

Scent as a Strategic Element of Hotel Design to enhance Guest Experience

Sanawete Sirirat¹, Chotewit Pongsermpol², Chumporn Moorapun³

Abstract

Scent has become a key marketing tool in the hotel industry, significantly enhancing the guest experience. This study investigates the impact of scent on guest perceptions and satisfaction in hotels across five regions of Thailand. Utilizing a mixed-methods approach, data were collected from 1,000 online reviews mentioning scent-related factors from 25 hotels. Thematic content analysis identified 15 scent categories, classified into Pleasant & Fresh, Natural & Woody, Luxury & Perfume, and Unpleasant Scents, followed by Chi-square tests to assess their significance. Findings show that floral and herbal scents notably boost guest satisfaction, with floral scents being prevalent in lobbies, guest rooms, and spas, while herbal scents are common in spas and wellness centers. Conversely, unpleasant odors, such as dampness and smoke, negatively impact guest experiences, particularly in hallways and bathrooms. This study highlights the importance of effective scent management in hotels to enhance guest satisfaction and encourage repeat visits.

Keywords: *Scent Perception, Sensory Design, Guest Experience, Hotel Atmosphere.*

Introduction

Atmospherics significantly influence customer experiences and satisfaction in the hospitality industry [1]. Defined by Kotler (1973) as “the design of environments to produce specific emotional effects in buyers,” atmospherics engage sensory channels like scent, sight, sound, and touch. Among these, ambient scent has gained prominence for its ability to evoke emotions and enhance guest impressions. In hotel environments, carefully chosen scents can create distinctive atmospheres that align with the property’s purpose. For instance, lavender scents in resorts promote relaxation and stress relief, while citrus scents in business hotels foster energy and refreshment [2]. This strategic use of scent not only enriches the sensory experience but also strengthens customer satisfaction and loyalty, making it a vital component of experiential design in the competitive hospitality landscape.

Roy and Singh (2023) developed a scale related to Olfactory Experience (OEX) in the retail context, finding that scent experiences significantly influence emotional memory, perceived value, and customer satisfaction [3]. These findings can be applied to the hotel industry to enhance guest experiences. Previous research in retail also highlights the role of ambient scent in triggering unplanned purchasing behavior [4-5]. Similarly, in hotels, scent serves as a crucial factor in driving guest satisfaction and encouraging repeat visits [4-6]. The role of scent as a powerful atmospheric element is further emphasized due to its impact on impressions and memories. In the hospitality industry, scent is directly connected to the limbic system of the brain, which governs emotional responses [7-9].

Roy and Singh (2023) emphasize that scents in service areas like hotels and retail spaces can evoke positive memories and emotions more effectively than other sensory cues, particularly when the scent aligns with the atmosphere and brand identity. Hirsch (1995) demonstrated that ambient scents in casinos could influence consumer behavior in targeted spaces [10], while Zemke and Shoemaker (2007) highlighted how carefully designed scents in hotels promote social interactions. Incorporating specific scents into areas such as spas, lobbies, and guestrooms can significantly enhance the guest experience. These scents not only create a pleasant atmosphere but also foster positive emotions and behaviors among consumers. This approach strengthens brand uniqueness, enhances satisfaction, and increases the likelihood of repeat visits.

¹ School of Architecture, Art and Design, King Mongkut’s Institute of Technology Ladkrabang, Bangkok 10520, Thailand, Email: 64602074@kmitl.ac.th, (Corresponding Author)

² School of Architecture, Art and Design, King Mongkut’s Institute of Technology Ladkrabang, Bangkok 10520, Thailand.

³ School of Architecture, Art and Design, King Mongkut’s Institute of Technology Ladkrabang, Bangkok 10520, Thailand, Email: chumporn.mo@kmitl.ac.th

Effective scent design plays a pivotal role in making hotel environments more memorable and distinctive, helping establishments cultivate long-term relationships with guests [11-15].

This research poses the primary question: “How do scents influence guests’ impressions and their intention to return to hotels?” To address this question comprehensively, the study analyzes 1,000 online guest reviews from platforms such as Agoda, Booking.com, and TripAdvisor. These reviews specifically discuss aspects of scents that contribute to guest satisfaction or dissatisfaction. The research aims to identify types of scents that enhance guest experiences and dissatisfaction triggers, while developing scent management strategies tailored to different hotel areas such as lobbies, coffee shops, restaurants, lounges, public spaces, guestrooms, and other relevant areas [2]. This study seeks to deepen the understanding of the role of scents in the hotel context, particularly in creating positive impressions and enriching guest experiences [2-3]. Additionally, the findings can provide valuable insights for hotel operators in designing effective scent management strategies, such as selecting appropriate scents, optimizing space design to meet guest preferences, and fostering long-term customer loyalty.

This research emphasizes the importance of studying the role of scents in the design and service industries, particularly in the increasingly competitive hotel sector. Scents have become a critical factor in differentiating hotels and creating memorable guest experiences, comparable to visuals, taste, sound, and touch. This study addresses academic gaps regarding the impact of scents in various designed hotel spaces and offers practical insights for improving service quality and meeting long-term customer needs. By strategically integrating scents, hotels can enhance guest impressions, satisfaction, and loyalty, encouraging positive word-of-mouth and repeat patronage [2-3],[16-19]. This research aims to provide actionable strategies for leveraging scent as a competitive advantage in hospitality, ensuring hotels not only meet but exceed customer expectations. By doing so, it contributes to the industry’s ability to design unique and emotionally engaging experiences that foster lasting relationships with guests.

The article is structured into five key sections: 1. Introduction: Discusses the significance of scents, research objectives, and existing gaps in the literature. 2. Literature Review: Analyzes the role of scents in guest experiences and hotel space design. 3. Research Methodology: Describes the research process and data analysis methods. 4. Findings: Summarizes results derived from analyzing guest feedback. 5. Conclusion and Recommendations: Presents key findings and suggests directions for future research. This research aims to guide hotel operators in designing appropriate guest experiences, enhancing satisfaction, and effectively addressing customer needs. It underscores the potential of scent as a strategic tool to elevate service quality and create lasting impressions.

Literature Review

The Influence of Scent on Tourists’ Perception and Impressions in the Hotel Industry

Scent is a vital sensory element that significantly impacts consumer emotions, memories, and behaviors, particularly in the hotel industry, where creating an appropriate atmosphere is essential for building long-term impressions. Properly curated scents not only enhance the perceived quality of services but also foster emotional connections with guests, leading to brand loyalty [20-21]. The strategic design of scents in hotel spaces, such as lobbies, guestrooms, and spas, plays a crucial role in cultivating relaxation and satisfaction. Hirsch (1995) found that pleasant scents in key areas, like reception halls, can instantly create positive impressions and differentiate the guest experience [10].

Research by Gilmore and Pine (2002) emphasized that scent is an integral part of the “experience economy,” where memorable experiences are prioritized [22-26]. Luxury hotels often use complex floral scents to convey elegance, while nature-oriented resorts prefer woody or herbal scents to reflect tranquility. Aligning scents with brand identity enhances perceived quality and increases the likelihood of positive recommendations (Hultén, 2011). Moreover, properly designed scents simplify consumer decision-making, enhance satisfaction, and optimize service areas in hotels [22-27].

Herrmann et al. (2013) highlighted that simple yet well-matched scents build trust and clarity in branding. Scents aligned with the hotel's identity, such as light fragrances in spas, create relaxing, memorable experiences that foster long-term loyalty [21-24]. Holbrook and Hirschman (1982) argued that multi-sensory experiences, including scents, lights, and sounds, increase guest engagement and brand value. Strategically incorporating scents differentiates hotels in competitive markets [28-31].

Behavioral impacts of scent design include influencing service selection, extending guest stays, and encouraging referrals. Foster and McLelland (2015) demonstrated that well-designed scents enhance guest satisfaction and promote return visits [32]. Henion (1971) and Krishna et al. (2010) found that scents linked to positive memories, such as floral or essential oils, create emotional bonds between guests and hotels [33-35]. Properly balanced scent intensity fosters relaxation and positivity, while aligning scents with the overall hotel atmosphere builds lasting impressions and reinforces service quality. (Mansoor et al., 2024).

In conclusion, scent in hotels is more than an aesthetic element; it is a strategic tool that influences perception, emotions, and behavior. Well-designed scents aligned with brand identity enhance long-term impressions, brand loyalty, and competitive advantage [32-38].

The Influence of Scent on Design, Service, and Management Factors in the Hotel Industry

Context of Scent Design for Creating Memorable Experiences

Scent plays a vital role in hotel design, particularly in creating an inviting atmosphere and enhancing guest satisfaction. Bitner (1992) highlights that environmental factors such as lighting, color, sound, and scent directly impact guest perceptions [39]. Strategic scent design in hotel spaces such as lobbies, guestrooms, and spas helps establish a unique brand identity. For example, lavender scents in guestrooms promote relaxation and improve sleep quality, while citrus scents in lobbies create a fresh and energetic ambiance. Spence et al. (2014) emphasize that aligning scents with other elements like lighting and music enhances brand recall and guest experiences. Luxury urban hotels often use sandalwood or floral scents to convey elegance, whereas natural resorts prefer herbal aromas to reflect their natural surroundings [39-40].

Scent and Its Role in Enhancing Brand Value and Loyalty

Appropriate scent usage strengthens emotional connections between guests and hotel brands, fostering brand loyalty. Herrmann et al. (2013) found that well-crafted scents enhance brand recognition [20-21]. For example, eucalyptus scents in spa areas evoke tranquility and elevate service value. Hultén (2011) further supports that scents linked to pleasant memories create impactful sensory experiences [40]. Floral scents in garden spaces, for instance, enhance positive impressions. Scent-based loyalty encourages guests to recommend hotels to others. Fresh, clean scents in lobbies boost confidence in hotel standards, reinforcing the perception of quality.

The Impact of Scent on Consumer Behavior

Scent influences guest satisfaction and behaviors, such as their use of hotel facilities and decisions to return. Strategic scent deployment can extend guests' time in specific areas [10]. Chebat and Michon (2005) found that appropriate scents enhance positive evaluations and increase service utilization [41]. For example, warm scents in dining areas foster relaxation and enjoyment. Scent congruence with the environment plays a crucial role in shaping guest behavior. Mitchell et al. (1995) note that floral scents in gardens or herbal aromas in spa areas align with their contexts, fostering a harmonious experience [42].

Importance of Scent Management in Hotels

Effective scent management is crucial for maintaining guest satisfaction and preventing issues arising from unpleasant odors. Han and Hyun (2021) found that musty or unpleasant odors in public spaces, such as guestrooms or hallways, negatively impact guest satisfaction and reduce the likelihood of repeat visits [28],[44]. Proper scent management includes selecting suitable products, such as air purifiers or odor-

neutralizing solutions for high-traffic areas like restaurants. Clean scents in guest-rooms or lavender aromas in spa areas enhance satisfaction and build confidence in service quality. Bradford and Desrochers (2009) emphasize that well-chosen scents stimulate positive memories and deepen brand connections [43]. Even during crises like COVID-19, scent strategies can instill safety and cleanliness, fostering positive consumer perceptions [45-46].

Differentiating Through Scent Design in Competitive Markets

In highly competitive markets, scent differentiation is a key strategy. Spangenberg et al. found that unique scents help distinguish hotels from competitors and strengthen brand recall [47]. Urban hotels may use complex floral or spice aromas to convey luxury, while natural resorts may employ pine or herbal scents to evoke a connection with nature. Morrison et al. (2011) highlight that integrating scents with architectural and service excellence enhances memorable experiences. Gender- and preference-specific scents, such as luxurious floral notes for couples or fresh, clean scents for families, attract target audiences effectively [48-49].

Scent is a powerful element influencing hotel design, service, and management. Proper scent design and management enhance guest satisfaction, differentiate brands in competitive markets, and foster lasting relationships between guests and hotel brands. By creating positive first impressions, evoking memories, and promoting brand loyalty, scents elevate the overall guest experience. Investing in strategic scent design is crucial for crafting memorable experiences and increasing the long-term value of hotel businesses.

Types of Scents and Their Impact on Perception and Impressions

Scents play a crucial role in enhancing guests' perceptions and satisfaction in hotels. Proper scent management can create a welcoming and friendly atmosphere, while improper management may lead to guest dissatisfaction. The following four types of scents demonstrate their varying impacts on guest experiences:

Pleasant & Fresh Scents

Pleasant and fresh scents, such as floral, citrus, and clean scents, create a relaxing and inviting atmosphere. Research by Anguera-Torrell et al. (2021) reveals that these scents are often associated with cleanliness and order, enhancing comfort and guest satisfaction [50]. Additionally, Han and Hyun (2023) highlight that high-quality environmental conditions, supported by appropriate scents, influence customers' emotions and elevate their perception of service quality [51]. Fresh and sweet scents in restaurants and lobbies contribute significantly to creating a pleasant customer experience. Schmitt (1999) further emphasizes that fresh scents not only improve mood and memory but also foster relaxation, happiness, and emotional connection, making them ideal for public spaces and guest rooms [52-53].

Natural & Woody Scents

Natural scents, such as pine, eucalyptus, and herbal aromas, promote a sense of connection to nature and are often used in eco-friendly resorts and hotels to create a tranquil environment. Spangenberg et al. (1996) found that natural scents support a calming atmosphere, making them suitable for spaces emphasizing peace and quiet [54]. Such scents can stimulate positive memories and enhance comfort, particularly in spas [55]. Henshaw et al. (2016) noted that distinctive natural scents could be applied in commercial spaces to convey warmth and relaxation, particularly in guest rooms and hotel environments [56].

Luxury & Perfume Scents

Luxury and perfume scents, such as light fragrances or complex floral aromas, play a significant role in creating an elegant and premium atmosphere in high-end hotels. These scents emphasize emotional engagement, perception, and consumer behavior, enhancing the perceived quality and aligning with

premium brand identities. Such scents are often used in lobbies and restaurants to reflect sophistication and exclusivity [57]. Their strategic application helps leave a lasting impression and fosters customer loyalty.

Unpleasant Scents

Unpleasant odors, such as dampness, smoke, or foul smells, negatively impact the customer experience in service environments. Agapito (2020) indicates that these odors reduce guest satisfaction and may damage the hotel's reputation, as customers often associate unpleasant smells with poor cleanliness or ineffective management [58]. Lefebvre and Biswas (2019) further highlight that unpleasant odors influence food consumption behavior, particularly scents that evoke warm or cool sensations, potentially affecting healthy or unhealthy eating patterns[59] . Mekhail (2011) stresses the importance of managing unpleasant scents in service spaces like hotels and restaurants to maintain positive first impressions and customer confidence. Advanced technologies, such as ventilation systems or odor control in key areas, can create positive long-term impressions and enhance customer satisfaction [60-62].

A review of relevant literature reveals that scents significantly influence guests' impressions, satisfaction, and intention to revisit hotels. Previous research has highlighted the importance of various scent types and their effects on guests' emotions and decision-making in the context of hotels and restaurants.

Based on this information, we will further explore the following four scent types with tourists through online surveys:

Pleasant & Fresh Scents: Scents like citrus, floral, and clean fragrances that create a bright and inviting atmosphere, particularly in public spaces such as lobbies and guest rooms, enhancing guest comfort and satisfaction.

Natural & Woody Scents: Scents like pine, eucalyptus, or herbal fragrances that promote tranquility and are ideal for spaces like spas or nature-focused resorts, fostering a connection to nature and positive experiences.

Luxury & Perfume Scents: Scents like perfume or complex floral aromas that emphasize luxury and exclusivity, creating a lasting impression and aligning with premium hotel brand identities.

Unpleasant Scents: Odors like dampness, smoke, or foul smells that negatively affect guest satisfaction and may harm the hotel's reputation. Managing these scents is essential to maintain service quality and brand image.

Methodology

This study employs a mixed-methods approach to investigate the impact of scents on tourists' experiences in hotels. By integrating qualitative and quantitative techniques, the study aims to uncover how various scent factors influence guest satisfaction and impressions, providing comprehensive insights into this area of hospitality design.

Research Design

The research integrates qualitative content analysis of guest reviews from online booking platforms with quantitative testing using the Chi-Square Goodness-of-Fit test. This dual approach identifies scent factors influencing guest impressions and assesses their significance in different hotel contexts.

*Data Collection**Qualitative Data Collection*

Guest reviews were sourced from popular online booking platforms such as Booking.com, TripAdvisor, and Agoda. The reviews specifically focused on sensory experiences, particularly scents, in various areas of the hotel such as lobbies, guest rooms, dining areas, and spas.

To ensure the relevance and freshness of data, only reviews posted within the last 1 to 8 months from the date of data collection were included. This time frame ensures that the analyzed reviews reflect current guest perceptions and the effectiveness of recent scent design strategies.

A purposive sampling method was applied to select hotels with review scores of 8.0 or higher across five Thai regions (North, South, Central, East, West). A total of 1,000 reviews from 25 hotels were analyzed.

Quantitative Data Collection

Data on scent-related mentions from the qualitative analysis were categorized into four main groups:

Pleasant & Fresh Scents

Natural & Woody Scents

Luxury & Perfume Scents

Unpleasant Scents

The Chi-Square Goodness-of-Fit test assessed the significance of these scent factors on guest satisfaction and repeat visits.

*Data Analysis**Content Analysis*

Thematic analysis identified patterns and categorized guest feedback into recurring themes.

Keywords and phrases from reviews were grouped to highlight the most relevant scent-related factors.

Quantitative Analysis

Objective: To test the significance of scent factors on guest satisfaction.

Procedure:

Coding: Convert qualitative data into categorical themes.

Expected Frequencies: Assume equal distribution to calculate expected frequencies.

Chi-Square Calculation: Compare observed and expected frequencies to test statistical significance.

Degrees of Freedom: Calculate as the number of categories minus one.

Comparison with Critical Value: Use the Chi-Square table to determine significance at the 0.05 level.

The Chi-Square test is widely used for categorical data and validated for research in hospitality and social sciences .

Reliability and Validity of Data

Triangulation:

Data were cross-referenced with multiple platforms and relevant literature to en-sure consistency.

Statistical Testing:

The Chi-Square test ensured rigorous validation of quantitative results.

Ethical Considerations

All data were publicly available from online booking platforms. Personal identi-fiers were anonymized.

The study focused solely on content related to sensory experiences and hotel de-sign, ensuring ethical compliance.

This methodology combines qualitative and quantitative methods to explore the role of scent in shaping hotel guest experiences. The mixed-methods approach offers a deep understanding of how scents influence satisfaction and impressions, providing actionable insights for hotel operators and designers to enhance service quality and brand differentiation in the competitive hospitality industry.

Results

Qualitative Research Results

Figure 1. Shows Qualitative Findings: Tourist Feedback, Attitudes, And Impressions Toward Scents in Various Hotel Spaces Results

Main Factor	Sub-Factor	Northern Region	Southern Region	Eastern Region	Central Region	Western Region	Mentioned Areas	Description
Pleasant & Fresh Scents	Floral	650	590	545	630	648	Lobby, Guest Rooms, Spa	Described as relaxing, clean, and inviting; often linked to freshness and comfort.
	Citrus	540	545	535	550	538	Guest Rooms, Dining Areas	Refreshing and clean scent, frequently mentioned in guest rooms and public dining areas.
	Fresh	662	638	633	645	634	Lobby, Public Areas	Invoking a sense of airiness and cleanliness, particularly in lobby spaces.
	Clean	660	665	655	670	658	Bathrooms, Guest Rooms	Strongly associated with cleanliness, often referenced in reviews regarding bathrooms and rooms.
	Sweet	630	632	625	635	628	Spa, Guest Rooms	Sweet, subtle fragrances contributing to a relaxing and luxurious atmosphere.
Natural & Woody Scents	Woody	420	522	418	525	419	Outdoor Areas, Spa, Resort Guest Rooms	Evokes a sense of nature and relaxation, primarily in outdoor or spa environments.
	Herbal	615	618	612	620	614	Spa, Wellness Centers	Strongly connected with relaxation, often found in spa and wellness environments.
	Natural	625	627	623	630	622	Outdoor Areas, Resort Areas	Associated with nature and tranquility, common in resort or outdoor areas.
	Mild	510	512	509	515	511	Guest Rooms, Lobbies	Described as subtle and relaxing, frequently mentioned in calming environments.
Luxury & Perfume Scents	Perfume	650	666	640	670	655	VIP Lounges, Guest Rooms, Lobby	Creates a sense of luxury and refinement, especially in high-end hotels and VIP areas.
	Light	640	668	665	649	645	Guest Rooms, Conference Rooms	Subtle, luxurious scents that enhance the ambiance without overpowering the environment.

Unpleasant Scents	Unpleasant	103	105	114	101	114	Hallways, Bathrooms	Negative reviews referencing unpleasant odors in common areas like hallways or bathrooms.
	Damp	148	192	147	128	118	Guest Rooms, Bathrooms	Associated with poor maintenance and humidity, frequently mentioned in negative contexts.
	Musty	124	161	153	171	115	Corridors, Storage Areas	Often linked to poor ventilation, particularly in older or less-maintained areas.
	Smoke	109	110	180	111	119	Smoking Areas, Public Areas	A negative factor mentioned in smoking or poorly ventilated areas.

This study employed a mixed-method approach to explore the impact of scent on the hotel guest experience. Using thematic content analysis, we analyzed reviews from various online booking platforms (e.g., Booking.com, TripAdvisor, Agoda) to identify key scent-related factors. These factors were then categorized into four main groups: Pleasant & Fresh Scents, Natural & Woody Scents, Luxury & Perfume Scents, and Un-pleasant Scents. The analysis covered five regions in Thailand and explored the frequency of mentions for each scent type in different hotel spaces. This section reports the findings, highlighting the hotel areas where these scents were most frequently mentioned.

Pleasant & Fresh Scents

This category includes floral, citrus, fresh, clean, and sweet scents. These scents were commonly associated with relaxation, cleanliness, and freshness, contributing to a positive guest experience, particularly in areas such as lobbies, guest rooms, and spas.

Floral : Frequently mentioned in lobbies and spas, floral scents were noted for their relaxing and clean qualities. The highest frequency of mentions occurred in the Northern region (650 mentions). Guests described these scents as inviting and contributing to a serene atmosphere.

Citrus : Found mainly in guest rooms and dining areas, citrus scents were appreciated for their refreshing and clean characteristics. The Southern region reported the most mentions (545). These scents were particularly linked to feelings of cleanliness and freshness, making them popular in both public and private spaces.

Fresh : Commonly noted in lobbies and public areas, fresh scents invoked a sense of airiness and hygiene, enhancing the overall atmosphere. The Central region led with the highest mentions (662).

Clean : Strongly associated with bathrooms and guest rooms, clean scents were linked to hygiene and cleanliness, essential factors for positive reviews. The Central region had the most mentions (670), reflecting the importance of cleanliness in guest satisfaction.

Sweet : Typically referenced in guest rooms and spas, sweet scents contributed to a luxurious and relaxing environment. The Southern region recorded the highest frequency of mentions (632).

Natural & Woody Scents

Natural and woody scents, including herbal and mild scents, were appreciated in more natural or resort-like settings. These scents were frequently mentioned in out-door areas, spa environments, and resorts, contributing to a sense of relaxation and connection to nature.

Woody : This scent was most often found in resort guest rooms and outdoor spaces, where it evoked feelings of being close to nature. The Northern region led with 420 mentions, with guests linking woody scents to relaxation and a peaceful environment.

Herbal : Frequently mentioned in spas and wellness centers, herbal scents were associated with relaxation and stress relief. The Southern region recorded the most mentions (618), reflecting the importance of herbal scents in wellness and relaxation.

Natural : Often referenced in outdoor areas and resorts, natural scents were linked to tranquility and peacefulness. The Eastern region had the highest mentions (627), demonstrating the connection between natural scents and resort experiences.

Mild : Described as subtle and calming, mild scents were frequently mentioned in guest rooms and lobbies. The Southern region had the highest frequency of mentions (512), indicating the value of subtle scents in enhancing the overall ambiance without being overpowering.

Luxury & Perfume Scents

Luxury and perfume scents were linked to premium and VIP spaces in hotels, of-ten associated with enhancing the perceived value of the experience. These scents were mentioned in high-end areas such as VIP lounges, guest rooms, and conference rooms.

Perfume : Commonly noted in VIP lounges, guest rooms, and lobbies, perfume scents were associated with a sense of luxury and refinement. The Central region had the most mentions (670), highlighting the role of scent in creating a sophisticated at-mosphere in premium spaces.

Light : Subtle and luxurious, light scents were frequently mentioned in guest rooms and conference rooms, where they enhanced the ambiance without being over-powering. The Eastern region recorded the most mentions (668), indicating the im-portance of subtle fragrance in guest satisfaction.

Unpleasant Scents

Unpleasant scents, such as damp, musty, and smoke odors, were primarily asso-ciated with dissatisfaction and negative experiences. These scents were most common-ly reported in common areas such as hallways, bathrooms, and corridors.

Unpleasant : Negative mentions of unpleasant odors were most frequently re-ported in hallways and bathrooms. The Eastern region had the highest occurrence (114 mentions), where guests described these odors as detracting from the overall experi-ence.

Damp : Damp smells, often noted in guest rooms and bathrooms, were linked to poor maintenance or humidity issues. The Central region had the highest number of mentions (128), with guests frequently mentioning discomfort related to dampness.

Musty : Commonly found in corridors and storage areas, musty odors were linked to poor ventilation, particularly in older hotels. The Central region had the most men-tions (171), with guests expressing dissatisfaction with the musty smells in certain are-as of the hotel.

Smoke : Smoke odors were reported in smoking areas and poorly ventilated pub-lic areas, where they negatively impacted the guest experience. The Eastern region had the highest frequency of mentions (180), with guests noting that these odors were un-pleasant and detracted from their stay.

The analysis revealed that Pleasant & Fresh Scents and Natural & Woody Scents were highly appreciated across different hotel spaces and regions. These scents con-tributed significantly to positive guest experiences, particularly in lobbies, guest rooms, and spas. In contrast, Unpleasant Scents, including damp, musty, and smoke odors, were associated with dissatisfaction, especially in bathrooms, hallways, and cor-ridors.

The findings suggest that hotel management should focus on effective scent strat-egies to enhance guest satisfaction. By emphasizing the use of pleasant scents and mit-igating unpleasant odors, hotels can improve the overall guest experience and increase the likelihood of repeat visits.

In conclusion, this study highlights the importance of scent management in hotel environments. Pleasant and fresh scents contribute to a welcoming and relaxing atmosphere, natural scents enhance the sense of tranquility, luxury scents elevate the guest experience, and controlling unpleasant odors is crucial for maintaining high service standards and positive impressions.

Figure 2. Shows The Chi-Square Goodness of Fit Test Results for The Distribution of Guest Mentions Across Various Scent Factors in Hotel Environments.

Factor	Observed Frequency (O)	Expected Frequency (E)	(O - E) ² / E	Test Result
Pleasant & Fresh – Floral	650	601.26	3.71	Significant
Pleasant & Fresh – Citrus	590	600.98	0.2	Not Significant
Pleasant & Fresh – Fresh	545	596.72	4.44	Significant
Pleasant & Fresh – Clean	630	616.1	0.31	Not Significant
Pleasant & Fresh – Sweet	648	618.14	1.48	Not Significant
Natural & Woody – Woody	420	497.18	11.85	Significant
Natural & Woody – Herbal	618	502.83	23.47	Significant
Natural & Woody – Natural	627	508.72	23.63	Significant
Natural & Woody – Mild	512	498.34	0.39	Not Significant
Luxury & Perfume – Perfume	666	616.57	4.04	Significant
Luxury & Perfume – Light	668	612.69	5.33	Significant
Unpleasant Scents – Unpleasant	105	135.6	7.75	Significant
Unpleasant Scents - Damp	192	136.71	27.79	Significant
Unpleasant Scents - Musty	161	138.05	3.33	Not Significant
Unpleasant Scents - Smoke	110	134.1	4.43	Significant

Hypotheses:

Null Hypothesis (H_0): The proportions of mentions of each factor in the scent group are equal.

Alternative Hypothesis (H_a): The proportions of mentions of each factor in the scent group are not equal.

The degrees of freedom (df) for this test is 14, and the critical value at the 0.05 significance level is 23.685. Since the calculated chi-square value for some factors is significantly higher than the critical value, the null hypothesis of equal proportions is rejected for those specific factors. This indicates a significant difference in the proportions of mentions of certain factors in the scent group, suggesting that these factors are not uniformly distributed across the dataset.

The chi-square goodness of fit test results for the scent group reveal that not all scent factors are equally valued by hotel guests across different regions. The table below presents the observed and expected frequencies for each scent factor, along with the chi-square values and test results.

Significant Factors

Pleasant & Fresh - Floral: This factor had a significant impact on guest experiences, particularly in creating relaxing and clean environments, often mentioned in guest rooms, lobbies, and spa areas.

Natural & Woody - Woody and Herbal: These scents are heavily associated with nature and relaxation, frequently mentioned in outdoor areas, spa environments, and resort settings. Their significant chi-square values indicate their critical role in enhancing the guest experience.

Luxury & Perfume - Perfume and Light: These scents contribute to creating luxurious and refined atmospheres, especially in high-end hotel spaces such as VIP lounges and guest rooms.

Unpleasant Scents - Unpleasant, Damp, and Smoke: These factors were negatively mentioned by guests and found to be significant, reflecting their adverse impact on guest satisfaction. Guests frequently associated these scents with poor maintenance or inadequate ventilation.

Non-Significant Factors

Pleasant & Fresh - Citrus, Clean, and Sweet: These scents, while positive, did not exhibit significant differences from expected frequencies. This suggests that they may be perceived as more common and evenly distributed across hotels.

Natural & Woody - Mild: This subtle scent did not show a significant difference, indicating that while it is appreciated, it is not a dominant factor in guest perceptions.

The chi-square goodness of fit test results suggest that certain scent factors, particularly those in the Pleasant & Fresh, Natural & Woody, and Luxury & Perfume categories, play a significant role in shaping guest experiences. Specifically:

Pleasant & Fresh - Floral, Natural & Woody - Herbal, and Luxury & Perfume - Perfume were significantly more frequently mentioned, indicating their importance in creating positive and memorable guest experiences.

Unpleasant Scents, especially Damp and Smoke, negatively impacted guest satisfaction, with guests frequently mentioning these scents in negative contexts.

Overall, the analysis highlights the importance of carefully managing and optimizing scent in hotels to enhance guest satisfaction and ensure a high-quality experience. Hoteliers should prioritize the use of pleasant and luxurious scents while actively addressing and mitigating unpleasant odors.

Conclusion and Discussion

This study set out to determine whether scent factors in hotels across five regions of Thailand were uniformly distributed and to identify which scents had the greatest impact on guest satisfaction. The research findings clearly addressed these objectives. Using chi-square goodness of fit tests, significant differences in scent distribution were detected. Specific scents, such as “Pleasant & Fresh - Floral” and “Natural & Woody - Herbal,” were found to be more frequently mentioned and valued by guests, fulfilling the research objective of identifying key scent factors that enhance guest satisfaction. Additionally, the study revealed that unpleasant scents, like “Damp” and “Smoke,” negatively impacted the guest experience, answering the research question about the effect of undesirable scents in hotel environments.

The findings are consistent with previous studies emphasizing the importance of olfactory stimuli in creating customer experiences. For instance, Guillet et al. (2019) noted that pleasant scents in service environments help trigger positive emotions and enhance customer satisfaction, which aligns with this study’s finding that floral and fresh scents were highly appreciated. Herz (2010) also supported the notion that scent influences memory and emotions, directly affecting impressions and repeat visits. Similarly, Spangenberg et al. (1996) highlighted that natural and woody scents promote relaxation and well-being, explaining their importance in resort hotels. Furthermore, Henshaw et al. (2016) emphasized that unpleasant odors, such as dampness and smoke, significantly decrease customer satisfaction, reinforcing the need for better scent management in hospitality.

The research revealed that scent factors are not evenly distributed across hotels in Thailand’s regions. Certain pleasant scents, such as floral, fresh, herbal, and perfume scents, were significantly more valued by guests. Conversely, unpleasant scents like dampness and smoke were detrimental to the guest experience. These findings underscore that scent is an integral element of a hotel’s atmosphere, and strategic scent management can improve guest perceptions and satisfaction. Hotels should prioritize maintaining pleasant and memorable scents while addressing and mitigating unpleasant smells.

The findings align with recent literature on scent's role in shaping customer experiences. Guillet et al. (2019) observed that customers often associate pleasant scents with cleanliness and luxury, supporting this study's discovery that floral and fresh scents play a crucial role in creating a positive hotel atmosphere. Henshaw et al. (2016) further emphasized that natural scents, such as herbal and woody, are vital in creating peaceful environments, often associated with nature-based resorts. This research aligns with Spangenberg et al. (1996), who indicated that natural scents in eco-friendly hotels contribute to a more satisfying guest experience.

Challenges and Future Research Directions

Several challenges were encountered during the research. First, the subjective nature of scent perception made standardizing guest feedback across regions difficult. Guests may interpret scents differently based on personal preferences and memories, leading to variability in reviews. Additionally, external factors, such as climate and humidity, influenced the presence of unpleasant scents, complicating the analysis. The availability of reviews also varied between regions, potentially impacting data balance.

Future studies could expand on the psychological effects of specific scents and how they influence guest loyalty and decision-making. Experimental studies could assess the impact of different scent environments on guest behavior, satisfaction, and emotional responses. Additionally, future research could explore the combined effects of sensory factors like lighting or temperature alongside scent to provide a holistic understanding of environmental influences on guest experiences. Further research is also needed to develop effective scent management guidelines, especially in regions with environmental challenges like high humidity.

Key Scent Categories and Impact

The findings reveal that scents play a crucial role in shaping guest experiences and satisfaction in hotels. The most frequently mentioned scent factors include:

Pleasant & Fresh - Floral: Common in lobbies, guest rooms, and spas, this scent creates a relaxing and clean ambiance, forming positive first impressions.

Pleasant & Fresh - Fresh: Found in public areas like lobbies, this scent creates a refreshing atmosphere, enhancing guest satisfaction.

Natural & Woody - Herbal: Predominantly in spas, this scent evokes calmness and a connection to nature, offering relaxation.

Luxury & Perfume - Perfume: Used in luxury rooms and VIP areas, this scent conveys sophistication and high-end service, influencing quality perceptions.

This study underscores the critical role of scent in shaping guest impressions and enhancing hotel experiences. Appropriate scents, such as floral, clean, and herbal aromas, contribute to creating a clean, relaxing, and luxurious atmosphere, fostering positive emotions and strong first impressions. Scent designs tailored to specific areas, including lobbies, guest rooms, and spas, enhance service quality and encourage repeat visits. Conversely, unpleasant odors, such as dampness or smoke, negatively impact guest impressions. The study also highlights how individual scent perceptions and environmental factors, such as humidity, influence the overall atmosphere. Effective scent management is therefore essential for creating lasting impressions and fostering long-term guest relationships.

*Research Contributions and Practical Implications**Advancing Sensory Understanding in Hospitality*

This research deepens the understanding of scent's role in creating a conducive hotel atmosphere and its effects on guest satisfaction, impressions, and intentions to re-turn.

Enhancing Hotel Design and Services

Insights from the study can guide the integration of scent into hotel design, align-ing with specific areas and brand identities. For instance, fresh scents in lobbies and herbal aromas in spas can elevate customer experiences.

Guidelines for Scent Management

The study provides strategies for managing unpleasant odors, such as adopting advanced technologies or selecting scents that match functional areas. These efforts en-hance service quality while minimizing negative effects.

Competitive Advantage in a Crowded Market

By leveraging the findings, hotels can create unique brand identities and differen-tiate themselves in highly competitive markets, using scent to resonate with target au-diences.

Fostering Long-Term Customer Relationships

Appropriate scent usage fosters positive impressions and brand loyalty, increas-ing repeat visits and word-of-mouth recommendations.

In summary, this research not only enhances the quality of service in the hospital-ity industry but also equips hotels with strategies to effectively meet and exceed guest expectations, ensuring long-term success and competitiveness.

References

- Kotler, P. Atmospherics as a Marketing Tool. *Journal of Retailing* 1973, 49(4), 48–64.
- Basak Denizci Guillet, M.; Kozak, M.; Kucukusta, D. It's in the Air: Aroma Marketing and Affective Response in the Hotel World. *International Journal of Hospitality & Tourism Administration* 2019, 20(1), 1–14.
- Roy, S.; Singh, P. The Olfactory Experience (in Retail) Scale: Construction, Validation and Generalization. *Journal of Service Management* 2023, 34(3), 403–432.
- Bone, P.F.; Ellen, P.S. Scents in the Marketplace: Explaining a Fraction of Olfaction. *Journal of Retailing* 1999, 75(2), 243–262.
- Roschk, H.; Hosseinpour, M. Pleasant Ambient Scents: A Meta-Analysis of Customer Responses and Situational Contingen-cies. *Journal of Marketing* 2020, 84(1), 125–145.
- Roschk, H.; Loureiro, S.M.C.; Breitsohl, J. Calibrating 30 Years of Experimental Research: A Meta-Analysis of the Atmos-pheric Effects of Music, Scent, and Color. *Journal of Retailing* 2017, 93(2), 228–240.
- Wilkie, M. Scent of a Market. *American Demographics* 1995, 17(8), 40–46.
- Zaichowsky, J.L. Measuring the Involvement Construct. *Journal of Consumer Research* 1985, 12(3), 341–352.
- Zamudio, C.; Jewell, R.D. What's in a Name? Scent Brand Names, Olfactory Imagery, and Purchase Intention. *Journal of Product and Brand Management* 2020, 30(2), 281–292.
- Hirsch, A.R. Effects of Ambient Odors on Slot-Machine Usage in a Las Vegas Casino. *Psychology and Marketing* 1995, 12(7), 585–594.
- Zemke, D.M.V.; Shoemaker, S. Scent Across a Crowded Room: Exploring the Effect of Ambient Scent on Social Interactions. *International Journal of Hospitality Management* 2007, 26, 927–940.
- Mansoor, M., Paul, J., Saeed, A., & Cheah, J. H. (2024). When mass meets prestige: The impact of symbolic motivations, inspirations, and purchase intentions for Masstige products. *Journal of Business Research*, 176, 114591.
- Mattila, A.S.; Wirtz, J. Congruency of Scent and Music as a Driver of In-Store Evaluations and Behavior. *Journal of Retailing* 2001, 77(2), 273–290.

- Mehrabian, A.; Russell, J.A. *An Approach to Environmental Psychology*; The MIT Press: Cambridge, MA, USA, 1974.
- Mekhail, N. Scents of Place: Scent Branding in the Hotel World. Sparksheet Blog. Available online: <http://sparksheet.com/scents-of-place-scent-branding-in-the-hotel-world/> (accessed on 25 December 2024).
- Morrin, M.; Ratneshwar, S. The Impact of Ambient Scent on Evaluation, Attention, and Memory for Familiar and Unfamiliar Brands. *Journal of Business Research* 2000, 49, 157–165.
- Ferdenzi, C.; Delplanque, S.; Barbosa, P.; Court, K.; Guinard, J.-X.; Guo, T.; Grandjean, D. Affective Semantic Space of Scents: Towards a Universal Scale to Measure Self-Reported Odor-Related Feelings. *Food Quality and Preference* 2013, 30, 128–138.
- Ferdenzi, C.; Schirmer, A.; Roberts, S.C.; Delplanque, S.; Porcherot, C.; Cayeux, I.; Grandjean, D. Affective Dimensions of Odor Perception: A Comparison Between Swiss, British, and Singaporean Populations. *Emotion* 2011, 11(5), 1168–1181.
- Forbes Travel Guide. The Secret Weapon Luxe Hotels Use to Lure Guests In. *Forbes Travel Guide* 2012. Available online: <http://www.forbes.com/sites/forbestravelguide/2012/05/25/the-secret-weapon-luxe-hotels-use-to-lure-guests-in> (accessed on 25 December 2024).
- Hudson, R.; Distel, H. The Individuality of Odor Perception. In *Olfaction, Taste, and Cognition*; Rouby, C., Schaal, B., Dubois, D., Gervais, R., Holley, A., Eds.; Cambridge University Press: Cambridge, UK, 2002; pp. 408–420.
- Herrmann, A.; Zidansek, M.; Sprott, D.E.; Spangenberg, E.R. The Power of Simplicity: Processing Fluency and the Effects of Olfactory Cues on Retail Sales. *Journal of Retailing* 2013, 89(1), 30–43.
- Herz, R.S. The Emotional, Cognitive, and Biological Basics of Olfaction. In *Sensory Marketing: Research on the Sensuality of Products*; Krishna, A., Ed.; Routledge: London, UK, 2010; pp. 87–107.
- Gilmore, J.H.; Pine, B.J. Customer Experience Places: The New Offering Frontier. *Strategy and Leadership* 2002, 30(4), 4–11.
- Schab, F.R.; Crowder, R.G. Implicit Measures of Odor Memory. *Memory for Odors* 1995, 1, 72–91.
- Schmitt, B. Experiential Marketing. *Journal of Marketing Management* 1999, 15(1–3), 53–67.
- Schwarz, N. Metacognitive Experiences in Consumer Judgment and Decision Making. *Journal of Consumer Psychology* 2004, 14(4), 332–348.
- Serras. How Brands Benefit from Scent Marketing. *Packaging Strategies* 2018. Available online: <https://www.packagingstrategies.com/articles/94740-how-brands-benefit-from-scent-marketing> (accessed on 25 December 2024).
- Holbrook, M.B.; Hirschman, E.C. The Experiential Aspects of Consumption: Consumer Fantasies, Feelings, and Fun. *Journal of Consumer Research* 1982, 9(2), 132–140.
- Hulland, J.; Houston, M. The Importance of Behavioral Outcomes. *Journal of the Academy of Marketing Science* 2021, 49(3), 437–440.
- Jones, M.A. Entertaining Shopping Experiences: An Exploratory Investigation. *Journal of Retailing and Consumer Services* 1999, 6(3), 129–139.
- Jordan, P.J.; Troth, A.C. Common Method Bias in Applied Settings: The Dilemma of Researching in Organizations. *Australian Journal of Management* 2020, 45(1), 3–14.
- Khan, U.; Dhar, R.; Wertenbroch, K. A Behavioral Decision Theory Perspective on Hedonic and Utilitarian Choice. In *Inside Consumption: Frontiers of Research on Consumer Motives, Goals, and Desires*; Ratneshwar, S., Mick, D.G., Eds.; Routledge: London, UK, 2005; pp. 144–165.
- Foster, J.; McLelland, M.A. Retail Atmospherics: The Impact of a Brand Dictated Theme. *Journal of Retailing and Consumer Services* 2015, 22, 195–205.
- Henion, K.E. Odor Pleasantness and Intensity: A Single Dimension? *Journal of Experimental Psychology* 1971, 90(2), 275–279.
- Krishna, A. An Integrative Review of Sensory Marketing: Engaging the Senses to Affect Perception, Judgment, and Behavior. *Journal of Consumer Psychology* 2012, 22(3), 332–351.
- Krishna, A. (Ed.) *Sensory Marketing: Research on the Sensuality of Products*; Routledge: London, UK, 2011.
- Krishna, A. An Integrative Review of Sensory Marketing: Engaging the Senses to Affect Perception, Judgment, and Behavior. *Journal of Consumer Psychology* 2012, 22(3), 332–351.
- Krishna, A.; Morrin, M. Does Touch Affect Taste? The Perceptual Transfer of Product Container Haptic Cues. *Journal of Consumer Research* 2008, 34(6), 807–818.
- Krishna, A.; Elder, R.S.; Caldara, C. Feminine to Smell but Masculine to Touch? Multisensory Congruence and Its Effect on the Aesthetic Experience. *Journal of Consumer Psychology* 2010, 20(4), 410–418.
- Krishna, A.; Lwin, M.O.; Morrin, M. Product Scent and Memory. *Journal of Consumer Research* 2010, 37(1), 57–67.
- Bitner, M.J. Servicescapes: The Impact of Physical Surroundings on Customers and Employees. *Journal of Marketing* 1992, 56(2), 57–71.
- Hultén, B. Sensory Marketing: The Multi-Sensory Brand-Experience Concept. *European Business Review* 2011, 23(3), 256–273.
- Michon, R.; Chebat, J.C.; Turley, L.W. Mall Atmospherics: The Interaction Effects of the Mall Environment on Shopping Behavior. *Journal of Business Research* 2005, 58(5), 576–583.
- Mitchell, D.J.; Kahn, B.E.; Knasko, S.C. There's Something in the Air: Effects of Congruent or Incongruent Ambient Odor on Consumer Decision Making. *Journal of Consumer Research* 1995, 22(2), 229–238.
- Bradford, K.D.; Desrochers, D.M. The Use of Scents to Influence Consumers: The Sense of Using Scents to Make Cents. *Journal of Business Ethics* 2009, 90(2), 141–153.
- Han, H.; Hyun, S.S. Impact of Hotel-Restaurant Image and Quality of Physical Environment, Service, and Food on Satisfaction and Intention. *International Journal of Hospitality Management* 2017, 63, 82–92.

- Giousmpasoglou, C.; Marinakou, E.; Zopiat, A. Hospitality Managers in Turbulent Times: The COVID-19 Crisis. *International Journal of Contemporary Hospitality Management* 2021, 33(4), 1297–1318.
- Haldorai, K.; Kim, W.G.; Chang, H.; Li, J. Workplace Spirituality as a Mediator Between Ethical Climate and Workplace De-viant Behavior. *International Journal of Hospitality Management* 2020, 86, 102372.
- Spangenberg, E.R.; Crowley, A.E.; Henderson, P.W. Improving the Store Environment: Do Olfactory Cues Affect Evaluations and Behaviors? *Journal of Marketing* 1996, 60(2), 67–80.
- The Luxury Travel Expert. Top 10 Best Luxury Hotel Brands in the World. The Luxury Travel Expert 2021. Available online: <https://theluxurytravelexpert.com/2021/12/06/top-10-best-luxury-hotel-brands> (accessed on 25 December 2024).
- Morrison, M.; Gan, S.; Dubelaar, C.; Oppewal, H. In-Store Music and Aroma Influences on Shopper Behaviour and Satisfaction. *Journal of Business Research* 2011, 64(6), 558–564.
- Anguera-Torrell, O.; Álvarez León, I.; Cappai, A.; Sanmartín Antolín, G. Do Ambient Scents in Hotel Guest Rooms Affect Customers' Emotions? *European Journal of Tourism Research* 2021, 27, 2701.
- Han, H.; Hyun, S.S. Impact of Hotel-Restaurant Image and Quality of Physical Environment, Service, and Food on Satisfaction and Intention. *International Journal of Hospitality Management* 2023, 63, 82–92.
- Schmitt, B. Experiential Marketing. *Journal of Marketing Management* 1999, 15(1–3), 53–67.
- Madzharov, A.V. Scents Research and Its Applications in Tourism. School of Management, University of Bath, UK, 2023.
- Spangenberg, E.R.; Crowley, A.E.; Henderson, P.W. Improving the Store Environment: Do Olfactory Cues Affect Evaluations and Behaviors? *Journal of Marketing* 1996, 60(2), 67–80.
- Madzharov, A.V.; Block, L.G.; Morrin, M. The Cool Scent of Power: Effects of Ambient Scent on Consumer Preferences and Choice Behavior. *Journal of Marketing* 2015, 79(1), 83–96.
- Henshaw, V.; Medway, D.; Warnaby, G. *Designing with Smell: Practices, Techniques and Challenges*; Routledge: London, UK, 2016.
- Herz, R.S. The Emotional, Cognitive and Biological Basics of Olfaction. In *Sensory Marketing*; Krishna, A., Ed.; Routledge: London, UK, 2011; pp. 87–107.
- Agapito, D. The Senses in Tourism Design: A Bibliometric Review. *Annals of Tourism Research* 2020, 83, Article 102934.
- Lefebvre, S.; Biswas, D. The Influence of Ambient Scent Temperature on Food Consumption Behavior. *Journal of Experimental Psychology: Applied* 2019, 25(4), 753–764.
- Morrin, M. Scent Marketing: An Overview. In *Sensory Marketing*; Krishna, A., Ed.; Routledge: London, UK, 2011; pp. 105–116.
- Morrin, M.; Ratneshwar, S. Does It Make Sense to Use Scents to Enhance Brand Memory? *Journal of Marketing Research* 2003, 40(1), 1–25.
- Roschk, H.; Hosseinpour, M. Pleasant Ambient Scents: A Meta-Analysis of Customer Responses and Situational Contingencies. *Journal of Marketing* 2020, 84(1), 125–145.