				
pfq1 The food was delicious	0.853	0.886	0.914	0.638
pfq2 [Brand] offered a variety of menu items	0.754			
pfq3 [Brand] offered freshly prepared food	0.834			
pfq4 The food was properly packed	0.779			
pfq5 I received the food at the appropriate temperature	0.767			
pfq6 The smell of the food was tempting	0.802			
<i>OFD satisfaction (e-SAT) (Möhlmann, 2015)</i>				
esa1 Overall, I am satisfied with the app	0.925	0.870	0.920	0.794
esa2 The last time I used the app it met my expectations	0.883			
esa3 The app used represents the ideal version of an app to order food online	0.864			
<i>Restaurant brand satisfaction (BSAT) (Ryu et al., 2012)</i>				
bsa1 I am very satisfied with my overall consumption experience of [Brand]	0.916	0.907	0.941	0.843
bsa2 In general, consuming [Brand] puts me in a good mood	0.907			
bsa3 I really enjoyed consuming [Brand]	0.931			

(continued)

Table 2.
Items, factor loadings, reliability and convergent validity

Table 2.

Constructs and items	Factor loading	Cronbach's α	CR	AVE
<i>Restaurant brand image (IMA)</i> (Martinez et al., 2009)		0.876	0.906	0.617
ima1 The products and service of [Brand] have high quality	0.781			
ima2 The products and service of [Brand] have better features than competitors'	0.806			
ima3 [Brand] is a brand that arouses sympathy	0.813			
ima4 [Brand] conveys a personality that differentiates it from competing brands	0.743			
ima5 [Brand] is a brand that does not disappoint its customers	0.776			
ima6 [Brand] is one of the best brands in the sector	0.794			
<i>Loyalty toward restaurant brand (LOY)</i> (Martinez et al., 2009)		0.831	0.922	0.856
loy1 I consider myself to be loyal to [Brand]	0.928			
loy2 [Brand] would be my first choice	0.922			
<i>Overall previous brand image (PBI)</i> (Chang and Liu, 2009)				
pbi1 Before ordering the food through the app, the overall image that I had about [Brand] was fine				

Source: Authors' own creation

out-of-sample relevance (Q^2) for all the endogenous constructs obtained with the blindfolding procedure resulted in values larger than 0, indicating predictive relevance (Hair *et al.*, 2017). Table 6 shows the values for R^2 , f^2 and Q^2 . Although some direct spillover relations were not significant, further analysis revealed significant total effects, which account for the sum of direct effects and total indirect effects (Hair *et al.*, 2017), from e-SQ and PASP over BSAT, IMA and LOY, due to the existence of several mediating relationships in the model (Table 7). Based on all these criteria, the suggested model had a good performance.

5. Discussion and conclusions

5.1 Discussion

Reports show the increasing adoption of OFD services worldwide and project significant growth rates in the future (Statista, 2022). The COVID-19 pandemic further accelerated this adoption process, fostering OFD activity due to capacity restrictions for restaurants and consumers' concerns about getting infected in enclosed places (Euromonitor, 2020). Despite the growth of this market, several academics sustain that only a few works have focused on the consumers of OFDs could impact restaurants (Dirsehan and Cankat, 2021). The fact that restaurants control little or nothing about the performance of OFDs (digital platforms and delivery workers) represents a risk if this performance affects restaurant brands. Therefore, in this paper, we proposed a model to assess the effect of satisfaction determinants of OFD on restaurants' brand equity variables (spillover effects).

Constructs	e-SQ	PASP	PFQ	e-SAT	BSAT	IMA	LOY
e-SQ	0.738						
PASP	0.461	0.839					
PFQ	0.513	0.507	0.799				
e-SAT	0.623	0.493	0.570	0.891			
BSAT	0.464	0.439	0.728	0.555	0.918		
IMA	0.391	0.322	0.544	0.326	0.658	0.786	
LOY	0.236	0.210	0.383	0.232	0.585	0.732	0.925

Note: Square root of AVE on the diagonal

Source: Authors' own creation

Table 3.
Correlation matrix

Constructs	e-SQ	PASP	PFQ	e-SAT	BSAT	IMA	LOY
e-SQ							
PASP	0.506						
PFQ	0.582	0.557					
e-SAT	0.708	0.545	0.647				
BSAT	0.520	0.476	0.805	0.625			
IMA	0.443	0.357	0.608	0.371	0.735		
LOY	0.274	0.240	0.440	0.272	0.673	0.858	

Source: Authors' own creation

Table 4.
Heterotrait–
monotrait ratio

Hypotheses	Path coefficient	SD	Bootstrapping <i>t</i>	<i>p</i> -value	
<i>H1</i>	e-SQ → e-SAT	0.403	0.054	7.417	<i>0.000</i>
<i>H2</i>	PASP → e-SAT	0.166	0.057	2.928	<i>0.003</i>
<i>H3</i>	PFQ → e-SAT	0.279	0.061	4.590	<i>0.000</i>
<i>H4</i>	e-SQ → PFQ	0.355	0.057	6.260	<i>0.000</i>
<i>H5</i>	PASP → PFQ	0.343	0.058	5.890	<i>0.000</i>
<i>H6</i>	e-SQ → BSAT	0.105	0.051	2.087	<i>0.037</i>
<i>H7</i>	PASP → BSAT	0.067	0.055	1.216	0.224
<i>H8</i>	PFQ → BSAT	0.640	0.054	11.812	<i>0.000</i>
<i>H9</i>	PFQ → IMA	0.113	0.083	1.355	0.176
<i>H10</i>	BSAT → IMA	0.408	0.083	4.932	<i>0.000</i>
<i>H11</i>	e-SQ → IMA	0.039	0.062	0.637	0.524
<i>H12</i>	PASP → IMA	-0.015	0.059	0.262	0.793
<i>H13</i>	IMA → LOY	0.612	0.055	11.204	<i>0.000</i>
<i>H14</i>	BSAT → LOY	0.182	0.059	3.101	<i>0.002</i>
Control	PBI → IMA	0.267	0.071	3.742	<i>0.000</i>

Table 5.
Path coefficients for
the structural model

Note: *p*-values below 0.05 are given in italics
Source: Authors' own creation

Criteria	PFQ	E-SAT	BSAT	IMA	LOY
<i>R</i> ²	0.356	0.492	0.544	0.492	0.554
<i>R</i> ² adj	0.352	0.487	0.539	0.484	0.551
<i>Q</i> ²	0.224	0.378	0.451	0.298	0.466
<i>f</i> ²					
e-SQ	0.154	0.219	0.017	0.002	
PASP	0.144	0.037	0.007	0.000	
PFQ		0.099	0.577	0.010	
BSAT				0.126	0.042
IMA					0.476
PBI				0.088	

Table 6.
*R*², *f*² and *Q*²

Source: Authors' own creation

Relation	Total effect	SD	Bootstrapping <i>t</i>	<i>p</i> -value
e-SQ → BSAT	0.333	0.055	6.003	<i>0.000</i>
PASP → BSAT	0.286	0.058	4.915	<i>0.000</i>
e-SQ → IMA	0.215	0.062	3.489	<i>0.000</i>
PASP → IMA	0.140	0.059	2.366	<i>0.018</i>
e-SQ → LOY	0.192	0.043	4.463	<i>0.000</i>
PASP → LOY	0.138	0.042	3.290	<i>0.001</i>

Table 7.
Total effects on
spillover
relationships

Note: *p*-values below 0.05 are given in italics
Source: Authors' own creation

Our results show that OFD satisfaction is influenced by e-SQ, food quality and personal aspects, being e-SQ the most salient factor. Accordingly, previous research has found that the quality of restaurant apps (Wang *et al.*, 2019), OFDs (Alalwan, 2020; Cheng *et al.*, 2021; Suhartanto *et al.*, 2019; Annaraud and Berezina, 2020), food quality (Suhartanto *et al.*, 2019; Annaraud and Berezina, 2020) and the reliability dimension from Cheng *et al.*'s (2021) scale, related to the appearance and behavior of the delivery workers, positively influence e-satisfaction.

Regarding spillover effects, e-SQ and personal aspects influence how customers perceive food quality, and e-SQ affects satisfaction with restaurant brands. Other hypothesized spillover direct effects were not significant; however, indirect effects from e-SQ to restaurant brand image and loyalty and from personal aspects to brand satisfaction, image and loyalty were evidenced by the analysis of total effects. Previous studies have shown evidence of spillover effects in several fields (Schumann *et al.*, 2014; Loken and John, 2010; Kim *et al.*, 2018), including the impact of e-SQ on PFQ in the OFD context (Suhartanto *et al.*, 2019). Our results provide new evidence that the two determinants controlled by the OFD (e-SQ and personal aspects) produce spillover effects on restaurants' brand equity variables. The chain of effects is supported by the significant relationships between PFQ and restaurant brand satisfaction, brand satisfaction and brand image, and brand satisfaction and image on loyalty, which align with previous evidence on brand equity in the restaurant industry (Etemad-Sajadi and Rizzuto, 2013; Gallarza-Granizo *et al.*, 2019; Liu *et al.*, 2017).

5.2 Theoretical contributions

These results add to the rapidly growing field of OFD from a customer satisfaction and brand equity perspective. As a first contribution, our study proposed and demonstrated that delivery workers' personal aspects is an independent and significant determinant of OFD satisfaction, consistent with several studies showing the importance of frontline staff's personal aspects as contributors to satisfactory customer experiences. Many of these studies even found that personal aspects are more relevant than other service factors (Alhelalat *et al.*, 2017; Voon *et al.*, 2013; Wall and Berry, 2007). However, customer interaction with delivery workers in the OFD setting is more limited than in other types of services, which can explain why personal aspects was not the primary factor.

The second contribution is related to the spillover effects of OFD on restaurant brands. Prior to this work, no study had shown how the main aspects of the OFD service, such as e-SQ and personal aspects, could affect restaurants' brand equity variables. To meet this purpose, our study used a theoretical framework that combined service quality literature, spillover theory and brand equity literature in an emerging context, such as the OFD service. As pointed out by Rivera (2019), there was a need to investigate the dynamics of the relationship between the OFD, the consumer and the restaurant, to gain a deep understanding of the effects that OFDs' performance may have on restaurant brands. Therefore, our work filled a gap in the literature, showing that from a consumer perspective, a service failure by the OFD affects the aggregate experience, mining consumer satisfaction with the restaurant, its brand image and consumer loyalty.

Finally, our work sheds light on this issue in a developing country where the revenues and penetration of OFD are growing consistently and are expected to continue with such a tendency (Mentinno, 2021).

5.3 Practical implications

More restaurants are migrating to the online ordering model. Some are offering their service solely through delivery (cloud kitchens), and more apps are emerging (Dishman, 2020).

However, this growth comes along with challenges for OFDs and restaurants. For [Williams et al. \(2020\)](#), complaints about the delivery service are presented in various aspects, such as app use, interaction with delivery workers and food delivered at inappropriate temperatures or conditions.

Our results demonstrate that OFD satisfaction is driven by several factors, such as platform quality, timely and accurate delivery, personal aspects of delivery workers and PFQ. Therefore, platforms must be easy to use, allowing customers to quickly find restaurants and food categories, make comparisons based on desired attributes, protect their personal information, rely on an efficient ordering and payment system and accurately track the order during delivery. In addition, OFDs must comply with promised delivery time. This factor also influences the PFQ because the temperature or conditions of delivered food could turn inappropriate if the delivery time exceeds a given threshold. Finally, a good service recovery policy is very appreciated by customers in case of service failures by OFDs ([Aslam et al., 2021](#); [Williams et al., 2020](#)).

Regarding personal aspects, customers evaluate delivery workers' physical appearance and friendliness when interacting by chat or telephone as part of their experience with the OFD. In the times of COVID-19, we consider that digital interaction would be more relevant than physical appearance because minimal physical contact is expected between customers and delivery workers. Therefore, we suggest OFDs train delivery workers with interaction skills to approach customers, open a better communication channel with them and supervise the fulfillment of their obligations, such as carefully handling packages, adhering to designated routes and complying with delivery time and hygiene standards. On the other hand, previous studies have evidenced delivery workers' unsafe working conditions, underpayment, excessive working hours or multi-apping practices to reach a sufficient income ([Figueroa et al., 2021](#)). Thus, OFD companies should seriously consider improving delivery workers' current conditions to foster their working motivation, responsible behavior toward consumers and general performance.

Considering the current consumers' concerns about COVID-19, such as the implementation of hygiene standards in food preparation ([Mehroliya et al., 2021](#)), restaurants must communicate their biosafety measures to their clients to improve their perceived image. Likewise, restaurants should design packaging that, in addition to reflecting brand image, conveys a sense of cleanliness. They should also instruct delivery drivers on properly handling the packaged food they transport to minimize problems of mistreated packaging. The spillover effects evidenced in this work should encourage restaurant managers or restaurant associations to design collaboration terms that align the performance of the OFDs with restaurants' brand image and to conduct a more careful search for partners. In this sense, they must ponder between being present on many platforms that may have many complaint records versus selecting fewer platforms with a lower number of orders but greater quality control. In addition, contact and feedback information from OFD customers must be available to restaurant managers to track customer perceptions of the whole service encounter process. Finally, because customers incorporate their experience with OFD's platform and staff when evaluating the restaurant brand, restaurants must be aware of customers' feedback and discuss failures in service provision with their partners to improve future customer experiences and preserve brand equity.

5.4 Limitations and future research

The most important limitation of this study is that it was conducted before COVID-19. During the pandemic, less interaction with delivery workers has been evidenced, and beliefs

about food quality have changed because customers expect more biosafety standards in food preparation, packaging and delivery (Macias *et al.*, 2021). Thus, during and post-pandemic, comparative studies are needed. We also consider as a limitation the fact that this is a cross-sectional study. In a longitudinal study, other researchers could explore if the spillover effects persist over time. Moreover, future investigations could search for moderator variables of the spillover effect between OFD and restaurants to better understand this phenomenon. Finally, the proposed model should be tested in other countries or regions to generalize this study's conclusions.

In addition, it would be worth investigating how each element separately (physical appearance, clothing, cleanliness and manners) could affect customer evaluation. Besides satisfaction with the use of OFDs, attitudes toward the utilization of these platforms should be studied in more depth, considering the current concerns of society, such as food sustainability (that could be jeopardized due to immediacy and convenience as drivers of online food ordering), and the reduction of the precarious working conditions of delivery workers (Montgomery and Baglioni, 2020). Other issues not addressed in this study are whether price and meal discounts influence satisfaction with OFDs or restaurants. A natural progression of this work is to analyze these variables within a more extensive model, which could provide more explanatory power.

Our study focused on standard delivery (prepared meals), not on innovative food options in which the customer has to end-cook recipes based on some instructions and delivered ingredients. These creative options have been proven to generate greater experiential value for consumers (Gavilan *et al.*, 2021) and could be an interesting segment to be investigated within the OFD topic. Also, analyzing consumer adoption and satisfaction with emerging ways of delivery, such as drone delivery (Shankar *et al.*, 2022), would be a fruitful area for further work.

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