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From crisis to change: exploring the lasting influence of COVID-19 on Airbnb users through structural topic modeling

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A key challenge for the peer-to-peer (P2P) accommodation industry is keeping pace with the evolving expectations and behavior of guests over time, shaped by diverse experiences and shifting preferences. This study employs advanced text analytics to analyze the enduring impact of COVID-19 on Airbnb users' accommodation preferences, both during the pandemic and in the subsequent year, covering the period from May 2020 to May 2024. Employing a longitudinal research design, we analyze a dataset of 461,509 reviews from 18,465 listed properties across four major cities in different countries (i.e., Spain, the United Kingdom, and the United States) known for their Airbnb presence. Our findings highlight that the most significant and enduring impact of the pandemic on guest behavior is an increased prioritization of health-related features. Although certain attributes that were previously valued remain relevant, there has been a marked transition in user perceptions; specifically, hedonic and aesthetic values have diminished in importance relative to health-centric considerations and psychological well-being. Furthermore, the policies and practices adopted during the pandemic reveal additional dimensions of its lasting influence, shaping guest expectations and preferences. Notably, these include enhanced booking and cancellation flexibility, the implementation of contactless services, and the provision of protective equipment. This research contributes to understanding how crises can reshape guest priorities within the context of sharing economy accommodations, offering valuable insights for both academic researchers and practitioners.

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Introduction

The COVID-19 pandemic has still left an indelible mark on the global travel and accommodation sectors, forcing profound changes in guest behavior and service expectations (Srivastava and Kumar, 2021). As a key player in the sharing economy, Airbnb has been particularly affected, with significant reductions in travel activity and a shift in guest priorities. The global pandemic, which primarily spreads through respiratory droplets, necessitated the implementation of physical distancing, heightened hygiene practices, and reduced in-person interactions (World Health Organization, 2020). Due to the close interactions between guests and hosts in peer-to-peer (P2P) accommodations and the importance of social engagement as a key factor in choosing P2P accommodations over traditional hotels (e.g., Filieri et al. 2023; Cheng and Jin, 2019), platforms like Airbnb were particularly hard-hit by the pandemic (Abril, 2020). A global leader in P2P accommodation sharing, Airbnb faced significant disruption during the pandemic, which reshaped the market and guest behavior. Despite an initial revenue decline in 2020, these shifts redefined the P2P accommodation sector in the post-pandemic era, compelling providers to adjust their offerings to meet new guest expectations (Nuttah et al. 2024).

To examine the impact of COVID-19 on the P2P accommodation sector, existing studies have mainly focused on immediate pandemic-driven shifts, such as changes in bookings (Cheng et al. 2023; Gyódi, 2022), consumer preferences (Jiang et al. 2022; Nicolau et al. 2023), and risk perceptions (Guttentag et al. 2023; Lee and Deale, 2021). However, a critical gap remains in understanding the long-term structural changes in guest behavior and their implications for the industry. This gap leaves stakeholders, including Airbnb and other accommodation platforms, ill-equipped to address ongoing challenges, such as volatile demand recovery, host attrition, and shifting traveler expectations in a post-pandemic environment (Braje et al. 2022; Buzzacchi et al. 2023). For instance, Airbnb's pivot to long-term rentals and remote-work-friendly listings (Jess, 2024) helped stabilize revenue during lockdowns, but the sustainability of these strategies is uncertain as travel patterns shift. Furthermore, travelers now expect the hybrid offerings that gained popularity during the pandemic, such as flexible cancellation policies and contactless stays, blurring the lines between traditional hospitality and P2P accommodations. These evolving dynamics raise an important question: are the pandemic-induced changes in guest preferences temporary adjustments, or do they represent a fundamental shift in the P2P accommodation market? Addressing this gap is essential for understanding how guest behavior has evolved throughout the pandemic and continues to evolve in the post-pandemic world, enabling platforms to adapt their strategies to meet the changing demands of a transformed marketplace.

This study contributes to the literature on P2P accommodation by addressing the gap in understanding long-term behavioral shifts among guests in the context of the COVID-19 pandemic. By employing Structural Topic Modeling (STM) to analyze a large dataset of Airbnb reviews, the research identifies emerging themes and patterns that highlight how the pandemic has reshaped guest preferences over time. These findings advance theoretical frameworks in hospitality and tourism by providing insights into the enduring impact of global crises on consumer behavior, offering a foundation for future studies on resilience and adaptation in the sharing economy. The findings of this study also provide valuable guidance for Airbnb hosts and platform managers seeking to adapt to evolving guest expectations in the post-pandemic era. Additionally, the insights can inform marketing strategies and operational decisions, helping stakeholders enhance guest satisfaction and competitiveness in a rapidly changing market. Policymakers in the tourism sector can also

leverage these findings to develop guidelines that support the sustainable recovery of P2P accommodation platforms.

In the following sections, we first review the literature on the impact of COVID-19 on P2P accommodation and STM. We then describe our research methodology, including the use of text analytics to analyze guest reviews. Our findings are presented in detail, followed by a discussion of their implications for both academic researchers and practitioners. Finally, we conclude by highlighting the contributions of this study to the ongoing discourse on the transformation of P2P accommodations in a post-pandemic world.

Literature review

Theoretical foundation. In examining the changes in consumer behavior brought about by the COVID-19 pandemic, various theories offer valuable perspectives to understand the driving forces behind these shifts. One such perspective is provided by the Health Belief Model, which suggests that consumers' choices in hospitality and tourism are heavily influenced by their perceptions of health risks and the benefits they associate with safer alternatives (Mirakzadeh et al. 2021; Naseer et al. 2022). Building on this, the Theory of Planned Behavior further elaborates on how attitudes toward safety, subjective norms, and perceived behavioral control collectively shape the intention to choose specific accommodations (Huang et al. 2020; Tajeddini et al. 2021). Moreover, the Technology Acceptance Model offers insights into the adoption of digital platforms, such as Airbnb, emphasizing how perceived usefulness—particularly in terms of contactless stays and flexible policies—drives consumer preferences (Jung et al. 2021).

In this study, we mainly draw on Social Exchange Theory (SET), which suggests that individuals engage in interactions based on a cost-benefit analysis and the expectation of reciprocal benefits and has been widely applied in the hospitality sector (Khan and Hefny, 2019; Priporas et al. 2017; Wang et al. 2022). Applied to the P2P accommodation context, SET helps explain how guests re-evaluated their choices during and after the pandemic, weighing factors such as safety, flexibility, and perceived risk against the benefits of travel and accommodation experiences. As the pandemic heightened concerns over health and safety, guests likely made decisions based on the perceived “cost” of potential exposure to COVID-19, altering their behavior towards preferences for accommodations that prioritized hygiene and safety protocols. SET can offer robust frameworks for analyzing the pandemic-induced changes in consumer behavior within the P2P accommodation sector, providing both explanatory power and theoretical insights into these long-term shifts.

Impact of COVID-19 on P2P Accommodations. The COVID-19 pandemic brought unprecedented disruptions to the travel and hospitality sectors, deeply impacting P2P accommodations like Airbnb. This section explores how the pandemic has influenced the preferences of Airbnb users, drawing insights from various studies that examine the evolving dynamics of P2P accommodation during and after the pandemic. The pandemic's impact on the accommodation-sharing sector revealed a paradox in which the sector's strengths, such as flexibility and personal interaction, became vulnerabilities amidst the crisis (Gerwe, 2021). Studies have highlighted how hosts' responses to the pandemic varied significantly. Farmaki et al. (2020) interviewed hosts and found that reactions ranged from temporarily halting operations to adopting safety protocols and emphasizing remote hosting options. In the Chinese context, Zhang et al. (2021) found that the pandemic acted as an accelerator for some hosts to

Table 1 Literature summary.

Objective	Methodology	Key Findings	Authors
Examine the impact of COVID-19 on Airbnb booking activities	Quantitative analysis of listing data	Lockdowns caused a 57.8% drop in global bookings; each doubling of infections led to a 4.16% decrease.	Cheng et al. (2023)
Investigate consumer preferences for Airbnb vs hotels during COVID-19	Survey	Americans had similar concerns for both lodging types, which decreased over time.	Guttentag et al. (2023)
Analyze the impact of COVID-19 on the traditional hotel industry and Airbnb	Quantitative analysis of listing data and user behavior	Significant drop in bookings and shifts in guest preferences for health and safety features.	Gyódi (2022)
Investigate Airbnb user adoption of shared services during the pandemic	Survey	Users prioritized safety, reducing demand for peer-to-peer lodging.	Yang and Lee (2022)
Compare perceived risks of using shared accommodations before and during the pandemic	Survey	Increased social, physical, performance, and convenience risk perceptions during the pandemic, varying by experience.	Lee and Deale (2021)
Examine Airbnb users' accommodation choices during the pandemic	Mixed methods	Guests preferred entire Airbnb apartments when COVID-19 was rising, but not when it was declining.	Nicolau et al. (2023)
Identify safety practices for P2P accommodation across tourist segments	Survey	Four segments identified: concerned, indifferent, forewarned, and confident tourists, with varying safety needs.	Petruzzi and Marques (2024)
Investigate the effect of COVID-19 on Airbnb's revenue and market disruption	Quantitative analysis of listing data	Leisure-dependent regions saw greater revenue drops during the crisis.	Jang and Kim (2022)
Compare motivators and repurchase intention for P2P accommodation before and during the pandemic	Survey	Functional motivators, especially neighborhood, strongly influenced repurchase intention during both periods.	Jiang et al. (2022)
Investigate COVID-19 impacts on Airbnb's bookings behavior	Quantitative analysis of listing data	Consumers preferred P2P accommodations with price premiums, particularly in rural areas.	Filieri et al. (2023)

Source: this research.

embrace the original ethos of the sharing economy, emphasizing personal, experiential hosting rather than a purely commercial focus.

Airbnb users' preferences have experienced significant changes due to the COVID-19 pandemic. One of the shifts has been the increased preference for entire flat rentals over shared accommodations and traditional hotels. Bresciani et al. (2021) found that, in response to physical distancing concerns, guests showed a clear preference for renting entire flats, driven by the desire for greater privacy and control over their accommodation environment. Nicolau et al. (2023) also found that travelers prefer Airbnb entire flats/apartments during periods of rising pandemic risk, validating a preference for Airbnb in high-risk scenarios. This privacy preference is closely linked to changes in locational choices. Türk and Sap (2021) noted that while the physical attributes of listings remained largely consistent with pre-COVID trends, there were significant shifts in spatial preferences. These shifts can be attributed to the pandemic's impact on travel restrictions and heightened safety concerns, prompting travelers to seek out accommodations in less crowded or more isolated locations. Trust also emerged as a crucial factor influencing traveler behavior in the post-pandemic period. Braje et al. (2022) observed that trust in both the platforms and the hosts played a more significant role in determining repurchase intentions among short-term rental users. This finding underscores the increasing importance of safety and reliability in accommodation choices during uncertain times. Hygiene and cleanliness, in particular, have become paramount concerns for travelers. Godovykh et al. (2023) highlighted that transparency around cleanliness measures significantly boosted guest trust and positively influenced their behavioral intentions. Similarly, Kim et al. (2022) found a substantial shift in consumer preferences, with cleanliness overtaking location as the primary consideration during the pandemic.

More recent studies continue to deepen our understanding of these shifts. Chen et al. (2023) explored continuous sharing

behavior among providers and found that positive feedback significantly influenced providers' willingness to continue sharing, with intrinsic motivation playing a key mediating role. Meanwhile, FB Teixeira (2023) systematically investigated the reasons why guests opt for or reject P2P hospitality, highlighting utilitarian factors such as feeling welcomed by hosts and comfort in the neighborhood as primary motivators while also noting safety concerns as an important consideration. These insights suggest that while traditional motivators for P2P accommodation remain relevant, the pandemic has introduced new priorities, particularly around safety and trust. In the post-pandemic context, Sahadev et al. (2023) revealed that user-generated content, specifically ratings, and sentiments, had significant positive effects on occupancy rates, demonstrating the continued importance of guest feedback in driving demand. Furthermore, Wu et al. (2023) examined host-guest interactions, emphasizing that such interactions, particularly for sociable guests, played a critical role in fostering commercial friendships and co-creating value. This research highlights the evolving nature of host-guest dynamics, suggesting that while safety and trust are paramount, the interpersonal elements of the P2P accommodation experience still hold significant value for certain segments of the market. Table 1 summarizes the key findings from the literature on the impact of COVID-19 on P2P accommodation.

While numerous studies have focused on guest behavior either during or immediately after the pandemic (e.g., Braje et al. 2022; Jiang et al. 2022; Türk and Sap, 2021), there is a need for longitudinal studies to track the long-term recovery and adaptation of the Airbnb market, as the immediate post-pandemic period may not fully reflect enduring changes. Existing studies often fail to provide a comprehensive perspective that tracks how guest preferences have changed from pre-pandemic conditions, through various stages of the pandemic, and into the post-pandemic era following the WHO declaration of the pandemic's end. It remains unclear whether the observed shifts

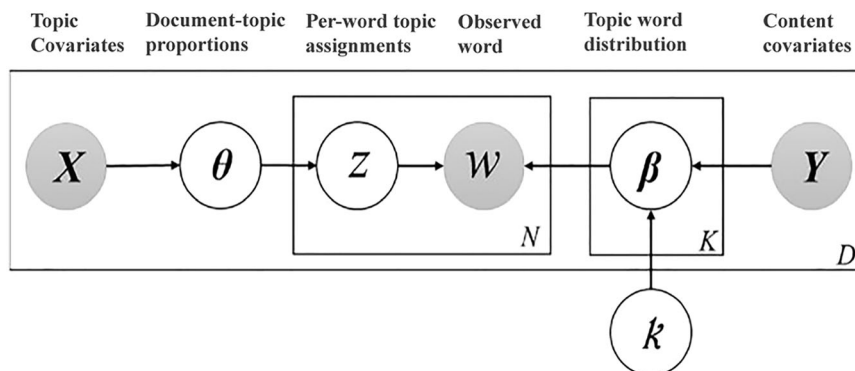


Fig. 1 STM model illustration. Roberts et al. 2016.

in guest behavior represent long-term, structural changes or merely short-term adaptations in response to the crisis. The inherently dynamic nature of the P2P accommodation sector further justifies the importance of this research gap.

Structural topic model. To explore the evolving preferences of Airbnb users amidst the progression of the pandemic, we employed STM to analyze Airbnb reviews. STM, a contemporary addition to the suite of topic modeling algorithms developed in recent years, examines the observed words in a text corpus to uncover latent topics or themes. It uses the Bayesian generative topic model, which assumes each topic as a distribution over words and each document as a mixture of topics (Blei, 2012; Roberts et al. 2014). This research employed STM for two main reasons. Firstly, STM is a mixed membership model, allowing documents to cover multiple topics—an ideal characteristic for analyzing accommodation reviews, which often contain various preference traits. Secondly, STM enables the incorporation of document-level covariates in the analysis. Given the study's focus on identifying shifts in Airbnb users' preferences during the pandemic, factors such as the date of the reviewer's stay were crucial to include. Additionally, review extremity, distinguishing between positive and negative reviews, could also be considered as a covariate within STM (Roberts et al. 2016).

Figure 1 shows the framework of STM for analyzing textual data, allowing for the integration of covariates that influence both the prevalence and content of topics. In the context of this study, we leverage STM to analyze Airbnb reviews and track changing user preferences during and after the COVID-19 pandemic, incorporating review date and sentence polarity as covariates. The model begins by using these covariates to influence the document-topic proportions (θ), which dictate the distribution of topics within each review. Similarly, sentence polarity (positive or negative sentiment) affects how users express their preferences, with more negative sentiment possibly amplifying discussions around negative experiences during the pandemic. Per-word topic assignments (z) assign each word in a review to a specific topic, thereby identifying how individual words relate to broader themes. Topic word distributions (β) specify the probability of words occurring in each topic. These distributions are influenced by content covariates (Y), allowing the language used in each topic to evolve based on the covariates.

Methodology

Data collection. In this study, we collected data from [InsideAirbnb.com](https://www.insideairbnb.com), a platform that openly shares Airbnb data scraped from the official Airbnb site. We focused on textual reviews collected between May 2020 and May 2024 from four major cities: New York City, London, Los Angeles, and Barcelona,

which are popular tourist destinations that experienced pronounced impacts from COVID-19, making them particularly relevant for our analysis. This timeframe captures critical stages of the pandemic, from the initial outbreak through various responses, including lockdowns and the gradual reopening of economies. It allows for longitudinal analysis of guest sentiment, helping to identify trends in guest preferences and behaviors during the crisis and recovery phases. In addition, these cities were selected to enhance the generalizability of our findings, as they are among the top destinations for Airbnb listings worldwide and boast a significant number of English-language reviews. Figure 2 provides the methodological framework of this research.

Data pre-processing. For the topic modeling analysis of Airbnb online reviews, we followed a structured text pre-processing procedure in line with previous research (Ding et al. 2024; Xu, 2020). (1) We began by filtering the data to include only English-language reviews using the “textcat” package from R programming. (2) Next, the text was cleaned by converting all content to lowercase, removing punctuation and non-alphabetic characters, and eliminating common stopwords (e.g., is, a, and the). (3) Subsequently, we applied tokenization to break down the text into individual words, followed by lemmatization to reduce words to their root forms. Lemmatization converts words like ‘running’ or ‘ran’ to their base form ‘run,’ which allows for a more accurate interpretation of the underlying content. (4) Since topic modeling tends to perform poorly with a short text, reviews containing fewer than six words were excluded. Additionally, uncommon words that appeared in less than 2% of the initial corpus were removed (Korfiatis et al. 2019). The final dataset comprises 461,509 reviews across 18,465 listed properties. Table 2 provides a summary of the review statistics, categorized by city.

Covariate set up. To gain an understanding of Airbnb user sentiment and how it evolves, we incorporate the polarity of each sentence as well as the review date into the model to analyze their influence on topic prevalence. To capture the sentiment of user reviews, we use the “Sentimentr” package in R, a tool that employs Bayesian classifiers to categorize each sentence based on its polarity.

Determining the topic number. The most important task in applying topic modeling is determining the appropriate number of topics. Although there is no universally correct number, statistical metrics can guide the selection process. In this study, we approach topic selection in two phases. The first phase involves using four criteria—Held-Out likelihood, residuals, semantic coherence, and lower bound—to narrow down the candidate number of topics. We specifically selected statistical metrics that

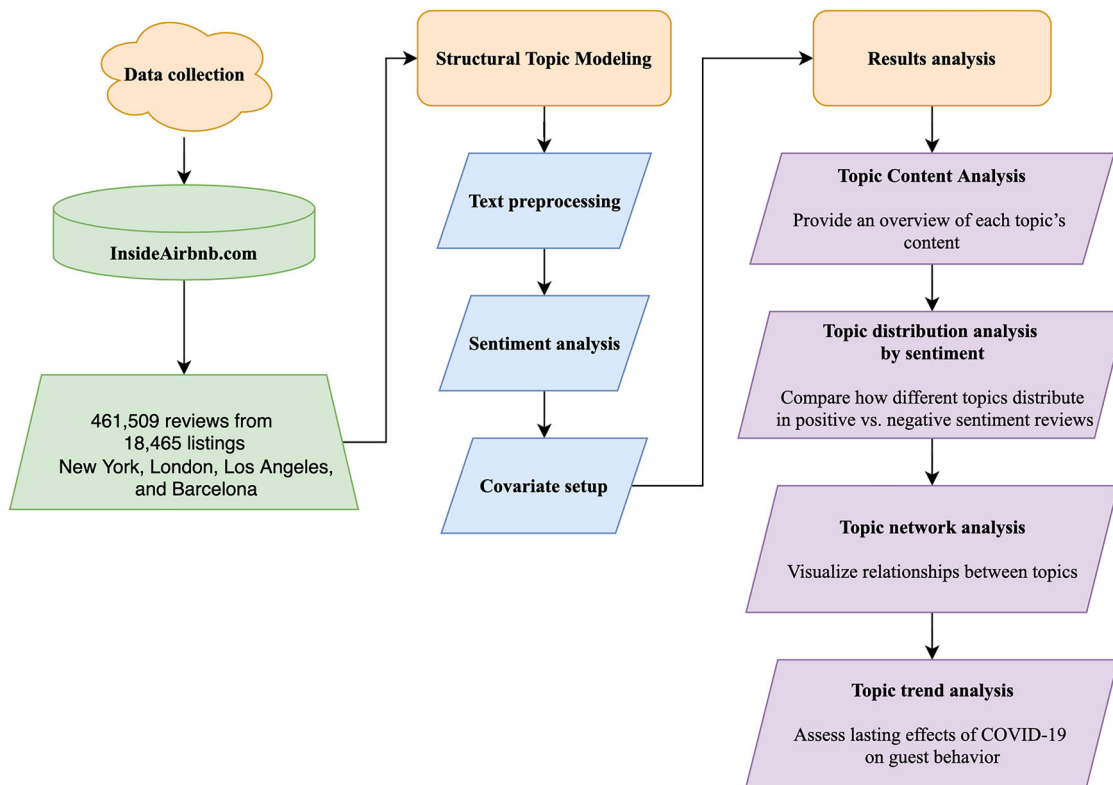


Fig. 2 Methodological framework. This research.

Table 2 Summary statistics of review sample by cities.			
City	Year	Frequency	Percentage
New York City	2020	18,345	3.97%
	2021	28,245	6.12%
	2022	25,432	5.51%
	2023	40,789	8.83%
	2024	24,754	5.37%
London	2020	12,874	2.79%
	2021	32,039	6.94%
	2022	21,901	4.75%
	2023	30,432	6.59%
	2024	17,584	3.81%
Los Angeles	2020	13,123	2.84%
	2021	25,678	5.56%
	2022	32,345	6.99%
	2023	30,672	6.64%
	2024	19,021	4.12%
Barcelona	2020	9032	1.96%
	2021	18,456	4.00%
	2022	22,567	4.89%
	2023	26,875	5.83%
	2024	11,345	2.46%
Total		461,509	100%

This research.

are sensitive to changes in the number of topics. In the second phase, we assess the performance of individual topics across different topic solutions using semantic coherence and exclusivity. Semantic coherence is an indicator of topic quality, proposed by Mimno et al. (2011). When the most probable words in each topic frequently co-occur, the semantic coherence of that topic is maximized. Let $D(v, v')$ represent the co-occurrence frequency of words v and v' in a specific document. For the M high-frequency words in topic k , the semantic coherence of topic k can be

expressed as:

$$C_k = \sum_{i=2}^M \sum_{j=1}^{i-1} \ln \left(\frac{D(v_i, v_j) + 1}{D(v_j)} \right) \tag{1}$$

However, with a smaller number of topics, the topics generated are often dominated by common words, leading to an over-estimation of the semantic coherence function. Therefore, it is necessary to introduce the topic exclusivity indicator, FREX, which balances word frequency by calculating the weighted harmonic mean of word frequency and exclusivity, thereby improving the model's quality. The FREX calculation formula is:

$$FREX_{k,v} = \left(\frac{\omega}{F(\beta_{k,v} / \sum_{j=1}^K \beta_{j,v})} + \frac{1 - \omega}{ECDF(\beta_{k,v})} \right)^{-1} \tag{2}$$

where $ECDF$ is the empirical cumulative distribution function, and w is the pre-set probability.

As demonstrated in Fig. 3, Held-Out likelihood, residuals, and semantic coherence show greater sensitivity to variations in the number of topics within the range of 5 to 40. After analyzing these three metrics, we determined that a candidate range of 20 to 25 topics was most appropriate. Subsequently, we evaluated the individual performance of topics within this range and found that the model with 22 topics exhibited optimal performance in both statistical metrics shown in Fig. 4. Additionally, a qualitative examination of the content revealed that the topics had minimal overlap, and the majority were intuitively interpretable. Therefore, we selected the 22-topic solution for this study.

Results and discussion

Identification of topics in reviews. Table 3 presents the results of the topic modeling analysis, where each topic is assigned a unique label based on the examination of the most frequently occurring

Diagnostic Values by Number of Topics

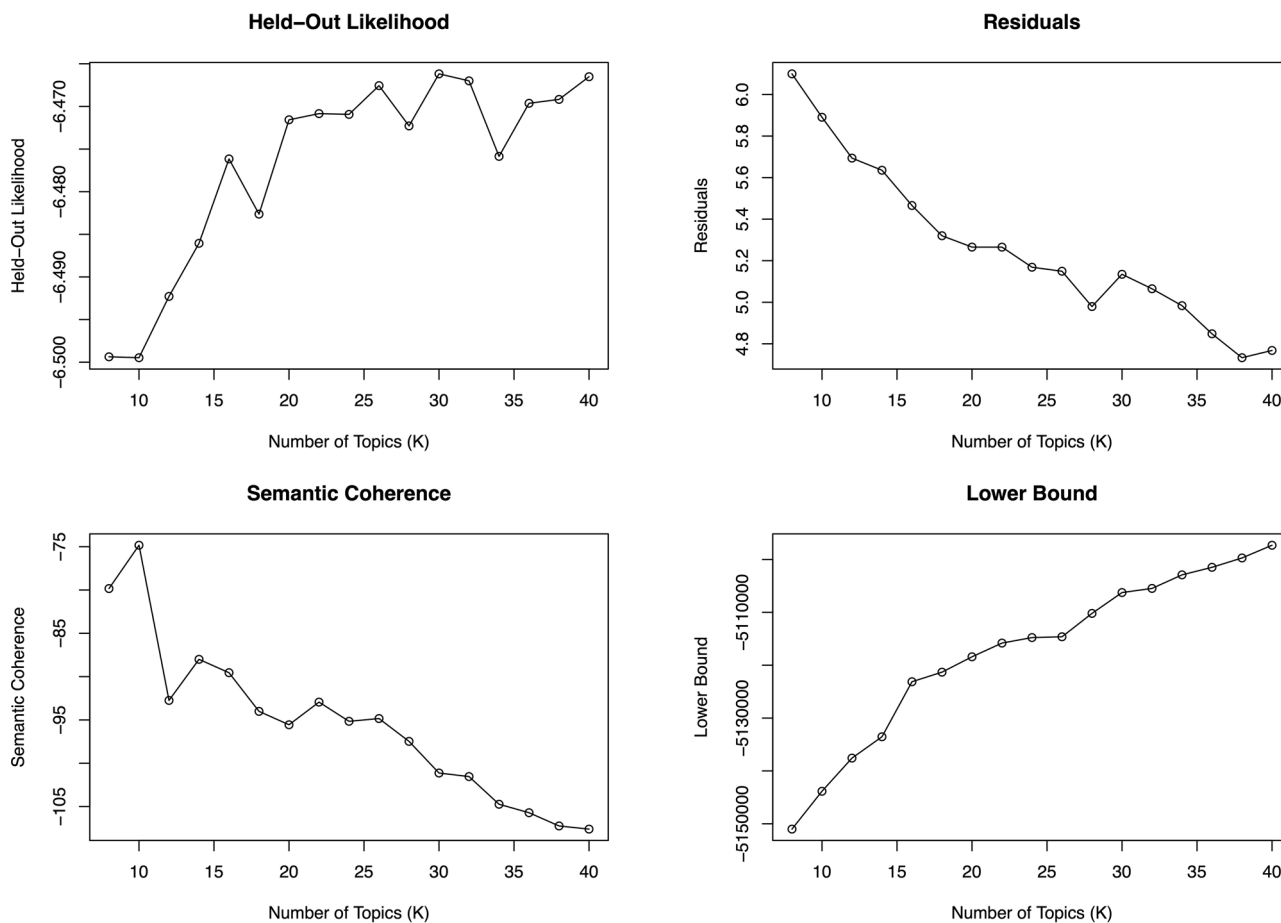


Fig. 3 Diagnostic values by number of topics. This research.

words and the representative reviews associated with each topic. The labeling process aims to capture the essence of each topic by interpreting the key terms and the context in which they appear in the reviews, allowing for a logical categorization. Some topics labeled with “COVID-19”, or “Pandemic” continue to be addressed in discussions, even after the pandemic has officially ended. This persistence can be attributed to the fact that certain keywords and phrases associated with these topics remain relevant to Airbnb users. As travelers reflect on their experiences during the pandemic, they continue to discuss elements such as health and safety measures, cleanliness standards, and preferences shaped by recent travel restrictions. The topic proportion for each identified topic represents the relative prevalence or importance of that topic within the entire corpus of reviews. Higher proportions indicate topics that are more commonly discussed by Airbnb users, suggesting these themes are more central to the overall guest experience or concern in the given context. Conversely, topics with lower proportions may highlight niche issues or aspects that are discussed less frequently but are still significant within the dataset. Each topic is interpreted in the following subsections, where a more detailed analysis is provided.

Topic interpretation. Topic 1 addresses the concept of hospitality amidst the challenges posed by COVID-19, focusing on the adaptability and resilience of both hosts and guests. Terms such as “hospitality,” “coronavirus,” “global,” “ongoing,” and “uncertain” point to the significant impact COVID-19 had on the hospitality industry. Words like “resource,” “appreciative,” and “survive” reflect the collective effort to endure the hardships

brought on by the pandemic. Research by Gursoy and Chi (2020) aligns with this interpretation, showing that the pandemic forced the hospitality industry to innovate rapidly, with health and safety protocols becoming a central part of the guest experience. Topic 2 emphasizes the importance of flexibility amid travel restrictions due to COVID-19. Terms like “due,” “restriction,” “communication,” and “flexible” highlight the need for adaptability in booking and rescheduling. The frequent mention of “reschedule,” “guideline,” and “lockdown” points to the changing travel arrangement and the necessity for clear and supportive instructions from hosts. Sigala (2020) also suggests that effective communication and flexibility are critical for maintaining guest satisfaction during crises.

Topic 3 captures the beach and resort vacation experience. The top terms like “beach,” “resort,” and “ocean” suggest a demand for leisure-focused accommodations. Additionally, terms like “snorkel,” “sunset,” and “beautiful” emphasize outdoor activities that are integral to the coastal vacation experience. These features are particularly important during COVID-19, as travelers increasingly prioritized destinations offering outdoor activities as a response to lockdown fatigue and social distancing needs (Jang and Kim, 2022). Topic 4 centers on the check-in and check-out processes, particularly emphasizing contactless and efficient experiences during COVID-19. The emphasis on “seamless” and “contactless” procedures ties directly to pandemic-induced operational changes, as many guests associated these features with reduced COVID-19 transmission risks. Research has documented a significant shift toward digital and contactless check-in options (Petruzzi and Marques, 2024), with hosts and

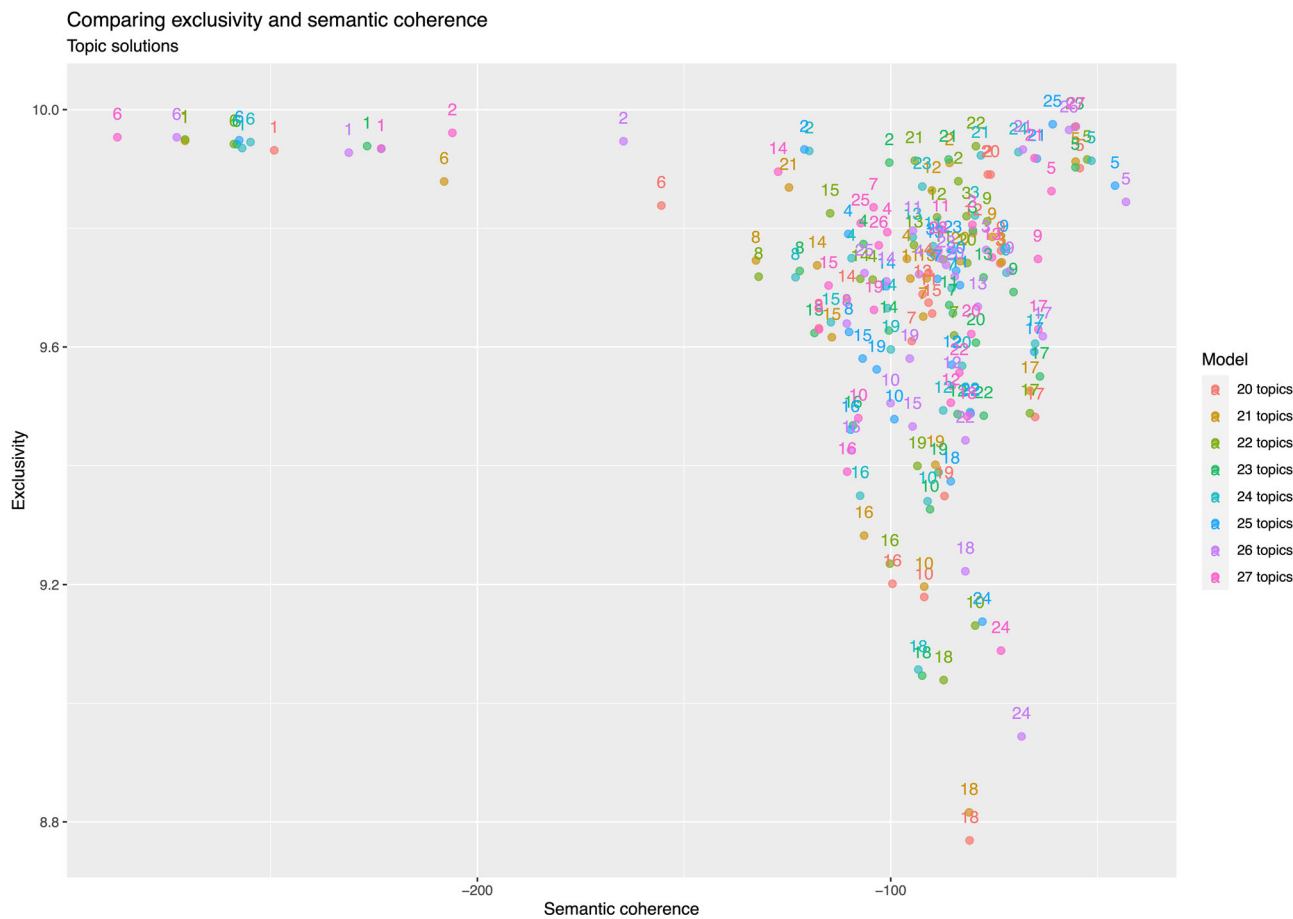


Fig. 4 Topic model evaluation. This research.

Table 3 Topic summary.

Topic #	Topic label	Top words	Topic Prop. (%)
1	Pandemic hospitality	Hospitality, coronavirus, global, ongoing, amidst, uncertain, survive	5.3%
2	Flexible booking during COVID-19	Communication, book, restriction, change, situation, flexible, reschedule	4.8%
3	Ocean view	Beach, condo, pool, view, ocean, chair, resort	2.1%
4	Contactless service	Checkin, process, checkout, contactless, instruction, clear, seamless	4.7%
5	Cleanliness during COVID-19	Covid, clean, easy, check, convenient, precaution, protocol	4.6%
6	Safety during COVID-19	Safe, clean, secure, cleanliness, share, private, service	5.4%
7	Parking and noise concerns	Park, street, car, spot, find, noise, walk	4.2%
8	Extended stays during COVID-19	Stay, covid, extend, trip, time, plan, long	4.8%
9	Neighborhood exploration	Walk, distance, close, location, area city, town	4.9%
10	Dirty room	Clean, dirty, place, bed, bathroom, sheet, floor	6.0%
11	Booking and refund	Airbnb, host, book, day, refund, covid, check	4.3%
12	Family-friendly accommodation	House, family, kid, kitchen, year, enjoy, time,	4.0%
13	Provision of essentials and supplies	Provide, towel, kitchen, mask, sterilize, bathroom, clean	4.6%
14	Internet connectivity	Wifi, internet, fast, strong, connection, problem, week	5.4%
15	Proximity to public transportation	Apartment, walk, bus, metro, train, nearby, stop	4.8%
16	Property maintenance	Bedroom, aircond, maintain, floor, view, window, management	2.5%
17	Nature and outdoor experiences	Island, tree, bird, garden, nature, enjoy, fresh,	3.0%
18	Security issues	Door, lock, window, key, break, open, knock	5.4%
19	Home-like experience	Home, feel, comfortable, warm, cozy, relax, lovely	4.2%
20	Apartment features	Apartment, bedroom, space, large, livingroom, space, bathroom	5.8%
21	Responsive communication	Helpful, friendly, responsive, quickly, communicative, question, answer	4.5%
22	Travel during COVID-19	Pandemic, covid, stay, make, time, travel, area	5.0%

This research.

guests seeking efficiency and safety in these processes (Nicolau et al. 2023).

Topic 5 is related to cleanliness and safety measures during the pandemic. The focus on “clean,” “protocol,” and “comfortable” aligns with research showing that hygiene standards became the top priority for guests during COVID-19 (Pillai et al. 2021). Additionally, hosts who adopted visible safety measures (e.g.,

sanitization seals, and contactless service) reported higher guest satisfaction (Pawlicz et al. 2022). Topic 6 explores guest experiences in Airbnb listings located in hotels, with a focus on key factors such as safety, service, and amenities. Words like “room,” “safe,” “hotel,” “staff,” and “service” show the aspects that guests often consider when choosing accommodations. Airbnb listings located in hotels may offer an added sense of

security due to the presence of established hotel management protocols, which are often perceived as more professionally administered compared to the often individualized approaches of typical Airbnb listings. However, Lee and Deale (2021) found that during the COVID-19 pandemic, many guests perceived Airbnb listings as a safer alternative to traditional hotels due to reduced person-to-person interaction.

Topic 7 addresses common issues related to parking and noise during stays. Words like “park,” “car,” “street,” “noise,” and “hear” suggest that parking availability and noise levels are significant concerns for guests. The frequent mention of “night,” “people,” and “place” indicates these issues are often encountered in urban settings. Urban settings’ challenges with “parking” and “noise” correlate with research on intra-city Airbnb performance. It is found that properties in densely populated areas faced higher guest dissatisfaction due to external disruptions (Wang et al. 2023), especially during lockdowns when guests spent more time indoors. Topic 8 focuses on extended stays and changes in travel plans due to COVID-19, reflecting a significant shift in travel patterns. The increased prevalence of terms like “extend” and “month” directly mirrors Airbnb’s strategic adaptation to the pandemic by emphasizing and promoting long-term rentals, which aligns with Cheung’s (2024) observation of prolonged stays becoming a pandemic-induced behavioral shift.

Topic 9 emphasizes the significance of location convenience, with words like “perfect,” “walk,” “restaurant,” “distance,” “visit,” and “close” highlighting the appeal of being near dining, entertainment, and other attractions. At the same time, the mention of terms like “quiet,” “neighborhood,” and “park” reflects guests’ preference for peaceful, well-situated locations. Research on Airbnb booking behaviors has consistently found that proximity to key attractions and the quality of the surrounding neighborhood are critical factors for guest satisfaction (Ding et al. 2024). The pandemic only amplified these concerns, as many guests prioritized properties offering easy access to outdoor spaces, such as parks and scenic walks, for safe and enjoyable activities. Topic 10 addresses specific cleanliness issues, as indicated by terms like “clean,” “dirty,” “bed,” “bathroom,” “sheet,” and “floor.” The frequent mention of “hair,” “stain,” “smell,” and “leave” suggests that guests are particularly sensitive to hygiene shortcomings in high-contact areas of their accommodation (Godovykh et al. 2023).

Topic 11 centers on the administrative challenges related to booking, refunds, and cancellations, especially during the uncertainty of the COVID-19 pandemic. Terms like “airbnb,” “host,” “book,” “refund,” “covid,” and “cancel” indicate the operational difficulties faced by both hosts and guests. The pandemic led to a surge in cancellations and refund requests as travelers’ plans became uncertain. It is found that clear communication regarding booking policies and flexible cancellation options significantly impacted customer satisfaction during this period (Liu et al. 2021). The emphasis on “money,” “guest,” “pay,” and “message” points to the communication and financial aspects of managing bookings. Topic 12 highlights the appeal of Airbnb accommodations for families. The emphasis on terms like “family,” “yard,” and “play” reflects Airbnb’s growing appeal for multi-generational travel, particularly during the pandemic when families sought safe, self-contained spaces. Guttentag et al. (2018) highlights how Airbnb’s flexibility in offering entire homes with kitchens and outdoor areas catered to families prioritizing privacy and convenience. Post-2020, properties with amenities such as pools and spacious layouts became critical for seeking a leisure-work balance.

Topic 13 emphasizes the role of essential amenities in Airbnb rentals, with terms like “provide,” “towel,” “kitchen,” “extra,” “supply,” and “clean” highlighting that hosts typically equip their

properties with necessary items such as towels, kitchen supplies, and toiletries. Additionally, the presence of “mask,” “soap,” and “handsanitizer” reflects the increased attention to hygiene during the COVID-19 pandemic. Similarly, Jiang and Wen (2020) found that heightened hygiene standards, especially the provision of sanitizing products, became critical during the pandemic, with guests expecting these items as part of their health and safety requirements. Topic 14 focuses on the importance of internet connectivity, especially for guests who need to work remotely. Words like “work,” “wifi,” “internet,” “fast,” “connection,” and “remote” signal that many reviews assess the quality of internet service. Terms such as “issue,” “problem,” “fix,” and “resolve” point to the significant impact internet connectivity issues can have on the overall experience. Research has shown that a reliable internet connection is now one of the top priorities for Airbnb guests (Pawlicz et al. 2022), particularly as remote work became more widespread during the pandemic.

Topic 15 highlights the importance of location and accessibility for Airbnb guests. Terms like “walk,” “minute,” “station,” “restaurant,” “shop,” “airport,” and “location” demonstrate that guests value proximity to public transport, dining, and shopping options. Furthermore, the frequent appearance of transportation-related terms such as “bus,” “taxi,” “metro,” and “train station” emphasizes the importance of easy access to transit. Topic 16 addresses the quality and management of rental units. Words like “unit,” “property,” “rental,” “bedroom,” “aircond,” “owner,” and “management” indicate a focus on the physical condition of the property and the role of property managers. Terms like “maintain,” “remodel,” and “manager” suggest that maintenance and managerial responsiveness are important aspects of the guest experience. Effective property management and maintenance are essential for ensuring guest satisfaction and comfort (Sánchez-Franco and Aramendia-Muneta, 2023). Guests constantly report dissatisfaction due to unresolved issues with essential equipment, such as air conditioning.

Topic 17 reflects guests’ appreciation for nature and local cultural experiences during their Airbnb stays. Words like “morning,” “night,” “coffee,” “day,” “island,” and “nature” indicate that guests enjoy properties that offer proximity to natural settings and cultural activities. Terms such as “hike,” “garden,” “bird,” “fruit,” and “beautiful” further suggest that outdoor activities and scenic beauty are significant attractions. Properties offering these types of experiences tend to receive higher satisfaction ratings and are more likely to be recommended by guests (Ding et al. 2024). Topic 18 highlights security and maintenance concerns that guests encountered during their stay. Top words such as “door,” “lock,” “break,” “open,” “window,” and “key” suggest that guests experienced issues related to the security and accessibility of their accommodations. The frequent occurrence of terms like “issue,” “problem,” “fix,” and “repair” indicates that maintenance problems, particularly those involving access and security features, can significantly detract from the overall guest experience. These findings are especially concerning in the context of the COVID-19 pandemic, as guests likely had heightened expectations for safety and security measures (Fileri et al. 2023).

Topic 19 emphasizes the importance of creating a home-like atmosphere for guests. Words like “home,” “feel,” “comfortable,” “beautiful,” “cozy,” and “relax” suggest that guests value properties that offer a welcoming and comfortable environment. The terms “thoughtful,” “touch,” “care,” and “detail” indicate that small, considerate gestures by hosts enhance the overall experience. Recent research has found that providing a homely atmosphere is more important in fostering memorable guest experiences than social interaction with the host (Li et al. 2023b). Topic 20 is related to the features and comfort of apartments.

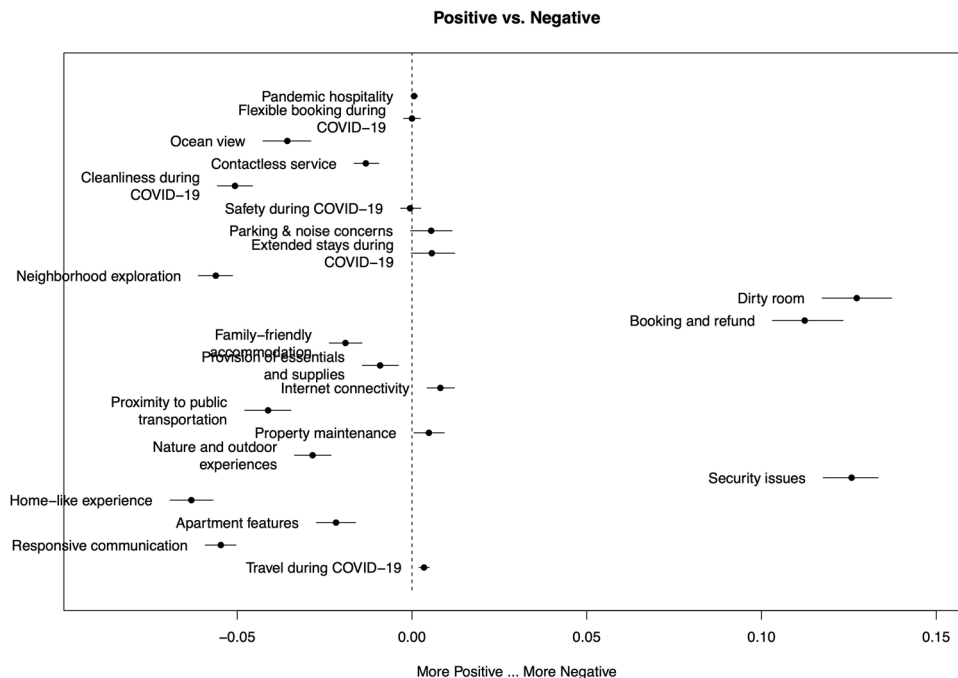


Fig. 5 Topic distribution by sentiment. This research.

Words like “apartment,” “kitchen,” “bed,” “bedroom,” “space,” “bathroom,” “light,” and “large” highlight the physical aspects and amenities of the living space. The mention of “comfortable,” “quiet,” and “nice” suggests that these attributes contribute to a positive stay experience.

Topic 21 highlights positive interactions with hosts. Words like “host,” “recommend,” “helpful,” “friendly,” “responsive,” “quick,” and “communicative” indicate that guests value hosts who are attentive and prompt in their communications. Terms like “super,” “amaze,” “fantastic,” and “wonderful” suggest that exceptional service from hosts greatly enhances the guest experience. Research consistently shows that positive host-guest interactions are one of the most important factors influencing guest satisfaction and repeat bookings (Wu et al. 2023). Topic 22 explores travel experiences during the COVID-19 pandemic. Words like “pandemic,” “covid,” “travel,” “safe,” “clean,” and “hygiene” reflect heightened concerns about health and safety. From the representative reviews of this topic, we found that guests increasingly sought accommodations with strict cleaning protocols. Research has highlighted that, during the pandemic, health and safety considerations, including hygiene standards and cleanliness, were paramount to guest decisions (Filieri et al. 2023).

Topic distribution analysis. Figure 5 presents a distribution of topics in positive and negative sentiment reviews for Airbnb guests during this period, offering valuable insights into the factors that contributed to guest satisfaction and dissatisfaction. The analysis highlights several key findings regarding guest preferences, particularly in the context of the COVID-19 pandemic.

Notably, topics such as “Flexible booking during COVID-19,” “Cleanliness during COVID-19,” and “Contactless service” are overwhelmingly associated with positive reviews. This aligns with findings in recent hospitality research, which emphasizes that during the pandemic, travelers became particularly attuned to health and safety measures (Nicolau et al. 2023). The flexibility of booking policies, an essential feature for mitigating the uncertainty of travel, was highly valued by guests (Más-Ferrando et al. 2024). The shift towards contactless service was also seen as a

significant improvement in reducing physical interactions, a key factor in promoting a sense of safety and trust among guests (Nicolau et al. 2023). Additionally, the positive sentiment associated with topics such as “Neighborhood exploration,” “Family-friendly accommodation,” “Nature and outdoor experiences,” “Home-like experience,” and “Responsive communication” indicate the enduring appeal of experiential and emotional factors in influencing guest satisfaction. Particularly during the COVID-19 pandemic, the availability of outdoor leisure activities became an attractive feature for guests, as they sought safe and enriching environments (Jang and Kim, 2022).

Conversely, topics on the right side of the distribution, such as “Dirty room,” “Booking and refund,” and “Security issues,” are predominantly linked to negative reviews. These findings suggest that failures in cleanliness, difficulties with booking adjustments or refunds, and security concerns were critical factors leading to guest dissatisfaction during the pandemic. The prominence of “Dirty room” as a negative sentiment topic reflects a heightened sensitivity to hygiene and cleanliness, which became even more critical during the COVID-19 period (Kim et al. 2022). The “Booking and refund” issues highlight the significant frustration experienced by guests when navigating cancellations or changes to their reservations. This frustration reflects a broader trend identified by Buzzacchi et al. (2023), who noted that more flexible cancellation policies across various Airbnb market segments could effectively address the growing uncertainty in travel. “Security issues” were another factor in negative sentiment reviews, highlighting concerns about the safety of accommodations, both in terms of physical security and the broader sense of health-related safety.

Topic correlation analysis. Figure 6 shows the correlation network among key review topics on Airbnb during the COVID-19 pandemic, which reveals several salient patterns. “Cleanliness during COVID-19” demonstrates strong correlations with multiple topics such as “Safety during COVID-19,” “Provision of essentials and supplies,” “Pandemic hospitality,” and “Responsive communication”. This suggests that heightened cleanliness

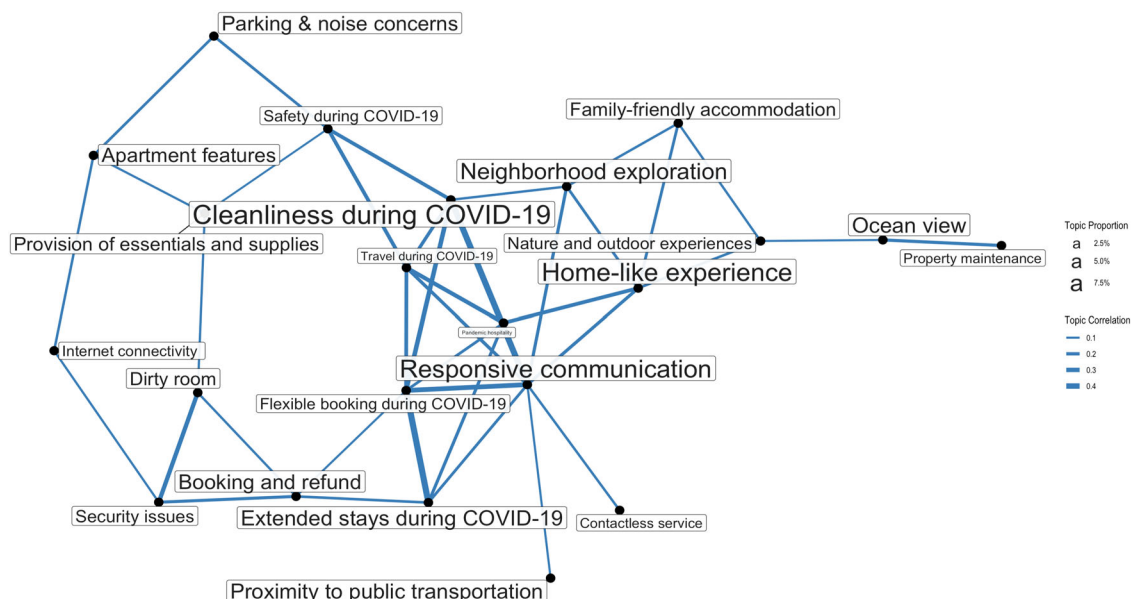


Fig. 6 Topic correlation network. This research.

expectations are closely tied to broader safety concerns and reliability in communication during the pandemic. The cause-effect relationship here is likely driven by increased health anxieties, prompting guests to value and review hosts' adherence to hygiene protocols and their ability to communicate effectively about these practices. "Flexible booking during COVID-19" and "Booking and refund" are moderately linked with "Responsive communication". This reveals the importance of adaptability and solid communication in alleviating uncertainties related to travel plans during the pandemic. The relationship here can be attributed to the dynamic nature of travel restrictions and guests seeking assurances that their bookings could be adjusted or refunded as necessary due to varying COVID-19 circumstances.

"Home-like experience" shows connections with "Neighborhood exploration", "Nature and outdoor experiences", and "Family-friendly accommodation". These correlations indicate that during the pandemic, guests increasingly sought accommodations that provided a comfortable and homely environment and allowed for safe activities. This shift can be attributed to the extended periods of confinement during lockdowns, which led travelers to prioritize comfort and the ability to engage in local activities. "Extended stays during COVID-19" correlates with "Internet connectivity", "Property maintenance", and "Contactless service". This pattern reflects the trend wherein longer stays, often for remote work purposes during the pandemic, increased guests' dependence on stable internet connectivity and well-maintained properties, alongside a preference for minimization of direct contact. The cause-effect relationship here is likely due to the rise of remote work and extended digital nomadism during the pandemic (Li et al. 2023a), driving demand for reliable internet and amenities that support longer stays.

Topic trend analysis. Based on Fig. 7, we found that several common attributes directly linked to COVID-19 have shown significant trends in the Airbnb market, reflecting the evolving expectations and behaviors of users during and after the pandemic. Among these, topics like "Contactless service," "Cleanliness during COVID-19," and "Extended stays during COVID-19" have exhibited growing prominence, shaping the future of Airbnb services. One of the notable shifts has been the increasing

popularity of "Contactless service." Initially driven by health concerns, this topic steadily gained traction during the pandemic as users appreciated the safety and convenience it provided. Similarly, "Cleanliness during COVID-19" has remained a central focus for both Airbnb hosts and users, even beyond the formal end of the pandemic. During the height of COVID-19, strict hygiene protocols were introduced in response to health regulations. However, our topic modeling analysis indicates that the pandemic has elevated user perceptions of cleanliness, which center around not just physical tidiness but also disinfection and sanitization practices (Pawlicz et al. 2022). This focus on room cleanliness is further supported by the prevalence of the "Dirty room" topic in our analysis, which remains a major source of dissatisfaction.

The pandemic also fostered a notable increase in "Extended stays," a trend that has endured beyond the initial crisis and become a feature of post-pandemic travel behavior. Many users shifted towards longer-term trips during COVID-19, likely driven by the flexibility of remote work and the desire for more isolated, stable environments. "Provision of essentials and supplies" has demonstrated remarkable stability throughout the pandemic, though there have been notable shifts in the types of items appreciated by users. During COVID-19, guests valued essentials like grocery items, sanitizers, and personal protective equipment, which were crucial to their sense of safety. Post-pandemic, however, the focus has shifted towards amenities more commonly associated with traditional hotels, such as fresh linens, toiletries, and room service. Despite this shift, self-protection items like hand sanitizers and disinfectant wipes continue to be highly valued, reflecting lingering health concerns and a cautious approach to travel. This evolution suggests that while user expectations are blending the comforts of home with the conveniences of hotel-like services, health and hygiene remain at the forefront of their concerns.

Another topic that has exhibited interesting dynamics is "Responsive communication." During the height of the pandemic, the rise of contactless services reduced the need for direct communication between guests and hosts, resulting in a decline in the emphasis on responsiveness. However, since June 2023, there has been a resurgence in the importance of responsive communication, suggesting that as travel normalizes, guests are

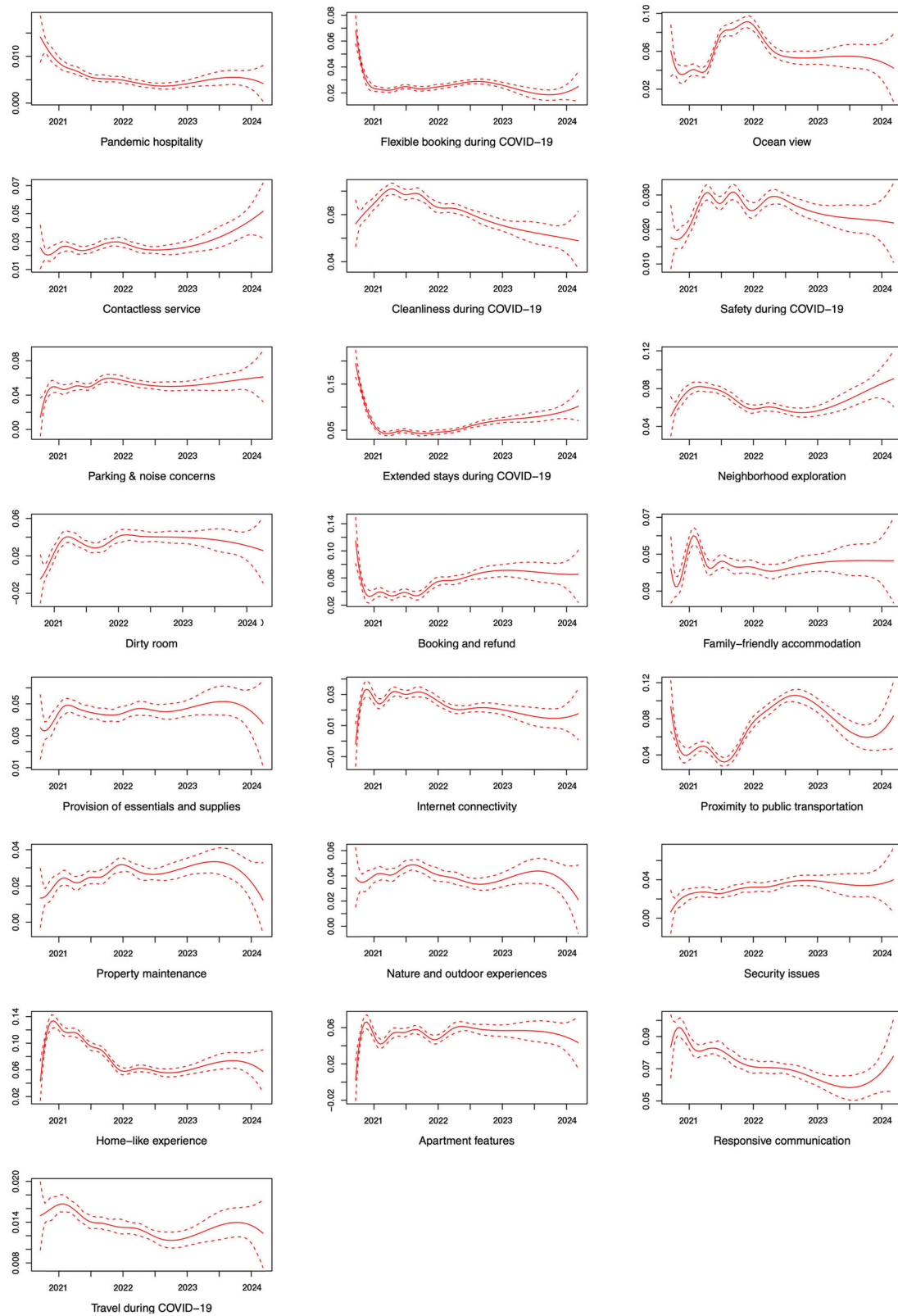


Fig. 7 Topic evolving trend. This research.

increasingly seeking a more personal touch alongside the convenience of self-service options. “Proximity to public transportation” saw significantly less emphasis during the early stages of COVID-19 as health concerns led travelers to favor private transportation or accommodations in less populated

areas. As the pandemic eased, however, interest in proximity to public transportation gradually increased. Finally, the topics of “Flexible booking during COVID-19” and “Booking and refund” reveal a lasting pattern that reflects the pandemic’s long-term impact on traveler behavior. Before 2021, these topics were

frequently discussed as users sought reassurance amidst the uncertainties of rapidly changing travel restrictions and health guidelines. Flexible booking options became crucial during this period, offering security for travelers. Even as the pandemic has subsided, flexible booking policies have remained a stable presence in user discussions, indicating that many now perceive these policies as standard practice. However, there seems to be a gap between the ongoing demand for flexibility and the level of accommodation currently offered by hosts. While Airbnb still offers flexible options, they do not always match the policies implemented during the height of COVID-19, leading to some misalignment between user expectations and available offerings.

Conclusions and implications

Conclusion. This study explores the shifts in Airbnb users' evaluation of accommodation services during and one year after the official ending of the COVID-19 pandemic. Our findings reveal that the pandemic contributed to a notable shift in users' perceptions, leading to lasting changes in how they prioritize various service attributes and, more broadly, their expectations of accommodation experiences. While the shift in consumer behavior due to external disruptions is not entirely unprecedented, the specific adjustments observed within the Airbnb context—particularly regarding hygiene standards, flexibility in booking policies, and the growing importance of contactless services, reveal a new dimension of consumer expectations that were previously less evident. These changes, which appear to have endured beyond the immediate crisis, suggest that the pandemic has not only influenced short-term preferences but may have reshaped foundational attitudes toward hospitality services in ways that were not fully anticipated.

Although many common attributes that have been reported previously were identified in this study, we found that the value assigned to these attributes varied significantly from previous research. For instance, location-related factors, which were once highlighted primarily for their convenience and accessibility (Ding et al. 2020; Guttentag et al. 2018), are also valued for the sense of separation and independence they provide from the outside world (Wong et al. 2023). This shift shows a broader trend in consumer behavior where safety and wellness have become important considerations in travel and accommodation choices (Kim et al. 2022). As noted in previous research, consumers' perceptions of value are heavily influenced by their immediate context (Kwortnik and Thompson, 2009), and the pandemic has dramatically altered this context. Given these shifts, it is crucial to reevaluate the perceived value of accommodation attributes considering significant changes in the external environment.

The lasting impact of COVID-19 is particularly evident in the evaluation of cleanliness. Currently, Airbnb users expect not only that hosts maintain the physical appearance and condition of their properties but also that they implement safety measures to mitigate health risks. The expectation extends to daily supplies, with guests desiring health products that exceed their previous expectations. This transformation reflects how COVID-19 has changed certain guest behavior over the long term (Watson and Popescu, 2021). The heightened focus on hygiene aligns with existing research that highlights the significance of perceived safety in influencing guest satisfaction and loyalty during crises (Paulose and Shakeel, 2022).

Temporary policies implemented during COVID-19 have led to lasting changes in Airbnb users' expectations, particularly regarding booking flexibility and refund policies. During the pandemic, many travelers faced significant disruptions that necessitated more accommodating booking arrangements. As a

response, Airbnb hosts adapted their policies to offer greater flexibility, such as allowing last-minute cancellations and offering full refunds under certain conditions. This demand for flexible booking options, prominently highlighted in guest reviews, signifies a shift toward guest-centric practices that address the uncertainties of post-pandemic travel. This shift suggests that hosts will need to develop policies that not only meet current expectations but are also sustainable in the long term. The expectation for adaptability is crucial for competitive differentiation in the hospitality industry (Buhalis and Leung, 2018).

The lasting effects of the COVID-19 pandemic are reflected in several solutions provided by Airbnb hosts to address the evolving preferences of guests. One such solution is the implementation of contactless services, which became a norm during the pandemic and continues to be widely adopted in 2024. Many Airbnb users still express a preference for these types of services, reflecting the enduring impact of COVID-19 on guest expectations. This shift towards contactless experiences aligns with research emphasizing the role of digital solutions in enhancing guest experiences (Maitra, 2021). The adoption of contactless services not only addresses health and safety concerns but also aligns with the growing demand for convenient and streamlined experiences facilitated by technology (Yağmur et al. 2024). The pandemic has accelerated the integration of digital solutions into the hospitality industry, with guests becoming increasingly accustomed to features such as mobile check-in, keyless entry, and virtual concierge services (Ludin et al. 2022).

Theoretical implications. This study makes several significant contributions to the hospitality literature on guest behavior, particularly within the rapidly evolving P2P accommodation sector. First, by analyzing Airbnb user reviews spanning the period during and more than a year after the acute phase of the COVID-19 pandemic, this research provides crucial longitudinal insights into the attributes that have become increasingly vital to guests in short-term rentals. Specifically, this study identifies safety measures, flexible policies, and enhanced service attributes, initially emphasized during the pandemic, as enduring elements that reflect the pandemic's lasting impact on guest expectations. Integrating these findings into the existing hospitality literature enriches the theoretical framework concerning guest expectations, particularly in the non-traditional lodging context. This research illuminates how the pandemic has reshaped guest priorities, necessitating a re-evaluation of established service standards and operational practices in the industry. This aligns with the principles of SET, which posits that customers evaluate their experiences based on perceived benefits and costs. In this context, the heightened and sustained emphasis on safety and flexibility can be viewed as a rational response to guests' evolving expectations, where the perceived benefits—such as health security, peace of mind, and the ability to adapt to unforeseen circumstances—increasingly outweigh the costs associated with choosing specific accommodations. Thus, our research not only addresses a critical gap in the literature regarding long-term behavioral shifts but also establishes a foundation for future studies exploring how these evolving expectations influence guest satisfaction and loyalty in diverse lodging environments.

Moreover, these findings both confirm the continued relevance of established service attributes (e.g., Ding et al. 2020; Teixeira, 2023; Xu, 2020) and simultaneously introduce salient dimensions that have emerged and solidified due to the global health crisis. Second, by analyzing Airbnb user reviews from mid-2020 to mid-2024, this study offers a dynamic perspective on how the relative importance of various accommodation attributes has evolved during the pandemic and its recovery. This longitudinal analysis

provides valuable insights into which aspects of the Airbnb experience have gained or lost significance as the pandemic progressed and its effects persisted. By exploring these changes in guest preferences over time, this research contributes to a deeper understanding of guest behavior in uncertain and rapidly changing conditions, adding knowledge to ongoing discussions in the literature about the long-term impacts of the pandemic (e.g., Yang et al. 2024; Yousaf and Min Kim, 2025).

Practical implications. The findings of this study offer valuable insights for stakeholders within the Airbnb sector, particularly in fostering the sustainable growth of P2P accommodations. First, prioritizing cleanliness and sanitation remains essential despite the formal end of COVID-19 restrictions. This study highlights that guests continue to place high importance on health measures, making it crucial for Airbnb hosts to maintain rigorous cleaning protocols. Implementing comprehensive sanitation practices following health organization guidelines can help hosts meet these expectations. Additionally, clearly communicating these hygiene efforts in listing descriptions—such as “Enhanced Cleaning Certified” or “Sanitized Between Stays”—can build guest confidence and contribute to positive reviews. Providing in-room sanitization kits and ensuring high-touch areas are regularly disinfected can further reinforce a commitment to guest safety.

Second, hosts should adopt a more targeted and strategic approach to marketing. Rather than relying on broad, generic descriptions, hosts need to highlight specific attributes that align with evolving guest preferences. For example, promoting enhanced cleanliness protocols, flexible booking options, and contactless check-ins can appeal to health-conscious travelers. Moreover, segmenting marketing strategies based on guest demographics can enhance engagement. Families, for instance, may prioritize amenities such as fully equipped kitchens, spacious accommodations, and child-friendly features, whereas younger travelers may place greater value on proximity to nightlife and entertainment hubs. By tailoring listing descriptions and promotional efforts to these distinct preferences, hosts can enhance visibility and appeal to a wider range of guests.

Third, flexibility in booking policies has become a key factor influencing guest decisions. This study finds that post-pandemic travelers favor listings with accommodating cancellation and modification policies. To meet this demand, hosts should consider adopting tiered cancellation policies that offer varying levels of flexibility while balancing financial sustainability. Clearly stating these policies upfront—such as “Free cancellation up to 48 h before check-in”—can improve guest trust. When stricter policies are necessary, providing justifications (e.g., high seasonal demand or non-refundable deposits) can help guests understand the constraints and reduce dissatisfaction.

Moreover, effective and transparent communication remains critical for managing guest expectations. Hosts should proactively inform guests about any updates or changes to policies, services, or available amenities. Maintaining open and timely communication—such as sending automated pre-arrival messages or responding promptly to inquiries—can significantly enhance the guest experience. Furthermore, offering digital guidebooks or chat-based concierge services can improve overall satisfaction by providing guests with convenient access to essential information. Besides, enhancing home-like features can cater to the sustained guest preference for comfort and familiarity. The findings suggest that guests increasingly seek accommodations that provide a “home away from home” experience, especially for longer stays. Investing in amenities such as fully equipped kitchens, high-speed internet, workspaces, and cozy living areas can make listings more appealing.

Finally, these findings have broader implications for Airbnb management and policymakers. Airbnb should consider introducing initiatives such as a “Post-Pandemic Guest Assurance Badge” to certify listings that meet high standards of cleanliness and flexibility, similar to the “Superhost” program. Additionally, refining the platform’s search and filter features—such as allowing guests to sort listings based on flexible cancellation policies, self-check-in availability, and high cleanliness ratings—could further enhance the user experience. From a policy perspective, regulatory bodies should establish standardized health and safety certifications for short-term rental operators. Encouraging digitalization in the sector, such as tax incentives for properties that implement smart check-in systems, could also support resilient and guest-friendly accommodations.

Limitations and suggestions for future research

This study has several limitations that should be acknowledged. One limitation is the potential selection bias inherent in the dataset. The analysis relies on Airbnb reviews sourced from InsideAirbnb.com, which may not fully represent all guest experiences. Guests who had neutral or average stays are often less likely to leave reviews, leading to an overrepresentation of extremely positive or negative opinions. Future research could mitigate this limitation by incorporating complementary data sources, such as guest surveys or interviews, to capture a more balanced range of perspectives. Additionally, sentiment bias may also be present in the review data. Due to the nature of Airbnb’s review system, guests might feel compelled to leave overly positive feedback to maintain a good relationship with hosts or to avoid potential retaliation. Reviews written immediately after check-out may reflect short-term impressions rather than long-term satisfaction. To address this issue, future studies could compare Airbnb reviews with feedback from third-party platforms, such as TripAdvisor, or employ direct user surveys to assess discrepancies in sentiment and perception over time.

Another limitation of this study relates to the methodological constraints. While STM is effective in identifying key themes in guest reviews, it does not account for the emotional intensity of these reviews. For example, two reviews mentioning “cleanliness” may convey vastly different sentiments—one indicating extreme dissatisfaction and the other merely acknowledging hygiene standards. This limitation suggests the need for future research to integrate sentiment analysis techniques, such as the Valence Aware Dictionary for Sentiment Reasoning (VADER) or deep learning-based sentiment classification, to assess the emotional tone of guest reviews more accurately. Additionally, the study’s temporal scope presents another constraint. The dataset comprises guest reviews from mid-2020 to mid-2024, capturing behavioral shifts during the pandemic and the initial recovery phase. However, long-term changes in guest preferences remain uncertain as economic recovery progresses, and global travel patterns continue to evolve. To examine whether COVID-driven preferences—such as heightened hygiene concerns and flexible booking demands—persist or gradually diminish, future research should extend the analysis beyond the current timeframe through periodic follow-up studies.

The geographic and cultural scope of the dataset also deserves attention. The analysis is based on Airbnb reviews from four major cities offering insights primarily into Western markets. However, guest expectations and behaviors may differ significantly across regions due to cultural norms, economic conditions, and local policies. For instance, travelers in Asia or South America may prioritize different aspects of accommodation, such as affordability, hospitality, or community engagement. Future studies should adopt a cross-cultural approach by incorporating

Airbnb data from diverse global markets to enhance the generalizability of the findings. Furthermore, the study does not explicitly account for macroeconomic factors, such as inflation, labor shortages, and rising operational costs in the hospitality sector. As post-pandemic Airbnb prices increase, guest priorities may shift, with affordability potentially becoming a more dominant factor over hygiene or flexible booking options. Future research should examine the impact of broader economic conditions on guest decision-making, assessing whether financial constraints influence accommodation preferences.

Data availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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Author contributions

KD, LL, RTZ and YHC contributed to writing the main manuscript text; Y.B prepared the figures and revised the manuscript as requested. All authors reviewed and approved the final manuscript.

Competing interests

The authors declare no competing interests.

Ethical approval

Ethical approval was not required as the study did not involve human participants.

Informed consent

This article does not contain any studies with human participants performed by any of the authors; therefore, obtaining consent was not required. AI disclosure statement During the preparation of this work, the authors utilized ChatGPT to enhance the language. After using this tool, the authors thoroughly reviewed and edited the content as necessary, and they take full responsibility for the final content of the publication.

Additional information

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