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# Perceived service quality and visitors' sustainable visit intentions in theme parks: empirical analysis on the THEMEQUAL scale

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Theme parks, as indispensable commodities within the tourism industry, wield significant influence in fostering local and national economic development. However, despite their crucial role, there remains a dearth of comprehensive research concerning the determinants of theme park visits. Employing the THEMEQUAL scale, this study uses an ordered logit model and an in-depth interview method to investigate the effects of service quality on visitors' sustainable visit intentions (SVIs). The results show that service quality is the most pivotal determinant shaping SVIs and that the effects are moderated by COVID-19, i.e., a reduced emphasis on service quality in bolstering visitors' sustainable visit inclinations during this pandemic. In particular, the staff delivering assurances and being courteous markedly influence visitors' perceptions. This research contributes to a comprehensive interplay between service quality, COVID-19, and visitors' SVIs, providing references for policymakers and managers to develop theme park recovery policies in the post-pandemic era.

#### KEYWORDS

theme park service quality, logit model, SVIs, THEMEQUAL scale, post-pandemic

### **1** Introduction

Due to an overflow of operators, the theme park industry has become growingly competitive; traditional strategies, such as adjusting admission prices and increasing attractions, are acknowledged as effective methods to attract tourists (Fotiadis and Vassiliadis, 2016). Increasingly, recent studies have emphasized the role of service quality (Hussain et al., 2023), especially in the post-pandemic era. Data provided by the International Association of Amusement Parks and Attractions (IAAPA) reveal a stark reality: among the top 25 theme parks globally, only approximately 178.5 million visits were recorded in 2022, a striking decline of 75% compared to the pre-pandemic figures of 2019.

The substantial global decline in attraction attendance in 2020 had far-reaching repercussions, resulting in considerable job and economic losses (Blomqvist et al., 2023) and posing potential risks of social instability. Notably, China experienced a particularly noteworthy downturn (Lee et al., 2024). The "Evaluation of Chinese Theme Park Competitiveness" report in 2021 revealed a staggering 50.43% decline in visitor numbers, coupled with a revenue decrease of 49.87% in the same year. Hence, it is imperative to

conduct research on the theme park industry. Numerous factors influence the development of theme parks, including pricing, destination attractions, and their distinctive offerings. However, among these factors, visitors place paramount importance on service quality. Consequently, theme park management should prioritize enhancing service quality over other elements. Considering the importance of service quality in attracting tourists and its depth and breadth of service quality content, it is necessary to identify which aspects of service quality can more effectively lure visitors and thus provide references for decision-makers when devising and executing strategic measures to ensure the industry's sustainable development.

While previous research has discussed the influence of service quality on theme park development, there remains a significant gap in the literature that is yet to be addressed. Traditionally, researchers adopt the SERVQUAL scale as a reliable measure of service quality in the hospitality, transportation, and banking sectors (McDougall and Levesque, 2000; Most et al., 2023; Przybytniowski, 2023). However, Tsang et al. (2012) highlighted that the SERVQUAL scale includes some methodological flaws (Babakus and Boller, 1992). Furthermore, to enhance the validity and reliability of this scale, they modified SERVQUAL by incorporating the Courtesy dimension and named it THEMEQUAL. The new scale is more suitable for gauging service quality specifically within theme parks, and it has been used to evaluate theme parks in Sri Lanka (Liyanage and Wickramarathne, 2019), Croatia (Valcic et al., 2015), Taiwan (Fotiadis, 2016; Fotiadis and Vassiliadis, 2016). It is unfortunate to note that studies on the service quality of theme parks in China measured using the THEMEQUAL scale remain notably limited. Given that Chinese visitors are deeply influenced by traditional Chinese culture and values, they place a great emphasis on the perception of courtesy from others. Therefore, the Courtesy dimension plays a pivotal role in the China market (Tsang et al., 2012). Furthermore, prior research has corroborated that Chinese visitors prioritize the friendliness and politeness of employees (Hussain et al., 2023). Hence, using the new scale, THEMEQUAL, is more appropriate for researching Chinese theme parks and their visitors.

Research has sparsely examined the relationship between service quality and sustainable visit intentions (SVIs) in China's theme parks. Given that China has many theme parks, a comprehensive understanding of how service quality influences SVIs is necessary. This study aims to explore how service quality affects SVIs by adopting a more comprehensive service quality evaluation indicator and the moderating effect of COVID-19. We further explore which specific aspects of service quality have a more significant effect on visitors' SVIs.

The contributions of this article lie, first, in employing a comprehensive service quality measurement; by doing this, we fill the gap in research on the impact of service quality on theme parks in China. The initial application of the THEMEQUAL scale in research on the theme parks market in China marks a significant step forward. This pioneering effort promises to provide a more accurate and robust measurement of service quality within the Chinese theme park market in the future. Second, we further identify which specific aspects of service quality are more important for attracting visitors. Chinese visitors exhibit unique preferences and demands regarding theme park service quality compared to visitors from other nationalities (Tsang et al., 2015). Consequently, there is a need for research that delves into specific individual measurements to fully understand these distinct requirements. Third, we introduce a new factor-recommendation, broadening the scope of defining visitors' sustainable intention. It confirmed that visitors' SVIs require a unique measurement approach (Bothe et al., 2016).

This factor signifies visitors' likelihood to recommend the theme park to others, reflecting potential SVIs. Our findings can enhance the comprehension of the relationship between service quality and visitors' revisit intention, which may benefit theme park operators by informing them of strategies for enhancing visitor satisfaction and providing references for local government agencies by augmenting their oversight and support for the theme park industry.

The remaining sections are structured as follows. Section 2 provides a literature review that explores the relationship between service quality and SVIs. After highlighting the existing research gaps, we introduce the conceptual framework. Section 3 offers a detailed overview of the data collection, covering survey procedures, research instruments, and the overall methodological approach. Section 4 presents the research results and findings. Finally, Section 5 provides managerial insights, discusses the limitations of the research, and presents our concluding thoughts.

# 2 Literature review and research framework development

In the theme park industry, much of the prior research has predominantly focused on revisit intentions rather than SVIs. Despite their interconnectedness, these concepts differ inherently. SVIs are defined as a consistent inclination to visit a destination (Seong et al., 2021). This concept expands beyond mere revisitation and encompasses visitors' inclination to recommend the destination to others (Seong et al., 2021). It also encompasses uncertain elements, such as trip cancellations or changes in planned destinations. However, there is a noticeable dearth of research dedicated explicitly to the conceptualization of SVIs in existing studies. Additionally, the nuanced variables associated with SVIs have seldom been explored.

Conversely, revisit intention has been characterized as an indicator of visitors' actual propensity to return to a destination (Baker and Crompton, 2000; Stylos et al., 2017; Wu et al., 2018). It is often described as the likelihood of a visitor returning within a year (Lai and Kuo, 2010; Prayogo and Kusumawardhani, 2016) or their behavioral inclination to revisit in the foreseeable future (Acharya et al., 2023).

Existing literature highlights an urgent and pressing need to comprehensively explore the variables associated with SVIs in future research endeavors. Regardless of their controllability, these pivotal variables need to be considered, analyzed, and quantified. A nuanced understanding will aid theme park managements in making informed decisions that aim to bolster the levels of visitors' SVIs.

#### 2.1 Influential factors for SVIs

SVIs have been confirmed as a way of continuous visit intention (Seong et al., 2021). Abdulrazak and Quoquab (2018) have noted that sustainable consumption intentions or behaviors, articulated in various forms, have garnered considerable attention in academic literature. In understanding visitors' future behaviors and intentions, numerous studies have posited that visitors' perceptions of destination image, value, and satisfaction influence both revisit and recommendation intentions (Quintal and Polczynski, 2010; Phillips et al., 2013; Stylos et al., 2016). In the realm of tourism studies, Pai et al. (2020) proposed a research model to elucidate the relationship between tourists' experience satisfaction, their happiness, and their revisit intention. Additionally, Wu et al. (2018) discerned the pivotal roles played by experiential satisfaction and theme park image in determining revisit intentions in the theme park industry. To precisely delineate SVIs, this study encompasses various facets of consumption, with special attention paid to their social and environmental ramifications.

Previous research has highlighted specific demographic characteristics as pivotal variables in assessing SVIs. Characteristics such as income, education, and gender have been meticulously examined to highlight the influence of sociodemographic factors on SVIs (Um et al., 2006; Kusumawati et al., 2019; Seong et al., 2021; Acharya et al., 2023). Other determinants such as service quality have also been highlighted, with Mohaidin et al. (2017) affirming its paramount role in shaping SVIs.

Satisfaction stands as a pivotal factor influencing visitors' intentions for future visits and has been recognized as a precursor to sustainable intentions (Chen and Tsai, 2007). A "qualitysatisfaction-behavioral intention" paradigm was formulated to study the intricacies of tourist consumption. Uzir et al. (2021) also identified a nuanced connection between trust and repurchase intention. The perception of price, encompassing both monetary and behavioral costs, has been investigated and confirmed to significantly influence visitors' revisit intentions (Liu and Lee, 2016). Additionally, the role of public health events in shaping SVIs has been explored to enhance theme park management strategies and sustain competitiveness in a post-pandemic world. Both Esposti et al. (2021) and Seong et al. (2021) determined that perceived risks associated with public health events profoundly impact visitors' attitudes and behaviors. Consequently, there is a compelling call for both empirical and theoretical research focused on SVIs within the theme park industry.

#### 2.2 Service quality impacts on SVIs

Previous research has suggested that service quality is a determinant of tourists' SVIs (Nilplub et al., 2016; Kanwel et al., 2019). For instance, Quintal and Polczynski (2010) incorporated factors such as activity, health, safety, and cleanliness, emphasizing their relation to perceived service quality. In addition, service quality has been confirmed by different scholars as having a positive influence on visitors' revisit intention and satisfaction (Bigné et al., 2001; Hwang et al., 2005; Nugroho et al., 2021; Velmurugan et al., 2021). In terms of the theme park-related context, Hapsari et al.

(2021) and Wen et al. (2020) suggested that, especially in a postpandemic scenario, tourists might prioritize specific aspects of perceived service quality, focusing on health safety measures such as cleanliness and adherence to social distancing guidelines. These health-centric measures could substantially influence tourists' propensity for repeat visits and their trust in the brand (Saleem et al., 2017; Nhamo et al., 2020; Prentice et al., 2021; Seong et al., 2021).

Wen et al. (2020) and (2021) suggested that, especially in a post-pandemic scenario, tourists might prioritize specific aspects of perceived service quality, focusing on health safety measures such as cleanliness and adherence to social distancing guidelines.

The SERVQUAL scale has been a key metric used by researchers to assess service quality. Additionally, Liu and Lee (2016) confirmed that service quality could be characterized by the five dimensions of the SERVQUAL scale. Kao et al. (2008) also stated the impact of service quality on visitor visit intentions, including loyalty to theme parks. The THEMEQUAL scale was introduced by Tsang et al. (2012) to evaluate the service quality at Hong Kong Disneyland theme park; it includes six dimensions-tangibles, reliability, responsiveness and access, assurance, empathy, and courtesy-that influence visitor satisfaction. Subsequent studies have showed that (Tsang et al., 2012; Fotiadis, 2016; Fotiadis and Vassiliadis, 2016; Wu et al., 2018; Xie and Luo, 2021): (1) tangibles, evaluated through the neat appearance of staff and the presentation of facilities; (2) reliability, assessed by the staff's willingness and capability to resolve visitor issues; (3) responsiveness and access, gauged by the staff's timely response to visitor requests; (4) assurance, measured by visitors' perception of facility safety within the theme park; (5) empathy, updated to gauge whether staff understand visitors' specific sanitary needs; and (6) courtesy, determined by the consistent politeness exhibited by staff members.

#### 2.3 Gaps and research framework

Several gaps in the extant research have been identified, and our study offers some contributions to expand the literature related to theme parks. First, while the SERVQUAL scale has predominantly been used as the measurement tool, there remains a paucity of studies applying the THEMEQUAL scale to theme parks in China. According to Tsang et al. (2012), SERVQUAL is not entirely suitable for research on theme parks, especially in China's theme parks market. In addition, the Courtesy dimension is deemed indispensable for Chinese visitors. Second, previous research has inadequately explored the concept and connotation of SVIs. Notably, when visitors express an intention to recommend the destination to others, they inherently manifest an inclination toward sustainable visitation. Although previous researchers have touched on the concept of SVIs, their focus has predominantly been on national parks and general tourism markets (Rodger et al., 2015). Notably, the theme park industry remains largely unexplored in this regard. Third, while the pandemic has garnered considerable attention and has been established as an influence on visitor perceptions in tourism studies, there exists a scarcity of studies dedicated to exploring how the pandemic moderates the relationship between visitors' perceived service quality and their

SVIs. However, these current research efforts have not been highly affirmed, and the discussion on this aspect is far from enough at present.

Considering the existing research, we design the following research framework (Figure 1).

In the context of theme parks, service quality is determined by how well a service aligns with visitors' expectations and addresses their needs. Scholars suggest that these expectations are shaped by factors outlined in the THEMEQUAL model-tangibles, reliability, responsiveness and access, assurance, empathy, and courtesy (Tsang et al., 2012)-and by satisfaction levels (Choi and Kim, 2000). The visitors' sustainable intentions pivot on their perceptions of experience quality, which encompasses both the perceived service quality and the satisfaction derived from previous interactions. As noted, visitors' perceptions of satisfaction concerning tourism products are rooted in expectations (Bernini et al., 2015). The likelihood of visitors making recommendations can be attributed to their satisfaction with previous visits (Bigne et al., 2005). Consequently, it stands to reason that evaluations of service quality and satisfaction by visitors will significantly shape their SVIs.

The paramount significance of brand trust within the theme park industry has been well established (Crosby et al., 1990; Jin et al., 2013). Brand trust is believed to wield a direct influence on customer behavioral loyalty. In the domain of theme park research, superior service quality contributes significantly to visitors' trust in a specific destination. Consequently, the enhancement of visitors' brand trust in theme parks has become increasingly imperative (Xie and Luo, 2021; Su et al., 2022). When visitors find satisfaction in their travel experiences, they tend to place their trust in the service provider, fostering a predisposition to revisit the same brand (Kusumawati et al., 2019). This study suggests that visitors' perceptions of operational reliability, coupled with safety and entertainment protocols, serve as crucial indicators for brand trust levels, especially in the postpandemic landscape. Additionally, given the transformative impact of the COVID-19 outbreak on travel patterns, the focus on health safety management (Esposti et al., 2021) and sanitation measures (Wei et al., 2021) becomes crucial in researching visitors' SVIs.

## 3 Methodology

#### 3.1 Study area

The study area is Guangzhou Sunac Land (GSL), a notable amusement park located in Guangzhou, a central city within the Guangdong–Hong Kong–Macao Greater Bay Area. GSL offers an array of attractions including a unique dual-track roller coaster, a flying theater, and advanced "4K+Virtual Reality (VR)" entertainment options showcasing cutting-edge amusement technology. Compared to other theme parks in the region, its distinctive theme centered on snow and ice, catering to visitors with a preference for snow and ice experiences, which is particularly appealing in the subtropical zone of China, stands out. Despite its initial allure, GSL experienced a decline in attention following the outbreak of COVID-19. Thus, we chose this as our study area.

# 3.2 Questionnaire design and data collection approach

#### 3.2.1 Questionnaire design

The questionnaire, structured around the conceptual framework, encompasses five latent variables: (1) service quality, which, based on the THEMEQUAL scale designed by Tsang et al. (2012), includes tangibles, reliability, responsiveness and access, assurance, empathy, and courtesy; (2) the impact of COVID-19, which is investigated by the health safety dimension (Wirawan et al., 2021) and the cleanliness and disinfection dimension (Milman et al., 2020; Zhu et al., 2022); (3) satisfaction, which is assessed via visitors' expectations (Quintal and Polczynski, 2010; Stylos et al., 2016) and their intentions for recommendation (Phillips et al., 2013); (4) brand trust, which is reflected in the operational reliability and the fun and safety protocols, as indicated in the study by Liu and Lee (2016); and (5) sociodemographic information, which considers that visitors with different demographics or psychographics usually have various purposes for visiting theme parks (Kao et al., 2008).

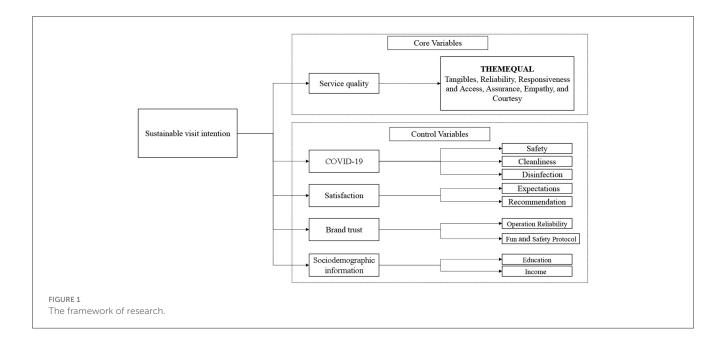
Drawing on an extensive review of existing literature (Tsang et al., 2012; Valcic et al., 2015), the questionnaire comprised 28 items representing those latent variables, with each item having responses anchored on a 5-point Likert scale. A pretest was conducted before the data collection so as to guarantee the reliability and validity of the questionnaire. We consulted university professors, scholars in the tourism industry, service firm managers, and theme park management. After professionals confirmed the items' reliability and validity, a preliminary test was conducted at the main gate of GSL from 20 May to 25 May, generating 50 questionnaires, to examine the survey's efficacy. Based on the feedback from this preliminary phase, adjustments were made to enhance the clarity and effectiveness of the questionnaire. Eventually, the questionnaire included 28 items (see the Appendix) and was confirmed for testing the target variables.

#### 3.2.2 Data collection

Over the three weekends in June 2023, eight trained research assistants were stationed at the main park exit, strategically chosen as the area with the highest visitor concentration based on preliminary observations. Incentive gifts were offered to encourage survey participation. The busiest visiting hours, observed during the preliminary test, were between 12 p.m. and 6 p.m. In addition, GSL was expecting approximately 20,000 visitors per day. Due to an insufficient number of research assistants, approximately 1.25% of the visitors per day were investigated as respondents.

Approximately 250 tourists who had visited GSL were approached to complete the survey. Respondents had to be 18 years of age or older and willing to participate voluntarily. The research employed a systematic random sampling, with each assistant approaching every 100<sup>th</sup> potential respondent to ensure comprehensive coverage.

From the survey, we obtained 213 valid questionnaires, representing a response rate of 85.2%. To evaluate internal consistency, we employed both Cronbach's alpha and the Kaiser-Meyer-Olkin (KMO) test. Significant correlations among the



initial variables were essential, with the KMO coefficient being a minimum of 0.8. Furthermore, to ascertain the reliability and validity of the scale, Cronbach's alpha values were required to range between 0.80 and 0.90. Descriptive statistics for each variable are presented in Table 1.

#### 3.3 Logit model method

The responses from respondents were divided into five types based on the degrees of perception. Therefore, to identify the factors influencing visitors' SVIs, we employed the ordered logit regression model using Stata 17.0. The ordered logistic model, as delineated by Cameron and Trivedi (2005), is specified as follows:

$$\Pr(Yi > j) = \frac{\exp(aj + Xi\beta j)}{1 + [\exp(aj + Xi\beta j)]}j = 1 - 2j$$

where the dependent variable Yi is the dependent variable reflecting the 5 degrees of recognition on the SVIs. The value range of Yi is from 1 to 5, representing Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree, respectively. The corresponding question to SVIs included three questions referring whether visitors would choose GSL as their next destination or already had a plan to visit the GSL in the future (SVI). We obtained the SVIs by taking the mean value of answers for the following three statements: (1) In the post-pandemic stage, visitors still planning to go back to GSL for my next trip. (2) In the post-pandemic stage, visitors will choose GSL as their next destination. (3) Visitors already have plans to visit GSL again. The independent variables encompass continuous variables (e.g., service quality) and categorical variables (e.g., COVID-19, brand trust, satisfaction, and sociodemographic information). Among them, service quality is our core variable. To mitigate poor controls, other controlling variables were bifurcated into two levels: "Strongly Agree" and "Disagree" were coded as 0, and "Neutral," "Agree," and "Strongly Disagree" were coded as 1.

#### 3.4 In-depth interviews

In the research on regression model methods, a limitation has been noted about exploring service quality and SVIs. This study needs to dig out the most important factor of service quality effects on SVIs. To gain a more comprehensive understanding of respondents' perspectives, visiting experiences, attitudes, and the motivations behind SVIs, approximately 20 theme park visitors were randomly selected for in-depth interviews. These interviews covered various service quality variables and visitors' SVIs toward GSL. In this study, research is going to determine the underlying components that influence Chinese theme park visitors' SVIs, such as service quality, brand trust, and satisfaction. Respondents were asked some related questions after they filled out the questionnaires by 5 degrees (1-Stongly Disagree; 2-Disagree; 3-Slightly Agree; 4-Agree; 5-Strongly Agree). For example, they were asked about which part of service quality was most concerning to them or which part of sanitizing work was the most important.

### **4 Results**

# 4.1 Sociodemographic profile of the respondents

Among all respondents, 24.9% (53 respondents) were male, while 75.1% (160 respondents) were female (Table 2), indicating a higher attraction of female visitors to the theme park. The most prevalent age bracket among visitors was the 18–24 age group, accounting for 60.1% of the total respondents. This demographic inclination could be attributed to the park's appeal to a younger audience, with its focus on winter sports and roller coasters. Of the participants, 48.8% were university students or graduates, and 31% were college students or had completed their college education. The

Variable	Definition	Obs.	Mean	Std. dev.	Min	Max
SVIs	Future plan to travel the GSL in the post- epidemic era.	213	3.6831	0.7841	1	5
Service quality	THEMEQUAL scale	213	3.9606	0.5501	1.375	5
Safety	Health safety	213	0.4882	0.5010	0	1
Disinfection	Sterilize work	213	0.6431	0.4801	0	1
Cleanliness	Public hygienic sector	213	0.9624	0.1905	0	1
Operation reliability	The GSL is a trustworthy and reliable brand	213	0.9906	0.0966	0	1
Fun safety	Brand image is trust and integrity	213	0.9812	0.1360	0	1
Recommendation	Willing to recommend others	213	0.9577	0.2016	0	1
Expectation	Felt satisfied and met my expectation	213	0.9624	0.1905	0	1
Incomes	Level of monthly incomes	213	2.5915	1.7285	1	6
Gender	Male, female	213	1.7511	0.4333	1	2
Education	Education background	213	0.7511	0.4333	0	1

TABLE 1 Descriptive statistics of dependent variable and independent variables.

TABLE 2 Profile of sample respondents (N = 213).

Variables		Ν	%
Gender	Male	53	24.9
	Female	160	75.1
Age	18–24	128	60.1
	25-34	49	23
	35-54	32	15
	55-64	4	1.9
	65+	0	0
Location of respondents	Guangzhou	149	70
	Cities outside Guangzhou (Guangdong Province)	39	18.3
	Outside Guangdong	25	10.7
Education	University level	104	48.8
	Less than college level	53	25
	College level	34	16
	Master level and above	22	10.3
Income	Less than RMB2,000	84	39.4
	More than RMB8,000	60	28.2
	RMB2,000-4,999	39	18.3
	RMB5,000-7,999	30	14.1
Total		213	100

majority of respondents were university students or younger, likely due to the survey being conducted during the summer break.

A substantial 71.2% of respondents hailed from Guangzhou, the city where GSL is situated. Another 17.6% came from other parts of Guangdong Province. The data suggest that those residing farther away might be dissuaded by the distance. In terms of monthly

income, 40.1% reported earning <RMB 2,000 (approximately US \$290), while 27.6% indicated earning over RMB 8,000 (roughly US \$1,170).

Our questionnaire results indicate that GSL attracts more females, younger individuals, residents from nearby regions, college students, and individuals from lower-income groups.

# 4.2 The comprehensive effect of service quality effects on SVI

A positive correlation exists between service quality and SVI, as evidenced in Table 3. Superior service quality, as gauged by the THEMEQUAL scale including tangibles, reliability, responsiveness and access, assurance, empathy, and courtesy, aims to deliver an exemplary visitor experience. This scale ensures attributes such as employee friendliness, professionalism, and efficient problemsolving capabilities. While we applied some similar variables included in the SERVQUAL scale, our study stands out because it integrates (Tsang et al., 2012) inclusion of a new factor-courtesy, which has been deemed influential in shaping service quality within the theme park industry. These factors augment visitors' perceived experiences and subsequently reinforce their SVIs. In addition, toptier facilities, such as premium accommodations, gourmet dining, and other associated travel amenities, further cultivate SVIs among guests. The coefficient of service quality is approximately 0.716, which is higher than other control variables, meaning that service quality is a paramount determinant that steers the expectationconfirmation paradigm in visitor SVI. According to Ueno (2009), in-depth interviews serve as a valuable qualitative investigation tool, facilitating the exploration of research outcomes through faceto-face discussions about specific topics. The purpose of conducting in-depth interviews was to capture respondents' feelings and thoughts using words instead of numbers. This approach aimed to gain a deeper understanding of relevant issues from the respondents' cognitive framework. The in-depth interviews showed

TABLE 3 Ordered logit estimates for visitors' SVIs for GSL.
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Sus	Coefficient	Robust Std. Err.	t	p >  t	95% Con	f. Interval
Service quality	0.7160	0.0832	8.60	0.000	0.5518	0.8803
Safety	0.1067	0.0892	1.20	0.233	-0.0691	0.2827
Disinfection	0.2191	0.0937	2.34	0.020	0.0343	0.4040
Cleanliness	0.2489	0.2777	0.90	0.371	-0.2986	0.7966
Reliability	-0.0013	0.4526	-0.00	0.998	-0.8938	0.8911
Fun safety	-0.2223	0.4695	-0.47	0.636	-1.1481	0.7034
Recommendation	0.5222	0.3023	1.73	0.086	-0.0738	1.1183
Expectation	0.2680	0.2987	0.90	0.371	-0.3209	0.8571
Gender	0.0152	0.1026	0.15	0.882	-0.1870	0.2176
Income during COVID-19	0.0919	0.0868	1.06	0.291	-0.0792	0.2631
Education	-0.1879	0.0895	-2.10	0.037	-0.3645	-0.0113
Constant	-0.0423	0.3439	-0.12	0.902	-0.7205	0.6358

that visitors anticipate prompt and reliable responses from service personnel. The staff's competency in addressing concerns, coupled with their attentive demeanor, influences visitors' perceptions of the theme park.

Among the control variables, we find that disinfection, recommendations, and education have effects on the SVIs. It is imperative for theme park management to prioritize epidemic prevention measures and invest considerably in ensuring cleanliness and health standards. Titu et al. (2016) further corroborate the notion that tourism sustainability is primarily underpinned by superior quality services. Moreover, visitors' visiting experiences and perceptions of SVIs are influenced by recommendation (Wang et al., 2020). Visitors are willing to choose destinations recommended by their peers because recommendations based on actual visits or firsthand experiences are authentic and credible (Taheri et al., 2021). Conversely, the education variable displays a notable albeit negative correlation. Respondents with higher educational backgrounds might prioritize their professional commitments over recurrent visits to GSL. Additionally, highly educated visitors often exhibit a propensity for variety-seeking. They might lean toward exploring other cultural destinations rather than repeatedly visiting theme parks.

The role of service quality in affecting visitors' SVIs may have been weakened by COVID-19. First, health and safety became the foremost priority for visitors during the outbreak (Lai et al., 2023). Even if a destination significantly enhances its service quality, insufficient epidemic prevention measures might prompt visitors to reconsider their plans. Second, the economic downturn during the pandemic resulted in job losses and reduced incomes for many individuals. Despite potential service quality improvements in the post-pandemic era, these individuals may opt to save money by staying home or choosing more affordable destinations rather than revisiting the same theme parks. The regression results with interaction terms in Table 4 are consistent with findings by Cambefort (2020), Jones and Comfort (2020), and Rasoolimanesh et al. (2021), indicating that the COVID-19 pandemic can alter tourists' intentions and behaviors, surpassing the influence of service quality changes on travel patterns.

Insights from in-depth interviews also revealed that there may be a shift in visitor priorities away from service quality. According to respondent A, although he admitted the importance of service quality, a reduced income due to the COVID-19 pandemic also affected his SVIs. Respondent B emphasized prioritizing cleanliness and disinfection management over service quality, as COVID-19 was still impacting his daily life.

#### 4.3 The specific effects of services on SVI

We further examine the effects of services on sustainable development and discern that two variables exert a notably significant influence on visitors' SVIs (refer to Tables 5, 6). Visitors place greater emphasis on the "assurance" and "courtesy" variables when considering SVIs.

The Assurance indicator is predicated on the knowledge acquired by employees and their capacity to instill trust and confidence (Tsang et al., 2012). Visitors' sustainable intentions are influenced by employees' capacity to instill confidence, address inquiries with adequate knowledge, and ensure visitors' sense of security. Staff responses give visitors a feeling of respect and attention, thus enhancing their satisfaction and SVIs. Consequently, higher service quality will be delivered by minimizing the gap between the expectations and perceptions of visitors of staff performance. Additionally, the "courtesy" of employees emerged as a significant dimension, characterized by the affable and polite demeanor of employees, which can offer a gratifying experience to visitors (Wu et al., 2018). Visitors seek relaxation and security at the theme park; a reliable and safe experience makes the service worthwhile.

#### TABLE 4 Interaction terms between service quality and SVIs.

Sus	Coefficient	Robust Std. Err.	t	p >  t	95% Con	f. Interval
Service quality	0.8723	0.1101	7.92	0.000	0.6550	1.0895
Safety	1.2327	0.6154	2.00	0.047	0.0192	2.4462
Safety*Service Quality (SQ)	-0.2775	0.1509	-1.84	0.068	-0.5751	0.0201
Disinfection	0.1909	0.0932	2.05	0.042	0.0069	0.3748
Cleanliness	0.1559	0.2807	0.56	0.579	-0.3976	0.7095
Reliability	-0.2679	0.4746	-0.56	0.573	-1.2039	0.6679
Fun safety	-0.0287	0.4457	-0.06	0.949	-0.9076	0.8501
Recommendation	0.5323	0.3086	1.73	0.086	-0.0761	1.1409
Expectation	0.2297	0.3011	0.76	0.446	-0.3641	0.8235
Gender	0.0495	0.1037	0.48	0.633	-0.1549	0.2541
Education	-0.1929	0.0890	-2.17	0.031	-0.3684	-0.0174
Constant	-0.4338	0.4003	-1.08	0.280	-1.2233	0.3556

TABLE 5 Ordered logit estimates for different variables of service quality factor (q7) effects on SVI.

Sus	Coefficient	Robust Std. Err.	t	p >  t	95% Con	f. Interval
Q7	0.6654	0.1955	3.40	0.001	0.2799	1.0509
Safety	0.1428	0.1047	1.36	0.174	-0.0637	0.3494
Disinfection	0.1790	0.1040	1.72	0.087	-0.0260	0.3842
Cleanliness	0.5966	0.2168	2.75	0.006	0.1691	1.0241
Reliability	0.2935	0.2836	1.04	0.302	-0.2657	0.8528
Fun safety	0.0457	0.3060	0.15	0.881	-0.5578	0.6492
Recommendation	0.7654	0.2603	2.94	0.004	0.2519	1.2788
Expectation	0.4748	0.2590	1.83	0.068	-0.0359	0.9857
Gender	-0.0214	0.1229	-0.17	0.862	-0.2638	0.2210
Income during COVID-19	0.1443	0.1012	1.43	0.156	-0.0553	0.3439
Education	-0.2914	0.1113	-2.62	0.010	-0.5110	-0.07177
Constant	0.9024	0.2706	3.33	0.001	0.3687	1.4361

## **5** Conclusion

Service quality has long been considered a vital factor influencing visitors' SVIs. However, the onset of the pandemic has altered visitors' travel behaviors, complicating the relationship between service quality and SVIs. Some visitors now prioritize aspects of service quality, such as public hygiene management due to pandemic concerns. For instance, during the pandemic's peak, travelers were notably focused on scrutinizing destinations' cancellation and refund policies (Neuburger and Egger, 2021; Zha et al., 2022). As the perceived threat of COVID-19 diminishes among tourists, there is a resurgence in emphasis on service quality at tourist destinations (Tian et al., 2020; Li et al., 2022; Lu et al., 2022). However, others may devalue service quality in favor of indulgent spending in the postpandemic era.

This study employs the comprehensive framework THEMEQUAL and an ordered logit model to evaluate the effect of service quality on SVI and identifies specific aspects of service quality that play a more important role. The incorporation of the Courtesy dimension into THEMEQUAL is highly fitting for capturing Chinese visitors' expectations regarding service quality. This addition resonates well with the influence of traditional Chinese culture and values, which place significant emphasis on courteous behavior and interactions. Our findings show that service quality can significantly increase visitors' SVIs and surpass the role of other determinates, such as education, recommendations, and disinfection dimensions. However, the pandemic has diminished this effect. Among them, the Assurance and Courtesy dimensions, which have been constructed as staff conveying knowledge and confidence to visitors, are overshadowed by other

Sus	Coefficient	Robust Std. Err.	t	p >  t	95% Con	f. interval
Q9	0.5840	0.3442	1.70	0.091	-0.0947	1.2628
Safety	0.1402	0.1058	1.32	0.187	-0.0684	0.3489
Disinfection	0.1860	0.1042	1.78	0.076	-0.0195	0.3916
Cleanliness	0.4630	0.2611	1.77	0.078	-0.05183	0.9780
Reliability	0.2462	0.3485	0.71	0.481	-0.4410	0.9334
Fun safety	0.1903	0.3414	0.56	0.578	-0.4829	0.8636
Recommendation	0.8174	0.2618	3.12	0.002	0.3011	1.3338
Expectation	0.5698	0.2583	2.21	0.029	0.0603	1.0793
Gender	-0.0423	0.1183	-0.36	0.721	-0.2756	0.1909
Income during COVID-19	0.1450	0.1008	1.44	0.152	-0.0537	0.3437
Education	-0.2838	0.1113	-2.55	0.012	-0.5035	-0.0642
Constant	0.8897	0.3687	2.41	0.017	0.1626	1.6168

TABLE 6 Ordered logit estimates for different variables of service quality factor (q9) effects on SVI.

variables. In addition, health safety, such as disinfection, and satisfaction through recommendations are also important aspects affecting SVI.

Theoretically, this study contributes to the expansion of service quality research within the theme park industry by applying a unique framework. It enriches the existing framework for measuring service quality, thereby providing a foundation for future studies. From a practical standpoint, the outcomes of the proposed framework offer actionable insights for theme parks to enhance their service quality by addressing visitors' concerns. Additionally, it highlights the importance of tailoring measurement approaches to specific circumstances, emphasizing the need for individualized assessments. Moreover, there is a practical significance for future research on theme park service quality, as the findings can inform local government's efforts to support the development of local theme parks based on measurement results. This study provides a comprehensive measurement of visitors' future intentions, offering implications for park managers and policymakers. Contrary to prior studies (e.g., Xie and Luo, 2021) emphasizing uniqueness as being pivotal in theme park assessment, our research highlights that service quality, especially staff politeness, combined with their knowledge and ability to instill trust are the most important factors for attracting tourists. Therefore, enhancing both dimensions is recommended, with a focus on improving facility quality and staff courtesy through training. Additionally, health safety measures and recommendations play pivotal roles. Reinforcing disinfection levels for public hygiene and introducing recommendation policies can strengthen visitors' recommendations.

This study also has limitations. The exclusive focus on GSL may limit capturing the full spectrum of theme parks in China. Subsequent studies should consider diverse parks, including foreign-funded or privately operated parks. Furthermore, the research's temporal constraints might have skewed the representativeness of our findings. Conducted over a few weekends in June, our survey predominantly captured family groups and individuals in their 20s. Extending the research timeframe, spanning peak and off-peak seasons, and seeking a more representative cohort could yield more comprehensive insights. Finally, exploring the disparity between intent and action in a post-pandemic context regarding preventive measures, such as sanitization, remains an area for further investigation.

#### Data availability statement

The original contributions presented in the are study included article/supplementary in the material, further inquiries can be directed to the corresponding author.

### Ethics statement

Ethical review and approval was not required for the study on human participants in accordance with the local legislation and institutional requirements. Written informed consent from the patients/participants or patients/participants legal guardian/next of kin was not required to participate in this study in accordance with the national legislation and the institutional requirements.

#### Author contributions

JL: Writing—original draft, Writing—review & editing. XL: Writing—original draft.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships

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## Appendix

Target variables		Items			
Service quality	Tangibles	The staff of the GSL have neat appearances.			
		The facilities within the GSL (roller coaster, etc.) are visually appealing.			
	Reliability	The staff can accurately respond to epidemic prevention and control.			
		The staff are willing to help visitors.			
	Responsiveness and access	The staff can give on time service to visitors.			
	Assurance	Visitors feel safe during the visit.			
		The staff have sufficient knowledge to answer visitors' special requests about health issues.			
	Courtesy	The staff members are consistently polite.			
Brand trust	Operation reliability	GSL is a reliable theme park brand even after the outbreak of the COVID-19 pandemic.			
	Fun and safety protocol	The image of GSL is one that brings fun and integrity to visitors.			
Satisfaction	Recommendation	I would like to recommend the GSL to my friends.			
	Expectation	GSL meets my expectations for a theme park.			
COVID-19	Safety	The normalization of COVID-19 has affected my ongoing decision to travel.			
	Cleanliness	I think the GSL can still ensure sanitation and hygiene underneath the COVID-19 pandemic on an ongoing basis.			
	Disinfection	I think the GSL has done a good job of disinfection underneath the COVID-19 pandemic on an ongoing basis.			
Sociodemographic information	Education	What is your educational background?			
	Incomes	Which level is your monthly income?			
SVIs	SV1	In the post-pandemic stage, I'm still planning to go back to GSL for my next trip.			
	SV2	In the post-pandemic stage, I will choose GSL as my next destination.			
	SV3	I already have plans to visit GSL again.			

SVI, sustainable visit intention; GSL, Guangzhou Sunac Land.