

An Analytical Study on the Factors Influencing Consumer Choice and Satisfaction with the Eco-Friendly Practices of 5-Star Hotels of Kolkata

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Abstract:

The factors influencing consumer purchase behavior and satisfaction with the eco-friendly practices of 5-star hotels in Kolkata will be investigated. Determinant drivers that govern the consumers' choice for staying in an eco-friendly hotel and those that determine the degree of their satisfaction in green practice implementations would be studied and their relationship would also be analyzed. The study collected data from 235 respondents who were selected through convenience sampling. Data were collected using a structured questionnaire, validated through a literature review and expert consultation. It was divided into three sections with a 5-point Likert scale targeting the demographic data, factors that influence hotel choice, and satisfaction with eco-friendly practices. Cronbach's alpha scores attained for the three sections were 0.871, 0.940, and 0.928, respectively. Factor analysis revealed two main dimensions for both choice and satisfaction factors: sustainability initiatives and amenities, & resource conservation and green design for factors of influences, in consumers' purchasing decision. These dimensions depicted the importance of visible eco-friendly efforts and the operational innovations associated with influencing decisions of consumers. Satisfaction was considered to arise out of sustainable operations & guest experience and eco-friendly engagement & resource conservation, whereby the balance among luxury and a sense of environmental stewardship is of essence. Based on Spearman's correlation, there are interconnected complexities wherein satisfaction through engagement tends to be favorable, yet disparity still exists relating green practices in relation to consumer comfort. The findings indicate the need for 5-star hotels to strengthen their green strategies through alignment with the expectations of consumers for satisfaction. The study offers the hospitality industry practical recommendations that involve integrating sustainability into a superior guest experience for fostering loyalty and encouraging sustainable tourism.

Keywords: Consumers Choice, Consumers Satisfaction, 5-Star Eco-Friendly Hotels, Kolkata

1. INTRODUCTION

The hospitality sector plays a big role in catalyzing growth and at the same time affects environmental challenges. Eco-friendly aspects in 5-star hotels of high standards that reflect luxury has also seen some practice over the concerns over sustainability going on the increase. This is an important area of research as it focuses on green hospitality, especially in the urban scenario, such as Kolkata, a city with great cultural heritage and fast-growing tourism. Understanding factors

influencing consumer purchase behavior and satisfaction is essential to promoting sustainable tourism practices and improving customer experiences (Han et al., 2018). Consumer behavior in the hospitality industry is influenced by a variety of psychological, social, and economic factors. In the context of green practices, these factors include environmental awareness, perceived value, and trust in the hotel's commitment to sustainability (Chen & Tung, 2014). The Theory of Planned Behavior by Ajzen (1991) is useful in analyzing consumer attitudes and intentions, with the roles of attitude toward behavior, subjective norms, and perceived behavioral control. For example, the traveler who is concerned about sustainability will prefer hotels that are in line with his or her eco-conscious values, which will affect his or her purchase decisions and satisfaction levels (Kim et al., 2017). The practice of sustainable practices in hotels is quite diverse, including energy efficiency, proper waste management, conservation of water, and the usage of eco-friendly materials (Mensah, 2020). Few of the 5-star hotels in Kolkata have green certifications and have been practicing the implementation of solar power systems, separating waste, and providing eco-friendly amenities. This not only helps reduce the environmental footprint but also improves the image of the brand and customer loyalty (Rahman & Reynolds, 2019). These practices, however, have not yet been empirically explored in much depth regarding their ability to influence consumer behavior and satisfaction, especially within the Indian context (Suki & Suki, 2015).

Customer satisfaction is an important determinant of repeat patronage and positive word-of-mouth recommendations (Oliver, 2014). In the context of green hospitality, satisfaction is influenced by both functional attributes, such as the quality of eco-friendly services, and emotional factors, including the perceived ethical value of supporting sustainable initiatives (Gao & Mattila, 2014). Customers are willing to pay more for hotels that show actual environmental responsibility, according to research findings, and a strong connection between perceived value and satisfaction is reported (Teng et al., 2018). Although the hospitality industry places increasing emphasis on green practices, several barriers impede their general adoption. Some of these are high implementation costs, consumer ignorance, and perceived inconvenience in eco-friendly options (Kasim & Dzakiria, 2016). There is also the attitude-behavior gap, where the attitudes of consumers often differ from their actual behavior. This gap has been considered one of the significant challenges facing hoteliers (Vermeir & Verbeke, 2006). Overcoming such barriers demands a subtle understanding of the motivations of consumers and what motivates them in making certain decisions (Yadav & Pathak, 2017). Kolkata, as a metropolitan city blending tradition and modernity, is the perfect setting for studying the interaction between consumer behavior and eco-friendly practices in the hospitality sector. The tourism industry in the city is on the rise, while the growing awareness of the urban consumer about environmental issues makes it an important case for study (Bhattacharya & Mitra, 2020). In addition, the government initiatives for sustainable tourism, such as Swachh Bharat Abhiyan and National Green Tourism Policy, support the green hospitality of the country (Ministry of Tourism, 2023). This research paper aims to analyze the factors influencing consumer purchase behavior and satisfaction with the eco-friendly practices of 5-star hotels in Kolkata. This research integrates theoretical insights and empirical data to inform hoteliers about the actionability of their sustainability initiatives, aligning them with consumer expectations. Findings are likely to contribute to the broader discourse on sustainable tourism and serve as a reference for policymakers and industry stakeholders in the promotion of green hospitality practices.

2. REVIEW OF LITARATURE

2.1 Concept of Eco-Friendly Hotels

Green hotels are also referred to as sustainable hotels or environment-friendly hotels and symbolize the emergent paradigm in the hospitality industry that unifies environmental sustainability with superior guest experience. Such organizations practice environmentally friendly behavior through energy efficiency operations, reducing waste, conservation of water consumption, and employing green products and technology in its normal course of activities (Han et al., 2020). One of the key features of green hotels is the reduction of carbon footprint by generating renewable solar and wind power, as well as through enhanced energy management techniques (Mensah, 2021). Additionally, in many instances, green hotels promote the use of sustainable sources, whereby locally made, organic, and biodegradable materials are consumed in their supplies (Jones et al., 2019). Design and construction of environment-friendly hotels also consist of green building materials, together with certification in conformity with very broad standards - usually LEED, or at least Leadership in Energy and Environmental Design (Pizam, 2021). Besides, they promote environmentally friendly habits in visitors through recycling facilities, green amenities, and environmental awareness education programs (Bohdanowicz et al., 2020). The demand of the consumer to have sustainable travels has been what drives the development of eco-friendly hotels, pointing out the urgency of the hospitality industry to take up green practices for survival purposes and contributing to global sustainability objectives (Gössling & Buckley, 2021).

2.2 Sustainable Practices Exercised at Eco-Friendly Hotels

Environmental sustainability has been significant at eco-friendly hotels as this encourages the aspect of environmental protection even as ensuring satisfaction among their clients through sustainable tourism. Among many of such measures include strategies which involve systems such as efficient use of energy, waste management strategies, and also techniques such as water preservation measures to decrease the hospitality establishments' footprint in the environment (Jones & Hillier, 2021). For instance, with the utilization of renewable sources of energy such as solar and wind power, the carbon emissions have been reduced significantly as hotel firms aim at maintaining sustainable operations (Chen et al., 2020). In addition, green building designs have helped achieve resource efficiency with the use of greener materials. This facilitates a company's long-term sustainability (Singh & Gupta, 2019). Another feature of eco-friendly hotels is waste segregation and composting systems, which help in decreasing landfill contributions and promoting a circular economy (Rana & Sharma, 2022). Further, the reusing of linens and towels has been quite common, thus proving that the industry is ready to save water and decrease the operational costs (Patel et al., 2023). Apart from this, these hotels are also investing in eco-certifications and green labels to verify the efforts they put towards sustainability, thereby making them more marketable and attracting more guests in trust (Lee & Kim, 2021). Additionally, staff training on sustainable operations can ensure that sustainable practices are actually correctly implemented, and there would be a sense of environmental accountability (Thomas et al., 2024). In conclusion, the practice of an eco-friendly hotel ensures that its approach is well aligned with the global sustainability goals and places the hospitality industry in a very crucial position of a stakeholder of environmental stewardship.

2.3 Factors Influencing Consumers Choice of Eco-Friendly Hotels

Consumer choice of environment-friendly hotels depends on several factors from the aspect of awareness concerning the environment, personal values, and benefits realized. Of paramount importance is the aspect of environmental consciousness as the consumer is nowadays conscious of what accommodations they wish to choose according to their values regarding sustainability and to contribute towards conserving the environment (Smith & Jones, 2022). Further contributing to this trend is the growing consciousness of the carbon footprint that hospitality has on the environment and how eco-friendly hotels help mitigate that footprint (Brown et al., 2021). Another aspect is the sensitivity to prices. Many are ready to pay an extra amount of money for a "green" stay, yet it has to be within the affordability of travelling for those middle-income consumers (Johnson & Lee, 2023). Perceived quality is the driving force behind choice, because customers tend to associate sustainability activities with better service quality and experience of the guests in eco-friendly hotels (Taylor & Green, 2021). Marketing and communications strategies are an important factor regarding customer trust and choice. Using eco-labels, certification, and transparent information relating to green activities is a powerful influence on the consumer's decision (Wilson, 2023). Social influence and word of mouth become the final touch for decision making because travelers make much use of peer reviews and endorsements while settling on sustainable accommodation (Anderson & Kim, 2022). Moreover, inclusion of smart technologies for reducing energy and wastes has become another popular factor exhibiting innovation while conserving the environment (Miller et al., 2022). Lastly, ethical factors, such as community treatment and fair-trade advocacy, appeal to the socially aware consumer, further motivating them toward green hotels (Harrison, 2023). These combined factors illustrate how the environmental, economic, and social aspects coexist in consumer behavior toward sustainability in lodging options.

2.4 Consumers Satisfaction Level with Eco-Friendly Practices of Hotels

Consumer satisfaction with the eco-friendly practices of the hotel industry has, of late, been on the rise due to customers demanding sustainable and environmentally friendly business practices. In a bid to meet the needs of these environmentally conscious consumers, hotels are now embracing eco-friendly practices as strategies to improve operational efficiency and reduce costs. The practice of being environment-friendly includes the conservation of energy, waste minimization, water-saving technologies, and sustainable material usage, thus benefiting the environment and customer satisfaction (Chan & Hsu, 2019). According to the literature, consumers are gaining interest in hotel operations being environmentally friendly; some consumers are willing to pay a premium for green services and accommodation (Hernandez, 2020). Efforts on the part of hotels to make their contribution in reducing the impacts of environmental harm have been known to enhance customer satisfaction level in terms of being simple and just offering organic toiletries or very complex systems that are LEED-certified (Molina et al., 2018). In addition, it is related to transparency and authenticity through these practices because customers are likely to be satisfied only when they feel the hotel is concerned with sustainability and not "greenwashing" (Lee et al., 2019). Information technology has also been used to encourage eco-friendly practices, since digital platforms provide guests with more information about the green certifications, energy-saving practices, and waste management systems of a hotel before booking (Tang & Li, 2021). Furthermore, research has shown

that positive customer experiences with regard to eco-friendly initiatives are communicated through word-of-mouth, thereby leading to improved brand loyalty and repeat visits (Baker & Mehmood, 2021). Despite these positive effects, there are challenges, which include high upfront investment costs in sustainability and lack of uniformity in the application of sustainability throughout the hospitality industry (Gossling, 2020). Various studies suggest that consumers' perceptions of environmental-friendly practices are geographically different and also based on demographic variables like age and income, whereby younger and richer consumers tend to have a greater sense of satisfaction (Zhang & Xiang, 2022). The growth of demand for sustainability forces hotels to keep innovating and updating their practices according to the demands of the consumer, which makes sure that such green practices not only promote environmental sustainability but also increase customer satisfaction and loyalty (Teng, 2019).

3. OBJECTIVES OF THE STUDY

- To examine the factors influencing consumers choice of 5-star eco-friendly hotels in Kolkata.
- To assess the factors influencing consumers satisfaction with the eco-friendly practices implemented by 5-star eco-friendly hotels in Kolkata.
- To analyze the correlation between factors influencing consumers choice and consumer satisfaction with the eco-friendly practices implemented by 5-star eco-friendly hotels in Kolkata.

4. RESEARCH METHODOLOGY

The systematic research methodology of this study examines the factors influencing consumer purchase behavior and satisfaction with the eco-friendly practices of 5-star hotels in Kolkata. Primary data were collected by a structured questionnaire prepared after reviewing vast literature in this regard and discussing it with the academicians and research supervisor to establish validity and completeness. The questionnaire was developed by using the internet-based tool Google Forms and administered to consumers of 5-star eco-friendly hotels in Kolkata using convenience sampling. Data collection took place in December 2024. The questionnaire was divided into three sections. The first section gathered demographic information about the respondents. This contains 12 questions that measured aspects that affect the choice of a 5-star eco-friendly hotel on a 5-point Likert scale that range from "Not at all Influential" to "Extremely Influential." The third part concerns consumer satisfaction towards the eco-friendly practices, in which 12 questions were formulated on a 5-point Likert scale from "Highly Dissatisfied" to "Highly Satisfied." Questionnaires were provided to a total of 320 respondents through a convenience sampling technique using social media to the respondents who had visited the 5-star eco-friendly hotels in Kolkata out of which 242 had returned the questionnaire. After validation, it was found that 235 were suitable for analysis. The Cronbach's alpha scores of the questionnaire were proved to be valid with all items standing at 0.871 and factors influencing choice at 0.940. Likewise, the Cronbach's alpha for consumer satisfaction items was 0.928. For the realization of the first and second objectives, factor analysis was conducted for understanding the underlying factors that influence the consumers' choice and satisfaction. For the third objective, Spearman's correlation test was conducted on the choice factors and the level of satisfaction as data did not conform to a normal distribution.

5. DATA ANALYSIS AND INTERPRETATION

5.1 Demographic Profile of Respondents

Table 1: Demographic profile of Respondents

| Parameter | Variables | Frequency | Percentage |
|----------------------------------|-----------------------------|------------------|-------------------|
| Gender | Male | 138 | 58.7 |
| | Female | 97 | 41.3 |
| Age | 18-25 Years | 36 | 15.3 |
| | 26-35 Years | 75 | 31.9 |
| | 36-45 Years | 60 | 25.5 |
| | 46-55 Years | 38 | 16.2 |
| | Above 55 Years | 26 | 11.1 |
| Marital Status | Single | 118 | 50.2 |
| | Married | 117 | 49.8 |
| Educational Qualification | Intermediate | 7 | 3.0 |
| | Graduate | 89 | 37.9 |
| | Postgraduate | 86 | 36.6 |
| | Doctorate | 8 | 3.4 |
| | Others | 45 | 19.1 |
| Occupation | Student | 11 | 4.7 |
| | Government Job | 85 | 36.2 |
| | Private Job | 73 | 31.1 |
| | Self-Business | 62 | 26.4 |
| | Others | 4 | 1.7 |
| Annual Income | Not Earning | 6 | 2.6 |
| | Up to 4 Lakhs | 49 | 20.9 |
| | 4-8 Lakhs | 99 | 42.1 |
| | 8-12 Lakhs | 60 | 25.5 |
| | Above 12 Lakhs | 21 | 8.9 |
| Area of Residence | Kolkata | 75 | 31.9 |
| | Other Cities of West Bengal | 73 | 31.1 |

| | | | |
|--|------------------------|-----|------|
| | Other States of India | 87 | 37.0 |
| Frequency of Travel and Stay in 5-Star Eco-friendly Hotels of Kolkata | Once a month or more | 23 | 9.8 |
| | 2-3 times a year | 79 | 33.6 |
| | Once a year | 119 | 50.6 |
| | Rarely | 14 | 6.0 |
| Purpose of Travel | Leisure | 132 | 56.2 |
| | Business | 75 | 31.9 |
| | Others | 28 | 11.9 |
| Primary reasons for Choosing Eco-friendly Hotels | Environmental Concerns | 95 | 40.4 |
| | Better Service Quality | 58 | 24.7 |
| | Health Benefits | 55 | 23.4 |
| | Unique Amenities | 16 | 6.8 |
| | Peer Recommendations | 11 | 4.7 |

The demographic profile of the respondents would provide an in-depth overview of the characteristics of the respondents on several parameters. Among gender, it can be noted that males constitute 58.7% (138 individuals), whereas females account for 41.3% (97 individuals). Thus, a gender imbalance among the sample population can be established. This means that the age group is widely spread across ages 26-35 years (31.9%), followed by 36-45 years (25.5%), reflecting that a large number of the respondents fall within the young and middle-aged age groups. Smaller proportions fall within the 18-25 years (15.3%), 46-55 years (16.2%), and above 55 years (11.1%) age groups with decreasing proportions among older ages. In terms of marital status, the responses are almost equally divided between singles at 50.2% and married people at 49.8%, which reflects diverse household settings. The educational qualification statistics indicate that most respondents have received higher education, with graduates constituting the largest number at 37.9% (89 individuals), followed by postgraduates at 36.6% (86 individuals). A very small number even possess doctorate degrees (3.4%), while others hold different qualifications, either of professional or vocational training, with 19.1%. The least represented section is those holding an intermediate qualification, 3%.

The occupation parameter states that the workplace is heterogeneous as the largest section is working under government jobs with 36.2%, private jobs with 31.1%, and then self-business is 26.4%. Student and others categories are the minorities of the population with 4.7% and 1.7%

respectively. The majority of the respondents, in terms of annual income, fall between 4-8 lakhs (42.1%), followed by 25.5% in the 8-12 lakhs range, and a smaller group above 12 lakhs (8.9%). A small percentage of respondents either do not earn (2.6%) or have an income of up to 4 lakhs (20.9%). The place of residence provides for an almost even split, with respondents being about the same percentage from the city of Kolkata (31.9%) and other cities in West Bengal (31.1%). However, it is still higher in other states of India at 37.0% that have a varied geographical presence. Travel and stay frequency to 5-star eco-friendly hotels of Kolkata are such that 50.6% of the respondent visit once a year, while 33.6% travel 2-3 times a year. A smaller percentage comes more often, and 9.8% visit once a month or more, while 6% come less often. When analyzing the purpose of travel, the most common is leisure (56.2%), followed by business travel (31.9%) and other reasons not specified (11.9%). Lastly, the main reasons for selecting an eco-friendly hotel mirror environmental concerns as the primary factor (40.4%), pointing to increasing consciousness about sustainability. Better service quality (24.7%) and health benefits (23.4%) are also significant motivators, while unique amenities (6.8%) and peer recommendations (4.7%) influence a smaller segment of respondents. This thorough demographic analysis captures the richly varied and complex nature of the respondents, explaining their preferences, behavior, and socio-economic context in the backdrop of their choice on environmentally friendly hotels in Kolkata.

5.2 Factors Influencing Consumers Choice of 5-Star Eco-Friendly Hotels

The first objective of the study is to examine the factors influencing consumers choice of 5-star eco-friendly hotels in Kolkata. Questions to visitors who visited 5-star eco-friendly hotels in Kolkata were asked on 12 parameters of key factors driving customers to choose 5-star eco-friendly hotels on a five-point likert scale of not at all influential to extremely influential. Factor analysis is performed to find out the most important dimensions of the factors influencing consumers choice of eco-friendly hotels in Kolkata.

Table 2: KMO and Bartlett's Test for sampling adequacy and sphericity in factors influencing consumers choice of eco-friendly hotels in Kolkata.

| KMO and Bartlett's Test | | |
|--|--------------------|----------|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .875 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2366.422 |
| | Df | 66 |
| | Sig. | .000 |

Table 2 indicates the suitability of the data for factor analysis. The Kaiser-Meyer-Olkin (KMO) value is 0.875, which represents excellent sampling adequacy. Also, Bartlett's Test of Sphericity indicates that the correlation matrix is not an identity matrix. This makes the dataset suitable for factor analysis as the significant p-value Sig. = 0.000, and the chi-square of 2366.422, respectively.

Table 3: Total Variance Explained for Factors Influencing Consumers' Choice of Eco-Friendly Hotels in Kolkata

| Total Variance Explained | | | | | | | | | |
|---------------------------------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 7.329 | 61.075 | 61.075 | 7.329 | 61.075 | 61.075 | 4.474 | 37.282 | 37.282 |
| 2 | 1.390 | 11.583 | 72.658 | 1.390 | 11.583 | 72.658 | 4.245 | 35.375 | 72.658 |
| 3 | .637 | 5.309 | 77.967 | | | | | | |
| 4 | .532 | 4.434 | 82.401 | | | | | | |
| 5 | .483 | 4.028 | 86.428 | | | | | | |
| 6 | .399 | 3.322 | 89.750 | | | | | | |
| 7 | .308 | 2.566 | 92.316 | | | | | | |
| 8 | .260 | 2.165 | 94.481 | | | | | | |
| 9 | .226 | 1.886 | 96.367 | | | | | | |
| 10 | .197 | 1.645 | 98.012 | | | | | | |
| 11 | .140 | 1.171 | 99.182 | | | | | | |
| 12 | .098 | .818 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

Table 3 presents the total variance explained by the factors of consumers' choice for choosing an eco-friendly hotel in Kolkata. This analysis extracted two components that have eigenvalues greater than 1, having a cumulative variance of 72.658%. After rotation, Component 1 accounted for 37.282% and Component 2 had 35.375% of the variance, which are the two significant dimensions influencing consumer choice.

Table 4: Rotated Component Matrix for Factors Influencing Consumers' Choice of Eco-Friendly Hotels in Kolkata"

| Rotated Component Matrix^a | | |
|---|-----------|---|
| | Component | |
| | 1 | 2 |
| | | |

| | | |
|--|------|------|
| Environmental sustainability commitment | .906 | |
| Carbon emission reduction efforts | .866 | |
| Eco-friendly amenities (organic toiletries, energy-efficient lighting) | .749 | |
| Sustainable food and beverage options (local, organic) | .708 | |
| Transparency in eco-friendly practices (sustainability reports) | .706 | |
| Eco-friendly certifications (LEED, Green Key) | .621 | |
| Participation in community-based eco-initiatives | .598 | |
| Water conservation efforts (rainwater harvesting, low-flow faucets) | | .840 |
| Guest education on eco-friendly practices | | .819 |
| Waste management practices (recycling, plastic reduction) | | .815 |
| Renewable energy usage (solar, wind power) | | .780 |
| Green building designs (energy-efficient architecture, eco-materials) | | .610 |
| Extraction Method: Principal Component Analysis. | | |
| Rotation Method: Varimax with Kaiser Normalization. | | |
| a. Rotation converged in 3 iterations. | | |

Table 4 exhibits results of factor analysis, which highlights two major components that shape the choice of the consumers for green hotels in Kolkata. This results in two core dimensions:

Factor 1: Sustainability Initiatives and Amenities: This component includes factors that reflect the sustainability commitment of the hotel and also reflect eco-friendly services. Variables include environmental sustainability commitment (0.906), efforts to reduce carbon emissions (0.866), and eco-friendly amenities, for example, organic toiletries and energy-efficient lighting (0.749). Additional factors include sustainable food and beverage options (0.708), transparency in eco-friendly practices (e.g., sustainability reports, 0.706), eco-friendly certifications (e.g., LEED, 0.621), and participation in community-based eco-initiatives (0.598), which further indicate how customers appreciate a hotel's proactive role in eco-conscious practices. This factor indicates that consumers are attracted to hotels that visibly integrate sustainability into their operations and promote eco-friendly living. These are aspects that inform the customer their choice is with the environmental value and contributes to positive impacts to wider sustainability goals.

Factor 2: Resource Conservation and Green Design: This factor emphasizes resource saving and architectural innovation for environmental protection. The variables that form the basis of this factor include water saving efforts, such as rainwater harvesting, low-flow faucets, 0.840; guest education

on environmentally friendly practices, 0.819; waste management practices, such as recycling, plastic reduction, 0.815; renewable energy usage, such as solar, wind power, 0.780; and green building designs, such as energy-efficient architecture, eco-materials, 0.610. This dimension emphasizes the significance of operational and structural innovations in green hotels. Customers are concerned with initiatives that directly reduce resource wastage and environmental degradation. Hotels that emphasize educating guests on sustainability and using green building designs will attract environmentally conscious consumers who appreciate tangible efforts in mitigating environmental impact.

Two important dimensions for consumer choice, as captured by the rotated component matrix, are: (1) Visible activities and amenities related to sustainability, and (2) Resource and green design. These two factors reflect the complexity of consumer preference, and further highlight the role of both operational practice and structural innovations in driving choice in the context of eco-friendly hospitality. These together encapsulate the entire understanding of what drives consumers to make the choices they do. They indicate the complexity in consumer preferences: from visible initiatives in eco-friendliness to robust operational sustainability measures. Thus, the identification and analysis of these factors effectively meet the first objective of the study by providing a clear insight into the key determinants influencing the selection of 5-star eco-friendly hotels in Kolkata.

5.3 Consumer Satisfaction with the Eco-Friendly Practices Implemented By 5-Star Eco-Friendly Hotels in Kolkata

The second objective of the study is to assess the factors influencing consumer satisfaction with the eco-friendly practices implemented by 5-star eco-friendly hotels in Kolkata. Questions to visitors who visited 5-star eco-friendly hotels in Kolkata were asked on 12 parameters of key facilities provided by 5-star eco-friendly hotels on a five-point likert scale of Highly Dissatisfied to Highly Satisfied. Factor analysis is performed to find out the most important dimensions of level of consumer satisfaction with the eco-friendly practices implemented by 5-star eco-friendly hotels in Kolkata.

Table 5: KMO and Bartlett's Test for sampling adequacy and sphericity in analyzing level of consumer satisfaction with the eco-friendly practices implemented by 5-star eco-friendly hotels in Kolkata

| KMO and Bartlett's Test | | | |
|--|--------------------|----------|--|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | .869 | |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 1934.612 | |
| | df | 66 | |
| | Sig. | .000 | |

Table 5 demonstrates the appropriateness of the data for factor analysis in assessing consumer satisfaction with eco-friendly practices in 5-star hotels in Kolkata. KMO value stands at 0.869 indicating excellent sampling adequacy, while Bartlett's Test of Sphericity indicates that the correlation matrix is suitable for factor analysis as the Sig. = 0.000 and chi-square = 1934.612.

Table 6: Total Variance Explained for factors influencing consumer satisfaction with eco-friendly practices in 5-star hotels in Kolkata

| Total Variance Explained | | | | | | | | | |
|---------------------------------|---------------------|---------------|--------------|-------------------------------------|---------------|--------------|-----------------------------------|---------------|--------------|
| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | | Rotation Sums of Squared Loadings | | |
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| | 1 | 6.771 | 56.426 | 56.426 | 6.771 | 56.426 | 56.426 | 4.569 | 38.076 |
| 2 | 1.276 | 10.631 | 67.056 | 1.276 | 10.631 | 67.056 | 3.478 | 28.981 | 67.056 |
| 3 | .751 | 6.257 | 73.314 | | | | | | |
| 4 | .613 | 5.108 | 78.422 | | | | | | |
| 5 | .566 | 4.720 | 83.142 | | | | | | |
| 6 | .476 | 3.969 | 87.111 | | | | | | |
| 7 | .390 | 3.253 | 90.364 | | | | | | |
| 8 | .334 | 2.782 | 93.146 | | | | | | |
| 9 | .290 | 2.418 | 95.564 | | | | | | |
| 10 | .204 | 1.700 | 97.263 | | | | | | |
| 11 | .194 | 1.617 | 98.880 | | | | | | |
| 12 | .134 | 1.120 | 100.000 | | | | | | |

Extraction Method: Principal Component Analysis.

Table 6 is the total variance explained for factors of consumer satisfaction of the 5-star hotels located in Kolkata with respect to environmental practices. There are two components that had eigenvalues greater than 1, which cumulatively explained 67.056% of variance in this study. While on the other hand, Component 1 alone explained 38.076%, and Component 2 further added 28.981%. This demonstrates that two components account for most of the variability in this study and may therefore be the most significant for determining the majority satisfaction drivers.

Table 7: Rotated Component Matrix for Factors Influencing Consumer Satisfaction with Eco-Friendly Practices in 5-Star Hotels in Kolkata

| Rotated Component Matrix^a | | |
|---|-----------|---|
| | Component | |
| | 1 | 2 |
| | | |

| | | |
|---|------|------|
| | | |
| Renewable energy use | .856 | |
| Staff environmental consciousness | .823 | |
| Waste management practices | .771 | |
| Overall experience and contribution to sustainability | .765 | |
| Sustainable dining options | .691 | |
| Value for money (eco-friendly vs. non-eco-friendly) | .663 | |
| Room comfort and luxury | .611 | |
| Reuse of Linen | | .844 |
| Guest engagement in eco-friendly initiatives | | .784 |
| Water conservation measures | | .747 |
| Service quality | | .656 |
| Communication of eco-friendly practices | | .540 |
| Extraction Method: Principal Component Analysis. | | |
| Rotation Method: Varimax with Kaiser Normalization. | | |
| a. Rotation converged in 3 iterations. | | |

Factor 1: Sustainable Operations and Guest Experience: This factor reflects the operation and experience factors driving consumer satisfaction. Such variables as renewable energy use (0.856), staff environmental consciousness (0.823), waste management practices (0.771), and overall experience and contribution to sustainability (0.765) emphasize how visible and effective initiatives in hotel operations should be. Moreover, sustainable dining options (0.691), value for money (0.663), and room comfort and luxury (0.611) indicate how consumers want something that balances eco-friendly procedures with high-quality experiences. This factor, therefore, confirms the importance of an integrated approach to sustainability in achieving guest-focused outcomes for satisfaction.

Factor 2: Eco-Friendly Engagement and Resource Conservation: This encapsulates efforts in entertaining guests and also conserving resources. The variables of reuse of linen, 0.844; engagement of guests in ecological practices, 0.784; and water conservation, 0.747, weigh the appreciation for participative and resource-efficient practice aspects by the consumers. Moreover, communication of eco-friendly practices and service quality, at 0.656 and 0.540, respectively, show that there is significant scope for delivering high service quality while communicating various sustainability effort areas to the guests. This factor shows the significance of active involvement and effective utilization of resources in determining consumer satisfaction.

The two factors combined encompass critical dimensions affecting consumer satisfaction. Factor 1 concentrates on operational excellence and guest experience, whereas Factor 2 concentrates on active engagement and resource conservation. Collectively, these findings highlight the aspects of how green practices in 5-star hotels can help satisfy consumers and contribute to consumer satisfaction. In conclusion, the results together meet the second objective, as it determines and measures which of the specific dimensions of green practice are strongly influencing consumer satisfaction. They provide actionable insights into how 5-star hotels can improve customer experiences by combining operational excellence, effective communication, and active guest engagement in sustainable practices.

5.4 Correlation between Factors Influencing Consumers Choice and Consumer Satisfaction with the Eco-Friendly Practices

The third objective of the study is to analyze the correlation between factors influencing consumers choice and consumer satisfaction with the eco-friendly practices implemented by 5-star eco-friendly hotels in Kolkata.

Table 8: Spearman's Correlation Between Factors Influencing Consumers' Choice and Consumer Satisfaction with Eco-Friendly Practices in 5-Star Eco-Friendly Hotels in Kolkata

| Correlations | | | | |
|--|---|-------------------------|--|--|
| | | | Factor 1: Sustainable Operations and Guest Experience (Consumers Satisfaction) | Factor 2: Eco-Friendly Engagement and Resource Conservation (Consumers Satisfaction) |
| Spearman's rho | Factor 1: Sustainability Initiatives and Amenities (Consumers Choice) | Correlation Coefficient | -.211** | .238** |
| | | Sig. (2-tailed) | 0.001 | 0.000 |
| | | N | 235 | 235 |
| | Factor 2: Resource Conservation and Green Design (Consumers Choice) | Correlation Coefficient | .211** | 0.106 |
| | | Sig. (2-tailed) | 0.001 | 0.105 |
| | | N | 235 | 235 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | |

The results in Table 8 show the Spearman's correlation between factors influencing consumers' choice and consumer satisfaction with eco-friendly practices in 5-star eco-friendly hotels in Kolkata. Two key factors influencing choice were analyzed in relation to two dimensions of consumer satisfaction. Factor 1: Sustainability Initiatives and Amenities (choice) manifested a weak negative correlation with Factor 1: Sustainable Operations and Guest Experience (satisfaction); that is, $r = -0.211$, $p < 0.01$. The result implies that although consumers have preferences for several sustainability initiatives and amenities in the decision process of choosing the eco-friendly hotels, they might not have strong satisfaction for factors related to sustainability operations and experience. A plausible explanation could be that these measures, for instance, green certifications or environmentally friendly building designs, may not translate into a more tangible sense of comfort or luxury for guests and thus there may be a mis-match between what was expected and what was actually experienced. However, the weak positive relationship ($r=0.238$, $p<0.01$) between Sustainability Initiatives and Amenities (choice) and Eco-Friendly Engagement and Resource Conservation (satisfaction) reveals that these initiatives are positively associated with satisfaction generated through the engagement and conservation activities such as waste collection and use of renewable energy. Factor 2: Resource Conservation and Green Design (choice) was weakly positively correlated with Sustainable Operations and Guest Experience (satisfaction) $r=0.211$, $p<0.01$, indicating that conservation-oriented practices such as water-saving measures and green architecture contribute positively to guests' overall satisfaction with operations and contributions to sustainability. However, this factor had no significant correlation ($r=0.106$, $p=0.105$) with Eco-Friendly Engagement and Resource Conservation (satisfaction), which may indicate that while resource conservation is appreciated, it might not directly engage or resonate with guests in ways that elevate their satisfaction regarding involvement or participation in sustainability efforts. There is a nuanced interaction between the various factors that contribute to consumer decisions and satisfaction, as the authors conclude. It further supports the idea that sustainability initiatives and resource conservation practice have different implications for satisfaction and possibly other gaps due to misaligned expectations, poor communication of benefit, or even an underplayed emphasis on serving guests through an eco-friendly delivery. Addressing these gaps will improve consumer satisfaction and the value perceived from practices that are called eco-friendly. The third objective is achieved with Table 8, because it gives empirical evidence about the correlation between the choice factors of consumers and their levels of satisfaction. This can provide a deeper understanding of how eco-friendly practices influence consumer perceptions and experiences in 5-star hotels.

6. CONCLUSIONS

The conclusion sums up critical insights in the factors influencing the purchase behavior of consumers and satisfaction with the actual practice in eco-friendly practices by 5-star hotels in Kolkata. The first objective aims to explore the influencing factors on consumers' choice, which shows two principal dimensions: firstly, sustainability initiatives and amenities-is a crucial preference for consumers on the visible eco-friendly practices such as green certification, food

options with sustainability, and energy-efficient amenities. These characteristics appeal to consumers who align with environmental values. The second factor, resource conservation and green design, illustrates how structural and operational innovations such as water conservation, waste management, and eco-architecture are vital in showing that consumers appreciate concrete efforts to reduce environmental impact. The second goal, to examine the factors that drive consumer satisfaction, is that it is driven by both operational excellence and guest involvement in green activities. The first dimension is sustainable operations and guest experience. It emphasizes the importance of using renewable energy, waste management, and a balance between sustainability and luxury. Guests appreciate the practices that make their stay eco-friendly without sacrificing comfort or quality. The second dimension is eco-friendly engagement and resource conservation. Participatory initiatives and resource efficiency play a crucial role in driving satisfaction. Active communication of these practices further elevates the guest experience. The third objective, examining the relationship between choice and satisfaction factors, indicates complex relationships. Sustainability initiatives are seen to affect satisfaction by increasing engagement and resource conservation. However, there is a gap when these initiatives do not translate into perceived comfort or luxury. Similarly, resource conservation positively affects satisfaction with operational aspects but lacks a significant impact on engagement. Filling these gaps can increase satisfaction by aligning eco-friendly practices with guest expectations and experiences.

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