Examining the Negative Relationship between Length of Stay at a Hotel and Customer Satisfaction: Evidence from Online Customer Reviews

Abstract

Purpose: Studies that investigate the length of stay as a predictor of consumer post-purchase behavior are rare despite its importance in efficient hotel management. By analyzing online customer reviews, this study aims to fill this gap in the extant literature on the relationship between length of stay and customer satisfaction level.

Design/Methodology/Approach: We collected and used online review data on hotels in London for our study. A series of linear regression analyses were conducted to examine the effect of length of stay on customer satisfaction as measured by review ratings. We employed the Mahalanobis matching approach to confirm the empirical findings.

Findings: Our analysis shows that length of stay is negatively associated with customer satisfaction. Additionally, we find that this negative relationship is stronger in high-end hotels than in low-end hotels.

Implications: The research findings contribute to the literature by shedding light on a new stream of research, namely length of stay. Additionally, our research findings offer novel insights that could help hotel managers understand the trade-off between longer stays and customer satisfaction.

Originality: This is one of the first few studies to show the systematic impact of length of stay on the valence of online review ratings, as well as the moderating effect of hotel levels by analyzing customer online reviews on hotel experiences.

Keywords: Length of Stay, Customer Satisfaction, Online Reviews, Review Ratings, Hotel Levels

1. Introduction

Length of stay (LoS) refers to the duration or number of nights that customers stay at destinations or accommodations (Pratt and Kirillova, 2019). LoS is seen as a critical factor in the efficient management of hotels. Longer stays are directly related to increased profitability, as hotels can reduce fixed costs to serve customers per night and increase operational profits by maintaining high occupancy rates (Barros and Machado, 2010). Hence, scholars in the hospitality and tourism fields have paid close attention to exploring the determinants of LoS at tourist destinations (Alegre and Pou, 2006), since this understanding would assist hotel managers in effectively enticing prospective customers to opt for longer stays (Peypoch *et al.* 2012). Thus, LoS has mainly been studied as a dependent variable (Lee and Kim, 2021), particularly in terms of its relationship with profitability and revenue management (Nair, 2019). However, studies investigating LoS as a predictor of consumers' post-purchase behaviors, particularly online review-posting behaviors regarding consumption experiences, are rare (Kim and Han, 2022; Wang *et al.* 2018), although there have been studies suggesting the potential influence of LoS on customer decision-making processes (Mariani *et al.* 2019; Wang *et al.* 2018).

Thus, the primary goal of the current study is to fill the gap in the extant literature by examining the relationship between LoS at a hotel and customer satisfaction in terms of hotel experiences as indicated by online review-posting behaviors. More specifically, we aim to answer the research questions, *"Does LoS at a hotel systematically influence customer satisfaction?"* and *"Does the influence vary with hotel level?"* We scrutinized online reviews on hotels in London posted by customers who had stayed there. This information was collected from Booking.com and considered as a direct indicator of customer satisfaction levels regarding their experiences, as numerical ratings in online reviews are widely used as data sources in customer satisfaction research (Banerjee and Chua, 2016; Hu et al. 2022; Padma and

Ahn, 2020; Radojevie *et al.* 2018; Schuckert *et al.* 2015; Sun et al, 2022). By methodologically reducing selection bias, we aimed to identify the influence of LoS on the valence of online review ratings and found that LoS is negatively associated with customer satisfaction. Additionally, our analysis shows that the negative effects of LoS on customer satisfaction are stronger in the case of high-end hotels than in the case of low-end hotels.

The findings make significant contributions to the relevant literature by shedding light on a new stream of research: the relationship between LoS and consumer post-purchase behavior. Although studies on LoS have been undertaken, most of the studies have typically focused on ascertaining the key determinants of LoS (e.g., Jackman *et al.* 2020; Losada *et al.* 2017; Wang *et al.* 2018) and the direct impacts of LoS on business performance, such as operational efficiency and revenue management (e.g., Nair, 2019; Sellers-Rubio and Casado-Díaz 2018; Wilson *et al.* 2015). As one of the first to examine the systematic relationship between LoS and customer satisfaction level, our study provides novel insights that could help hotel managers understand the trade-off between revenue and customer satisfaction generated by longer stays. These findings suggest that hotel managers need to develop more effective long-term strategies to mitigate the negative effects of LoS.

2. Literature Review

2.1. Length of Stay

Prior hospitality and tourism literature addressed this temporal aspect from the perspective of tour operators or authorities, with an emphasis on attracting prospective customers. In later research, this interest led to an investigation of the determinants of LoS at a given destination or accommodation. One such study that identifies the determinants of LoS

is Peypoch *et al.* (2012). According to them, age, gender, income level, and level of education are critical in determining LoS at a given destination. For example, according to Losada *et al.* (2017), senior customers tend to stay at destinations for longer periods of time than other sorts of travelers. In addition to considering these demographic factors, Alegre and Pou (2006) have emphasized the significance of both holiday characteristics and seasonal price fluctuations. Thrane (2016) found that differences in determining trip duration are based on two different segments: pre-fixed and open returners.

Distance has also been considered a significant determinant of LoS. Jackman *et al.* (2020) analyzed tourists' data in Barbados and found that geographic, cultural, and climatic distances are positively related to LoS, and that economic distance is negatively related to LoS. The findings on economic and cultural distances are consistent with those of Hateftabar (2021). Hateftabar (2021) also examined the effects of psychological distance on LoS to move beyond physical distance. The author found that religious, social, and political distances are negatively related to tourists' LoS. Studies have also examined the relationship between LoS and tourist expenditure. Wang *et al.* (2018) investigated tourists in Macao and showed that tourist expenditure increases to a certain point as tourists stay for additional days/nights. However, after approximately the 21st day of stay, expenditure started to decrease due to the saturation effect.

In addition, the literature has studied LoS as a non-pricing strategy from the perspective of performance management. Non-pricing strategies are usually used as inventory management tools to optimally allocate available resources, such as hotel rooms in this case (Hwang and Wen, 2009). Nair (2019) explored the significance of the ability to control LoS and found that it is closely related to revenue management performance. As a means of revenue management, many hotels have adopted length of stay control (LoSC) that sets limits on the

minimum number of nights required to make a reservation (Ivanov, 2014; Wilson *et al.* 2015). Weatherford (1995) noted that incorporating an LoSC policy into room allocation decisions could increase revenue by 2.94%. Considering that the cost of maintaining long-term customer relationships is lower than the cost of acquiring a new customer, Sellers-Rubio and Casado-Díaz (2018) maintained that increasing LoS of customers at hotels could contribute to a regional improvement in hotel efficiency. However, Lee *et al.* (2021) examined the impact of hotels' LoSC policies on consumer perception and found that consumers perceived these policies as unfair, resulting in negative word-of-mouth.

The LoS has been suggested to potentially affect how a consumer makes a decision (Mariani *et al.* 2019). However, few prior studies have tried to examine this issue (Kim and Han, 2022; Lee and Kim, 2021). The LoS has primarily been studied as an outcome variable in the extant literature. In line with this, the literature has attempted to identify determinants and situational constraints in tourists' decision-making regarding LoS at a hotel (Lee and Kim, 2021). Only a few studies have examined how LoS influences post-purchase behaviors (e.g., Kim and Han, 2022; Wang *et al.* 2018). For instance, Wang *et al.* (2018) showed a U-shaped relationship between LoS and the intention to revisit, with the turning point occurring on the 5th day of stay. Kim and Han (2022) found that LoS is positively associated to the analyticity and authenticity of textual review content. To add to the body of knowledge in this area, our study examines how LoS can systematically influence online review ratings as a direct indicator of customer satisfaction.

2.2. Online Reviews in Tourism

One of the first steps that travelers can take to minimize potential risks when making decisions regarding their travel arrangements is information acquisition (Nusair *et al.* 2013).

When consumers search for information, one of the most easily accessible sources is online customer reviews (Agnihotri and Bhattacharya, 2016; Godes and Mayzlin, 2009), which heavily influences their decision-making processes (Kostyra *et al.* 2016; Zhao *et al.* 2019). In line with this, previous studies have shown that consumers trust reviews posted by other consumers more than company-released descriptions of products and services (Bilgihan *et al.* 2016; Xu and Zhang, 2018). Hence, a proper understanding of online customer reviews is becoming increasingly important for many firms (Kim *et al.* 2020), not to mention that online reviews are the most accessible way for customers to share their feelings and satisfaction regarding their experiences (Schuckert *et al.* 2015).

Online customer reviews comprise both quantitative (numerical ratings) as well as qualitative (textual content) elements. Customers rate their overall hotel experience as well as the various dimensions of hotel services numerically (Moreno-Perdigón *et al.* 2021). As numerical ratings are direct indicators of customer satisfaction levels, they are widely used in customer satisfaction research (Banerjee and Chua, 2016; Padma and Ahn, 2020; Radojevie *et al.* 2018). Studies have also attempted to shift focus to the linguistic styles of textual content in online reviews to have a better understanding of the determinants of different types of review content and their influences on other consumers. For example, Ludwig *et al.* (2013) examined the impact of affective review content on consumer conversion rates. Zhao *et al.* (2019) examined textual review content and review ratings and found that a higher level of subjectivity is negatively associated with review ratings, as subjective information reflects affective behavior, and that consumers with affective behaviors tend to complain more and show more dissatisfaction. The authors also found that the readability of review content is negatively associated with review ratings, as dissatisfied customers tend to describe their consumption experiences in detail using more advanced words.

3. Hypotheses Development

3.1. The Impacts of Length of Stay on Customer Satisfaction

According to Pizam *et al.* (2016), customer satisfaction with a hospitality experience is the sum of satisfaction with the various product and service attributes, as hospitality experiences are shaped by a combination of various products and service experiences. Previous studies have emphasized that customer satisfaction is a subjective perception of the consumption experience, as it is influenced by both affective and cognitive predispositions of customers (Brady and Robertson, 2001). This implies that customers will have different subjective assessments of the same experiences, depending on their individual affective and cognitive status.

Based on the tenet, different familiarity levels with a hotel are anticipated to influence customer satisfaction with the hotel. Familiarity refers to a consumer's knowledge construct (Park *et al.* 1994) and is contingent on a combination of prior experiences and the amount of information (Baloglu, 2001). Existing studies have found that different familiarity levels make customers develop a different reference frame for evaluating their experiences with a product through a better cognitive structure developed from increased knowledge (Jang, 2021; Kim and Han, 2022; Söderlund, 2002; Toyama and Yamada, 2012). Customers with a low level of familiarity are likely to use peripheral cues to evaluate products and services due to a lack of knowledge, whereas customers with a high level of familiarity tend to use central cues from their knowledge and expertise, resulting in different outcomes (Ha and Jang, 2010). In line with this, Kim and Han (2022) recently proposed that LoS is directly associated with consumer familiarity with a hotel. The authors find that longer stays at a hotel increase the familiarity level with the hotel, resulting in online textual reviews that stay on the Internet longer and

contain more analytical information about their experiences. This finding is consistent with that of Park *et al.* (2019), who suggested that consumers with a high level of familiarity tend to be more analytical and critical, and that the impact of the substantive servicescape on positive affect was moderated by the level of familiarity. Consumers with a high level of familiarity showed significantly less positive affect than those with a low level of familiarity.

There is also evidence that frequent use of the same service leads to service satiation (Park and Jang, 2014). Satiation refers to a decrease in overall enjoyment following repeated exposure to the same stimulus, leading to a decrease in interest in the stimulus in future consumption (Galak *et al.* 2013; Redden, 2008; Redden and Galak, 2013). This means that satiation, brought about by repetition or prolonged exposure to even enjoyable stimuli, will gradually cause a general decline in enjoyment (Loewenstein and Angner, 2003). For example, snack and video game satisfaction tends to decline over time (Galak *et al*. 2013). Psychological studies have also shown that even enjoyable products that are frequently repeated or used for an extended period of time tend to lose their appeal over time (e.g., Becerril-Castrillejo and Muñoz-Gallego, 2022; Sevilla *et al.* 2018).

The two-factor theory can explain why satiation causes a gradual decrease in enjoyment from the same consumption experience. The theory posits that the affective outcomes of exposure to a stimulus are determined by learning and satiation (Berlyne, 1970). That is, when customers are first exposed to a stimulus, they go through a learning process that stimulates positive affect. However, after repeated exposure to the stimulus, they become overly familiar with it, stimulating negative affect (Park and Jang, 2014). This is relevant to hotel services because satiation caused by high familiarity reduces the initial "wow" effect produced by a hotel's unique service environment (Park *et al.* 2019). Hence, it is expected that this would naturally make it more difficult to please or impress customers who are satiated

from longer stays, because the novelty and excitement of the unknown are no longer the factors that satisfy the satiated customer. Based on the arguments, the following hypothesis is proposed:

H1: Length of stay at a hotel is negatively associated with customer satisfaction with the hotel experience.

3.2. The Moderating Effects of Hotel Levels

Customer satisfaction is defined as a psychological pleasure that results from obtaining what one expects from a product and/or service (World Tourism Organization, 1985). This definition suggests that the customer satisfaction level is determined by a customer's expectations prior to purchase. This viewpoint is consistent with the expectancy-disconfirmation theory (EDT), which suggests that consumers build expectations about the performance of a product before purchasing it (Bearden and Teel, 1983; Oliver and Desarbo, 1988), and that their comparison of the expectations with the actual performance determines customer satisfaction (Hao and Chon, 2022; Oliver, 1993). Pizam *et al.* (2016) also argued that EDT is the most widely used theory to explain customer satisfaction. Hence, the EDT serves as the theoretical foundation for predicting customer satisfaction in this study.

Customer expectation from a service refers to what a customer expects to receive from a service provider (Hsieh and Yuan, 2021). As the EDT suggests, expectations prior to purchase are a significant determinant of customer satisfaction because they serve as a standard or reference point for product and service evaluations (Zeithaml *et al.* 1993). If the actual performance of a service exceeds expectations (positive disconfirmation, as opposed to negative disconfirmation), the customer is satisfied with the service. For example, Alan (2003) showed that the amount of tips restaurants receive is determined by the difference between

actual performance and expectations, rather than the absolute level of quality. Positive disconfirmation leads to more generous tipping, while negative disconfirmation leads to lesser amount of tips (the direction of the effect). The study also showed that negative disconfirmation has a stronger impact on tip size than positive disconfirmation (the size of the effect).

Given the significance of customer expectations, prior studies have attempted to identify the key predictors of customer expectations. Parasuraman *et al.* (1985) suggest that external company communication is an important determinant in shaping external expectations. In addition, external sources, such as information about quality, are relevant to the formation of customer expectation (Beales *et al.* 1981). Similarly, Zeithaml *et al.* (1993) proposed that explicit service promises are antecedents of customer expectations. Explicit service promises refer to any personal or non-personal statements by a company about their service, such as those made through advertising, communications, or personal selling. The authors also identified implicit service promises, which are service-related cues that lead to inferences about what a service will be like, such as prices and tangibles, to be the antecedents of customer expectations (Zeithaml *et al.* 1993).

Based on prior studies, it is anticipated that customers who stay at high-end hotels are likely to have higher expectations regarding hotel services, as hotels actively use both implicit and explicit service promises to communicate with customers about the quality of their services. This viewpoint is supported by a prior study, which suggests that customers who stay in four- and five-star hotels tend to have higher expectations regarding the quality of hotel services (Moreno-Perdigón *et al.* 2021). Similarly, as suggested by Chatterjee and Mandal (2020), when flying in business class, customers have higher expectations regarding service quality, resulting in a less favorable evaluation of airplane services. When customers have higher expectations regarding hotel services, the gap between these expectations and actual performance of services

is more likely to widen (negative disconfirmation). Thus, customers with higher expectations are likely to be more dissatisfied with their experiences than those with lower expectations.

We expect that this negative disconfirmation about the services of high-end hotels would be stronger for customers who stay longer in the hotel. Enhanced familiarity with a hotel as a result of longer stays will gradually cause a general decline in the enjoyment of quality services from high-end hotels over time (Loewenstein and Angner, 2003). This effect, which can be explained by the law of diminishing marginal utility, was found to be stronger among consumers with high product involvement (Richins and Bloch, 1991). Thus, the negative effects of longer stays at a hotel (H1) on customer satisfaction are expected to be stronger for high-end hotels than for low-end hotels. Based on the arguments, the second hypothesis is proposed:

H2: The negative relationship between length of stay and customer satisfaction is stronger for customers staying at high-end hotels.

4. Materials and Methods

4.1 Description of Data

In this study, online customer review data was collected from the hotels in London using Booking.com. The website was selected because prior studies about the online customer review generating process used the online customer reviews posted on Booking.com for their empirical studies (Kim *et al*., 2022; Moreno- Pérdigon *et al*., 2021). The site is known to be the world largest accommodation reservation website (https://www.travelperk.com/blog/best-online-travel-agencies/) and to have more online reviews than Google.com (https://www.revinate.com/benchmark/reputation/2020/download/). London is famous for its

popularity in terms of the number of foreign visitors (https://www.telegraph.co.uk/travel/destinations/europe/united-kingdom/england/london/articles/) and therefore it would be appropriate to obtain different opinions from diverse customers. However, we used online reviews posted by British customers between 2014 and 2016 for hotels in the United Kingdom to reduce the heterogeneity in the differences in review generation. After deleting the observations that were missing values, 368,316 reviews remained.

4.1.1 Length of Stay: Table 1 shows the number of online reviews based on the length of stay. Among these, 232,490 reviews were left by customers who stayed at a hotel for one night (63.12%). Because the length of stay is right-skewed, we used a log-transformation in the empirical analyses.

<Table 1 About Here>

4.1.2 Review ratings: In prior literature, the ratings of online reviews were generally used to measure the level of customer satisfaction, which is sometimes called e-satisfaction in tourism (Kim *et al.* 2006). Table 2 shows the distribution of review ratings. Most of the reviews were extremely positive. Approximately 37% of the online reviews have numerical ratings greater than or equal to 9.

<Table 2 About Here>

4.1.3 Hotel-Class: Table 3 shows the distribution of hotel class. Out of 1,785 hotels, approximately 50% had star ratings greater than or equal to 4. Hotel stars are assigned by Booking.com and represent overall hotel quality. We regard hotels with four or more stars as "higher-end hotels" in the empirical analyses.

<Table 3 About Here>

Table 4 shows the relationship between hotel stars and the length of stay. The portion of reviews left by customers who stayed for one night at lower-end hotels, with stars less than or equal to 3, is about 61%, while those by customers who stayed for one night at higher-end hotels, with stars greater than or equal to 4, is about 64%. In the case of higher-end hotels, customers are more likely to stay at the hotel for a shorter period. The relationship between the length of stay and customer satisfaction could be affected by the hotel classes. Due to this, we need to control the impacts of the hotel classes on the relationship.

<Table 4 About Here>

4.2 Linear Regression Analysis

We conducted a series of regression analyses to examine the effect of the length of stay on customer satisfaction measured by review ratings. The following linear regression model was proposed as the baseline model:

$$Review\ Ratings = \alpha + \beta * LoS + \gamma_s * Controls + \varepsilon$$

where review ratings are used as the dependent variable, and LoS is the independent variable. We included travel companions (couple, family, group, friends, and solo), review submission devices (mobile vs. non-mobile devices), and travel purposes (business vs. leisure) as the control variables. According to Ahn *et al.* (2017), review ratings differ depending on the companion type. Travelers in a group tend to be more positive than solo travelers when giving review ratings. Radojevic *et al.* (2018) found that business travelers are less forgiving when evaluating hotel services. Kim *et al.* (2020) showed that review posters were more likely to use mobile devices when they were either extremely satisfied or dissatisfied due to the reduced temporal distance between the experience and posting a review. And we used a Huber/Whites/sandwich estimator as the error terms.

Table 5 provides the empirical results of the regression analyses. Column (1) presents

the empirical results based on the baseline model. The estimated coefficient of LoS is significantly negative (β_{LoS}=-.146, *p-value*<.01). This means that as the length of stay increases, review posters tend to become increasingly negatively predisposed. In column (2), we incorporated time dummy variables to control for fluctuations in hotel service quality over time. Specifically, we included monthly and yearly dummy variables. The estimated coefficient of LoS is still significantly negative (β_{LoS}=-.139, *p-value*<.01). Although the degree of the estimated coefficient decreased when time dummy variables were included, LoS still has a negative influences on online review ratings. In column (3), we considered hotel-level heterogeneity by including hotel-level and hotel-star-level dummy variables. These variables are used to control the influences of service variations in hotels on review ratings. The estimated coefficient of LoS is significantly negative (β_{LoS}=-.045, *p-value*<.01). The estimated coefficients of Table 5 with all the coefficients are provided in the appendix.

From the three models, we can conclude that the length of stay is negatively associated with customer satisfaction, supporting the first hypothesis (H1). From the perspective of hotel management, increasing the length of stay would contribute to improving revenue when there were available rooms, but it could result in negative service evaluation. As mentioned in the hypothesis development section (H2), the relationship between the length of stay and review ratings can be moderated by hotel quality levels. In the next analyses, we explored the moderating role of hotel quality.

<Table 5 About Here>

We classified hotels into higher-end and lower-end hotels based on stars assigned by Booking.com, as in prior literature (Moreno-Perdigón et al. 2021). Based on this classification, we conducted the same regression analyses. Table 6 shows the empirical results. In column (1), the estimated coefficient of LoS is significantly negative ($\beta_{LoS\_Lower-End}$

Hotels$=-.016$, *p-value*<.05). For lower-end hotels, LoS has a negative relationship with customer satisfaction. For every one day stay longer at lower-end hotels, customer satisfaction decreases by about .01 (-.016*ln(2)=-.01). The estimated coefficient of LoS in the second column is also negative ($\beta_{LoS\_Higher\_End\ Hotels}=-.080$, *p-value*<.01). This also meant that LoS has a negative relationship with customer satisfaction in higher-end hotels. For every one day stay longer at higher-end hotels, customer satisfaction decreases by about .06 (-.080*ln(2)=-.06).

To examine whether the degree of the estimated coefficient of LoS for higher-end hotels was different from that for lower-end hotels, we conducted the equality test for the estimated coefficients (Clogg *et al.,* 1995). For this, we use the following formula:

$$Z = \frac{\hat{\beta}_{LOS(Higher-end)} - \hat{\beta}_{LOS(Lower-end)}}{\sqrt{\left(S.E(\hat{\beta}_{LOS(Higher-end)})^2\right) + \left(S.E(\hat{\beta}_{LOS(Lower-end)})^2\right)}}$$

where S.E. is the standard error of the estimated coefficients. This formula follows the Z-test and the null hypothesis is that the estimated coefficients are equal. The statistical result (Z-score=5.65), based on the Z-test, rejects the null hypothesis at a 99% confidence level. Considering the degree of the estimated coefficients of the two models, we can say that the estimated coefficient of LoS for higher-end hotels has a stronger impact on customer satisfaction, supporting the second hypothesis (H2).

<Table 6 About Here>

5. Conclusions and General Discussion

5.1 Conclusions

This study examined how the LoS can systematically influence customer satisfaction

with the hotel experience. To achieve this objective, we analyzed online customer reviews of hotels collected from Booking.com because online reviews are direct indicators of customer satisfaction levels (Schuckert *et al.* 2015). We first examined the relationship using a series of regression analyses and then carried out the processes necessary to minimize the sample selection bias usually found in observational data such as the reviews from online travel agencies. For this purpose, we employed Mahalanobis matching procedures.

The empirical results of our study indicate that on average, there is a negative relationship between the LoS at a hotel and customer satisfaction. Interestingly, the relationship between the LoS and review ratings can vary with the quality of the hotel. Specifically, for lower-end hotels, we find a weak negative relationship between the LoS and review ratings. For higher-end hotels, by contrast, the negative relationship is stronger.

5.2. Theoretical Implications

There have been two major streams of research on LoS in tourism and hospitality. In the first stream, to understand the characteristics of customers who tend to stay longer, previous LoS research aimed at identifying the key determinants of longer stays at tourist destinations (e.g., Barros *et al.* 2010; Jackman *et al*. 2020; Losada *et al.* 2017; Martinez-Garcia and Raya, 2008; Peypoch *et al.* 2012; Wang *et al.* 2018). According to these studies, the particular demographic characteristics of tourists, physical distance, and psychological distance were significant predictors of LoS. The primary goal of these studies was to help tourism practitioners in developing more effective target marketing strategies by providing a better understanding of the key determinants of LoS (Hateftabar and Chapuis, 2020; Hateftabar, 2021). Another LoS research stream aimed to demonstrate the impact of LoS on business

performance elements, such as profitability, operational efficiency, and revenue management (e.g., Ivanov, 2014; Nair, 2019; Sellers-Rubio and Casado-Díaz, 2018; Wang *et al.* 2018; Weatherford, 1995; Wilson *et al.* 2015). For example, longer stays resulting from LoS control policies were found to increase revenues by nearly 3% (Weatherford, 1995) and to be positively related to the effective revenue management of hotels (Nair 2019). The primary goal of these studies was to emphasize the significance of LoS for tourist destinations as well as its actual benefits.

Moving beyond these two main research streams, recent studies have suggested that LoS could potentially influence post-purchase behavior of customers (Mariani *et al.* 2019; Wang *et al.* 2018). This has piqued the interest of researchers, and some studies have attempted to investigate this influence. However, despite these attempts, this area remains largely under-explored (Lee and Kim, 2021). We examined the systematic relationship between LoS and online review ratings to supplement the limited research in this new research stream. To the best of our knowledge, this is the first study to demonstrate the systematic impact of LoS on the valence of online review ratings, as well as the moderating effect of hotel levels. Moreover, drawing from the EDT, our findings also demonstrated that the influence of LoS on online review ratings is moderated by the hotel level. The moderating effects of hotel level confirmed the important role of customer expectations in determining customer satisfaction levels.

In this context, the research findings have significant contributions to this new research stream on LoS by providing a better understanding of the relationship between LoS and online review ratings. As online customer reviews are easily accessible sources of information when tourists search for information about their tourist destinations (Agnihotri and Bhattacharya, 2016), previous studies have emphasized the significant influence of online customer reviews on the decision-making processes of potential customers (Chatterjee, 2020; Fang *et al.* 2016;

Han and Jun, 2021; Kim *et al.* 2020; Kim and Han, 2022; Kostrya *et al.* 2016; Zarezadeh *et al.*, 2022; Zhao *et al.* 2019). In this regard, our findings add to the online customer review literature in hospitality and tourism by identifying LoS as a predictor of review rating valence.

In addition, our study suggests that satiation over time caused by high familiarity with the same hotel service is the primary psychological mechanism underlying the negative effect of LoS on customer satisfaction. Previous studies directly examined the effect of satiation from a product or service consumption on consumer behavior. Park and Jang (2014) showed that a consumer's satiation level increases as the frequency of visits to the same restaurant increases. They also found that restaurant type and consumer personality traits could have differential impacts on satiation levels. More recently, Becerril -Castrillejo and Muñoz -Gallego (2022) examined the relationship between satiation and customers' willingness to pay (WTP) for their next stay at the same hotel and found that satiated customers are willing to pay approximately 11% less than they did for their previous stay.

As satiation is considered an important factor that significantly influences the consumer decision-making process behind the repeated consumption of services, Sevilla *et al.* (2018) attempted to develop a comprehensive framework by combining different satiation types from consumption experiences and different variety-seeking behaviors to reduce satiation. However, the role of satiation in the hospitality industry remains under-explored. In this light, we believe that our findings contribute to the relevant literature by assisting researchers to understand the role of satiation more comprehensively.

5.3. Practical Implications

In addition to their theoretical implications, our findings provide important insights for

practitioners. It is imperative for hotel managers to understand that enticing customers to stay longer at their hotels has a negative impact on customer satisfaction with hotel experiences, even if it contributes to an increase in the occupancy rate and profitability of their hotels. The hospitality industry has used length of stay control as a non-pricing strategy to maximize revenue and improve management efficiency (Nair, 2019). Given this, hotel managers must be aware that such a strategy to encourage longer stays is likely to decrease customer satisfaction levels in the long term, resulting in low overall review ratings. Given the importance of building customer loyalty based on customer satisfaction, a trade-off relationship is likely to prevent hotels from gaining competitive advantages over time.

To avoid this, hotel managers should investigate and mitigate the causes of the negative effects of longer stays on customer satisfaction. We propose that satiation due to high familiarity with the same hotel experience is an important psychological mechanism that lowers customer satisfaction over time for customers that stay longer. Hence, from a managerial perspective, it is critical to reduce customer satiation in order to maintain high levels of customer satisfaction over time. Previous studies argue that consumers seek a variety of stimulation options to counteract satiation and maximize their overall enjoyment from consuming a product or service (Herrstein and Prelec, 1991; Khan *et al.* 1986; Sevilla *et al.* 2018). This may lead hotel managers to consider providing too many options to avoid satiation. However, choosing from such a wide range of options in anticipation of potential satiation may lead to the consumption of less preferred options, resulting in lower customer satisfaction (Ratner *et al.* 1999).

In this sense, a seminal study by Sevilla *et al.* (2018) suggested that the key to counteracting satiation is to strike a balance between repeating and variety-seeking behaviors, and that this balance is relevant in deciding how much variety to offer to consumers. Based on

this, hotel managers must optimize the variety of options for longer-staying customers so that the customers can maximize their enjoyment from the stay without a decrease in customer satisfaction due to satiation or too much variety.

Apart from providing variety options, another possible way for hotel managers to reduce satiation of longer-staying customers is to develop unique hotel experiences with limited availability for customers. Sevilla and Redden (2014) suggested that when consumers perceive a stimulus to be scarce, satiation from the consumption experience happens at a slower rate. This is because consumers' perceptions of limited availability may lead them to focus on enjoying the rare consumption experience (Sevilla *et al.* 2018). This can also provide hotel managers with insights on how to mitigate the satiation of longer-staying customers. Hotel managers are suggested to develop hotel services that are perceived as scarce for longer-staying customers, so that customers believe they cannot find the same stimulus at other hotels or at other times. Customers may pay more attention to their current hotel experiences as a result, thus helping to maintain higher customer satisfaction for longer stays.

5.4. Limitations and Future Research

Despite the implications of our study, it has some limitations. First, even though we tried to reduce the sample selection bias found in our observational data by controlling for many factors known to affect review ratings by using a matching method, there is no guarantee that our empirical results are free from bias in estimation. It is especially difficult to control for endogeneity between LoS and customer satisfaction. Accordingly, additional tests should be performed to determine whether this relationship has an endogeneity problem.

Second, satiation has traditionally been viewed as a physiological function (Coombs

and Avrunin, 1977; Redden, 2008); however, more recent studies have also considered psychological satiation (Park and Jang, 2014; Redden and Haws, 2013; Sevilla and Redden, 2014; Sevilla *et al.* 2018). In other words, various psychological manipulations could affect satiation when the actual consumption experience is kept constant (Sevilla *et al.* 2018). Previous studies have found that factors such as the amount of attention paid to the experience, manipulation of memories, and different categorizations of experiences all influence the level of satiation when the experience is the same. This means that there may be psychological factors that moderate the trade-off relationship between LoS and customer satisfaction by reducing satiation from longer stays. As we did not investigate such potential moderating factors in this study, other than the difference in hotel levels, it would be worthwhile for further studies to formally examine this with more controlled experimental methods to show various variables that counteract satiation.

Lastly, although our findings show the negative effects of LoS on customer satisfaction as indicated by online review ratings, customers have different motivations for posting online reviews (e.g., Gonçalves *et al.* 2018; Henning-Thurau *et al.* 2014; Yoo and Gretzel, 2008). Recently, Gonçalves *et al.* (2018) explored how different motivations, such as personal concerns, social concerns, social benefits, and consumer empowerment, in combination with demographic factors, could affect consumer motivations to post online reviews regarding their hotel experiences. That is, not all customers are sufficiently motivated to share their hotel experiences in the form of online reviews. Previous studies have raised similar concerns that online reviews may not be representative of the general consensus due to under-reporting bias (Hu *et al.* 2006). This calls for additional research into the negative relationship between LoS and customer satisfaction by analyzing more comprehensive online review data from various review-posting websites or time periods.

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Appendix

Table A1. Linear Regression Results (Full Sample) with All the Coefficients*

	Regression Analysis		
	Review Ratings	Review Ratings	Review Ratings
	(1)	(2)	(3)
ln(stay)	-.146***	-.139***	-.045***
	(.006)	(.001)	(.008)
Companion Dummy	Included	Included	Included
Family	-.201***	-.187***	.023***
	(.009)	(.009)	(.008)
Group	-.170***	-.151***	.195***
	(.008)	(.008)	(.007)
People with Friends	-.204	-.306	.056
	(.162)	(.162)	(.157)
Solo traveler	-.346***	-.345***	.058***
	(.008)	(.008)	(.008)
Device Dummy	Included	Included	Included
Mobile Device	.117***	-.018***	-.007
	(.005)	(.006)	(.005)
Travel Purpose Dummy	Included	Included	Included
Leisure Trip	.246***	.260***	.271***
	(.009)	(.009)	(.008)
Monthly Dummy	Not Included	Included	Included
February	-	.035***	.051***

		(.013)	(.011)
March	-	.045***	.048***
		(.012)	(.011)
April	-	-.020	.001
		(.013)	(.011)
May	-	-.082***	-.047***
		(.015)	(.013)
June	-	-.174***	-.074***
		(.018)	(.015)
July	-	-.219***	-.122***
		(.015)	(.013)
August	-	-.124***	-.068***
		(.015)	(.013)
September		-.265***	-.146***
		(.015)	(.013)
October	-	-.251***	-.167***
		(.015)	(.014)
November	-	-.109***	-.078***
		(.015)	(.013)
December	-	-.033**	-.010***
		(.014)	(.013)
Yearly Dummy	Not Included	Included	Included
2015	-	.202***	.164***
		(.009)	(.008)

2016	-	.286***	.211***
		(.012)	(.001)
Hotel-level Dummy	Not Included	Not Included	Included
Star-level Dummy	Not Included	Not Included	Included
Constant	Included	Included	Included
R-Squared	1.73%	2.56%	28.59%
Observations	368,316	368,316	368,316

where parentheses include the standard errors, **p < 0.05; ***p < 0.01.

*Table produced by the authors

Table 1. Length of Stay and Online Review Volume*

Length of Stay (Nights)	Frequency	Percentage
1	232,490	63.12%
2	87,338	23.71%
3	30,215	8.20%
≥4	18,273	4.97%
Total	368,316	100.00%

*Table produced by the authors

Table 2. Distribution of Review Ratings*

Review Ratings (R.A.)	Frequency	Percentage
R.A.<=5.0	35,714	9.70%
5<R.A.<=7	51,158	13.89%
7<R.A.<=8	86,459	23.47%
8<R.A.<=9	60,648	16.47%
9<R.A.<=10	134,337	36.47%
Total	368,316	100.00%

*Table produced by the authors

Table 3. Distribution of Hotel-Class*

Hotel-Stars	Frequency	Percentage
1	174	9.75%
2	234	13.11%
3	510	28.57%
4	608	34.06%
5	259	14.51%
Total	1,785	100.00%

*Table produced by the authors

Table 4. Relationship between Hotel-Stars and Length of Stay*

Hotel-Stars	Length of Stay				
	1	2	3	≥4	Total
1	12,161	4,280	1,608	1,325	19,374
2	28,600	9,929	3,869	2,930	45,328
3	71,648	28,325	10,651	6,547	117,171
4	96,209	37,235	11,836	6,063	151,343
5	23,872	7,569	2,251	1,408	35,100
Total	232,490	87,338	30,215	18,273	100.00%

*Table produced by the authors

Table 5. Linear Regression Results (Full Sample)*

	Regression Analysis		
	Review Ratings	Review Ratings	Review Ratings
	(1)	(2)	(3)
ln(stay)	-.146***	-.139***	-.045***
	(.006)	(.001)	(.008)
Constant	Included	Included	Included
Companion Dummy	Included	Included	Included
Device Dummy	Included	Included	Included
Travel Purpose Dummy	Included	Included	Included
Monthly Dummy	Not Included	Included	Included
Yearly Dummy	Not Included	Included	Included
Hotel-level Dummy	Not Included	Not Included	Included
Star-level Dummy	Not Included	Not Included	Included
R-Squared	1.73%	2.56%	28.59%
Observations	368,316	368,316	368,316

where parentheses include the standard errors, **$p < 0.05$; ***$p < 0.01$.

*Table produced by the authors

Table 6. Linear Regression Results (Separate Samples)*

	Regression Analysis	
	Lower-End Hotels Review Ratings	Higher-End Hotels Review Ratings
	(1)	(2)
ln(stay)	-.016**	-.080***
	(.008)	(.008)
Constant	Included	Included
Companion Dummy	Included	Included
Device Dummy	Included	Included
Travel Purpose Dummy	Included	Included
Monthly Dummy	Included	Included
Yearly Dummy	Included	Included
Hotel-level Dummy	Included	Included
Star-level Dummy	Included	Included
R-Squared	25.83%	23.99%
Observations	181,873	186,443

where parentheses include the standard errors, **$p < 0.05$; ***$p < 0.01$.

*Table produced by the authors