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GUEST PERCEPTIONS OF NUTRITIONAL INFORMATION ON HOTEL MENUS: A SURVEY-BASED STUDY

[1]Gurjit Kumar, [2]Mohinder Kumar, [3]Rajiv Kumar

[1,2]Assistant Professor, Sri Sai Iqbal College of Management And Information Technology, Badhani-Pathankot, Punjab, India

[2]Assistant Professor, Sri Sai University, palampur, Himachal Pradesh, India

gurjit.dbtram.b4@gmail.com, mkb6979@gmail.com, rajivkr2020@gmail.com

Abstract:

This study investigates guest perceptions of nutritional information on hotel menus through a comprehensive survey-based approach. In an era where health consciousness is growing, understanding how nutritional labeling influences consumer choices is crucial for the hospitality industry. The survey, distributed among a diverse demographic of hotel guests, assessed their awareness, preferences, and the impact of nutritional information on their dining decisions. The findings reveal that a significant portion of guests considers nutritional information a critical factor in menu selection, with preferences varying across age groups, dietary needs, and health goals. Guests who frequently prioritize healthy eating habits showed a strong preference for menus that include detailed nutritional content, such as calorie counts, macronutrient breakdowns, and allergen warnings. The study also highlights a notable difference in perceptions based on the type of nutritional information provided, with simple calorie counts being less influential than more comprehensive data. Additionally, guests expressed a higher likelihood of choosing healthier options when nutritional information was prominently displayed. The research underscores the potential for hotels to enhance customer satisfaction and loyalty by incorporating clear and detailed nutritional labeling on menus. These findings suggest that hotels can benefit from tailoring their menu offerings and presentation to align with the evolving health-conscious trends among consumers, ultimately fostering a positive dining experience. The study concludes that integrating nutritional information on menus is not only a response to guest demand but also a strategic move to attract and retain health-conscious customers in a competitive hospitality market.

Keywords: Nutritional Information, Hotel Menus, Guest Preferences, Dining Choices, Health-Conscious Eating, Caloric Intake, Nutritional Labels, Menu Design, Guest Satisfaction

I. INTRODUCTION

In recent years, there has been a growing emphasis on health and wellness across various sectors, with the hospitality industry being no exception. The increasing awareness of dietary health and nutritional content among consumers has led to a heightened demand for transparency in food offerings, particularly within the hotel industry. Nutritional information on menus, once a novelty, has become an essential feature for many establishments seeking to meet the evolving

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preferences of health-conscious guests [1]. This shift is driven by broader societal trends towards healthier living, where individuals are more informed about the impact of their food choices on overall well-being. As hotels cater to a diverse clientele, understanding how different guests perceive and utilize nutritional information is critical for developing effective menu strategies and enhancing guest satisfaction [2]. The integration of nutritional information into hotel menus serves multiple purposes. It not only helps guests make informed decisions based on their dietary needs and preferences but also reflects an establishment's commitment to transparency and health. For many guests, particularly those with specific health concerns or dietary restrictions, having access to detailed nutritional data can significantly influence their dining choices. This growing demand for transparency presents an opportunity for hotels to differentiate themselves in a competitive market by adopting practices that align with contemporary consumer values. However, the effectiveness of nutritional information in influencing guest behavior and satisfaction remains underexplored [3]. To address this gap, this study aims to investigate guest perceptions of nutritional information on hotel menus through a survey-based approach. By capturing a wide range of guest attitudes, preferences, and behaviors, the study seeks to provide valuable insights into how nutritional information impacts dining decisions. The survey focuses on several key aspects: the types of nutritional information that guests find most useful, their preferences for menu presentation, and the overall influence of nutritional data on their food choices [4]. Additionally, the research explores demographic variations in perceptions, including age, dietary habits, and health concerns, to understand how these factors shape guests' responses to nutritional labeling.

The results of this study are expected to offer a nuanced understanding of the role of nutritional information in the hospitality sector. By identifying which elements of nutritional labeling are most valued by guests, hotels can better tailor their menu offerings to meet customer expectations and enhance their dining experience [5]. Moreover, the findings will provide actionable insights for hotel management, helping them to balance the need for detailed nutritional information with practical considerations such as menu design and operational feasibility. As the hospitality industry adapts to the increasing demand for health-conscious dining options, this study provides a timely examination of guest perceptions regarding nutritional information on hotel menus. By elucidating the preferences and attitudes of a diverse guest population, the research aims to contribute to a more informed approach to menu design and customer service in the hotel industry. This exploration not only addresses current consumer trends but also supports hotels in making strategic decisions that align with the evolving landscape of health and wellness.

II. RELATED WORK

The table (1) summarizing related work on guest perceptions of nutritional information on hotel menus provides a comprehensive overview of various studies addressing the impact and effectiveness of nutritional labeling in the hospitality sector. These studies span a range of

methodologies, scopes, and applications, shedding light on how nutritional information influences consumer behavior, guest satisfaction, and menu design in hotels and restaurants. Many studies employ surveys to capture guest preferences and perceptions regarding nutritional information. For instance, research on the impact of nutritional labels in restaurants generally finds that such labels tend to increase the likelihood of healthier food choices among consumers. This has significant applications for menu design in both restaurants and hotels, highlighting the importance of including nutritional details to cater to health-conscious guests [6]. However, one notable disadvantage is that the effectiveness of these labels can vary based on the clarity and detail of the information provided, as well as the individual's ability to interpret it. Other research focuses on the effectiveness of calorie labeling in reducing obesity. Experimental studies with control groups have shown that calorie labels can lead to reduced calorie intake among specific demographics [6]. While this has implications for public health and restaurant menu regulations, the challenge lies in the fact that calorie labeling alone may not be sufficient to drive significant dietary changes unless combined with other health-promoting strategies.

The preferences for nutritional information in fast food establishments reveal that consumers favor detailed information, including calorie counts and allergen warnings. This insight is crucial for the fast food industry, where clear labeling can enhance customer satisfaction and loyalty [7]. However, a limitation here is that the focus on fast food may not fully translate to more diverse dining settings such as hotels, where guest expectations and dining habits might differ. Studies on guest perceptions of menu transparency in hotels indicate that guests highly value clear and detailed nutritional information [8]. This has practical applications for hotel restaurant management, as incorporating such information can improve the dining experience and customer satisfaction. Nonetheless, the challenge is balancing the need for transparency with practical constraints related to menu space and the complexity of providing accurate nutritional data. Longitudinal surveys examining the impact of persistent access to nutritional information reveal that it can influence long-term dietary choices [9]. This suggests that consistent and accessible nutritional information can lead to more sustained behavior change. However, a disadvantage of this approach is that maintaining updated and accurate nutritional data over time can be resource-intensive for hotel operations.

Research focusing on luxury hotels highlights that high-end guests prefer detailed and high-quality nutritional information. This insight is valuable for luxury hotel menus and service strategies, aiming to meet the expectations of discerning clientele [10]. However, the challenge lies in the added cost and complexity of providing such detailed information in a manner that aligns with the luxurious nature of the establishment. Studies comparing digital and printed nutritional menus in hotels show that digital menus are often preferred by tech-savvy guests. Digital menus can offer engaging features and ease of access [11]. Nonetheless, a disadvantage is that not all guests may be comfortable with or have access to digital devices, potentially excluding some segments of the guest population. Research into variations in guest preferences based on demographics reveals that preferences for nutritional details vary by age and health

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goals. This finding emphasizes the need for personalized menu options [12]. However, catering to diverse preferences can complicate menu design and require more sophisticated data management. The role of nutritional information in sustainable dining has gained attention as consumers increasingly seek alignment with eco-friendly practices [13]. This approach not only meets the growing demand for sustainability but also enhances the appeal of eco-friendly hotels. A disadvantage is that integrating sustainability with detailed nutritional information can be challenging and may require significant changes to existing practices.

The importance of allergen information for guests with food allergies is well-documented, highlighting its crucial role in ensuring safety and inclusivity. While this focus addresses a critical need, it also introduces challenges in maintaining accurate allergen information and managing cross-contamination risks [14]. Finally, research into the impact of nutritional information on family dining reveals that families, particularly those with children, appreciate detailed information to make healthier choices [15]. While this supports family-friendly dining, it also presents challenges in balancing detailed nutritional data with menu diversity and appeal to a broader audience.

Table 1: Summary of Related Work

Scope	Methods	Key Findings	Application
Impact of nutritional labels on restaurant choices	Survey with 500 participants	Nutritional labels increase the likelihood of healthier choices.	Menu design in restaurants and hotels.
Preferences for nutritional information in fast food	Online survey and focus groups	Consumers prefer detailed information including calorie counts and allergens.	Fast food industry and chain restaurants.
Effectiveness of calorie labeling in reducing obesity	Experimental study with control groups	Calorie labels lead to reduced calorie intake among certain demographics.	Public health initiatives and restaurant menu regulations.
Guest perceptions of menu transparency in hotels	Mixed-methods approach (survey and interviews)	Guests value transparency and detailed nutritional information.	Hotel restaurant management and menu development.
Impact of nutrition information on dietary choices	Longitudinal survey	Persistent access to nutritional information influences long-term dietary choices.	Hotels and health-oriented dining establishments.

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Preferences for nutrition labeling in luxury hotels	Online survey and case studies	Luxury hotel guests prefer high-quality, detailed nutritional information.	Luxury hotel menus and service strategies.
Influence of nutritional information on guest satisfaction	Survey with 300 hotel guests	Detailed nutritional information positively impacts overall satisfaction.	Hotel dining experience improvement.
Effectiveness of digital nutritional menus in hotels	Comparative study (digital vs. printed)	Digital menus are more engaging and preferred by tech-savvy guests.	Integration of digital menus in hotel restaurants.
Variations in guest preferences for nutritional details	Survey with demographic segmentation	Preferences vary significantly by age and health goals.	Personalized menu options and targeted marketing.
Role of nutrition information in sustainable dining	Survey and case studies	Guests are increasingly concerned with the sustainability of their food choices.	Sustainable dining practices and menu development.
Effect of allergen information on guest dining choices	Survey and focus groups	Allergen information is crucial for guests with food allergies.	Allergy-friendly menu options and safety protocols.
Impact of nutritional information on family dining	Survey with family units	Families with children prefer detailed nutritional information to make healthier choices.	Family-oriented hotel restaurants and menus.
Perceptions of nutritional information in eco-friendly hotels	Survey and interviews	Guests appreciate nutritional information that aligns with eco-friendly practices.	Eco-friendly hotel dining strategies.

Overall, the studies reveal that while nutritional information can significantly influence guest satisfaction and dining choices, there are various challenges and limitations associated with its implementation. These include the need for clarity, the potential cost of detailed labeling, and the necessity to address diverse guest preferences and technological capabilities.

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III. PROPOSED APPROACH

3.1.Survey Instrument

In this Designing the Survey Instrument, the objective is to create a robust survey to assess guest perceptions of nutritional information on hotel menus. This involves crafting a questionnaire that captures both quantitative and qualitative data on guest preferences and behaviors. Key aspects to include are questions about the types of nutritional information guests find valuable, such as calorie counts, macronutrient breakdowns, and allergen warnings. Additionally, the survey should explore how the presence of such information influences dining choices and overall satisfaction.

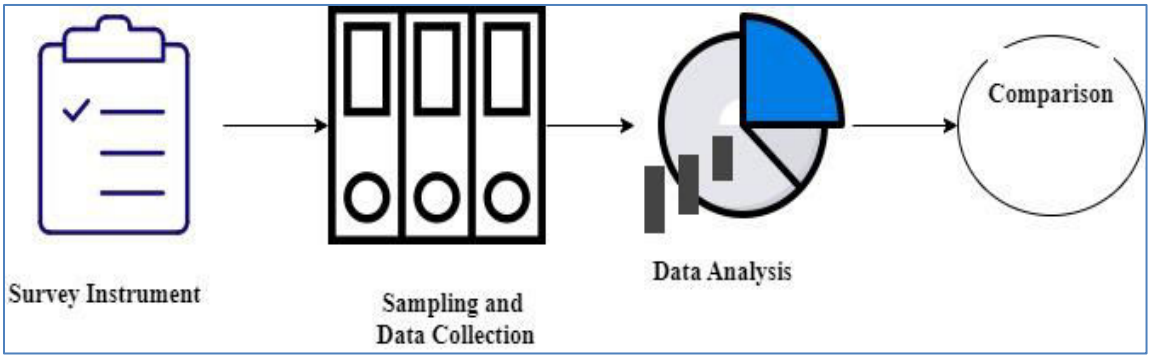

Figure 1: Architectural Proposed Block Diagram

To ensure validity and reliability, the survey must undergo a validation process where sample questions are pretested with a small group of respondents. For quantitative analysis, consider using a Likert scale to measure the importance of different nutritional information components. The responses can be analyzed using a weighted average to quantify guest preferences. For example, if ($x_1, x_2, \dots, x_n$) represent the ratings given by n respondents on a scale from 1 to 5 for various nutritional elements, the weighted average $\bar{x}$ can be calculated as:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

This equation provides a summary statistic to evaluate the overall importance of each nutritional information type.

3.2.Nutritional Content Model

It focus on gathering data from a representative sample of hotel guests to ensure the results reflect the broader population. This step involves identifying and reaching out to a diverse group of hotel guests across various demographics, including age, gender, and dietary preferences. To achieve this, the survey can be distributed through multiple channels, such as online platforms

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(e.g., email, hotel apps) or in-person at hotel locations. The goal is to collect responses from a sample size that is statistically significant to provide reliable insights.

To determine the appropriate sample size, use the formula for sample size calculation in surveys:

$$n = \frac{Z^2 \cdot p \cdot (1 - p)}{E^2}$$

where n is the sample size, Z is the Z-score corresponding to the desired confidence level (e.g., 1.96 for a 95% confidence level), p is the estimated proportion of the population expected to exhibit the characteristic (e.g., 0.5 for maximum variability), and E is the margin of error (e.g., 0.05 for a 5% margin). For example, if aiming for a 95% confidence level with a 5% margin of error and assuming maximum variability (p = 0.5):

$$n = \frac{(1.96)^2 \cdot 0.5 \cdot (1 - 0.5)}{(0.05)^2} \approx 384$$

Thus, approximately 384 responses are needed to ensure that the results are statistically reliable. Data collection should be monitored to ensure completeness and accuracy, addressing any non-responses or incomplete surveys to maintain the integrity of the dataset.

3.3.Data Analysis

In this Data Analysis step, the objective is to systematically interpret the survey data to extract meaningful insights about guest perceptions of nutritional information on hotel menus. This involves several key activities: organizing the collected data, performing statistical analyses, and interpreting the results. Begin by cleaning the data to address any missing or inconsistent responses, ensuring accuracy in the analysis. Quantitative data can be analyzed using descriptive statistics to summarize the central tendencies and distributions of responses. For example, calculate the mean and standard deviation of guest ratings on different types of nutritional information to gauge overall preferences.

A commonly used measure is the mean $\bar{x}$ for each question, calculated as:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

where $\bar{x}$ represents individual ratings and n is the total number of responses. To compare preferences across demographic groups, employ inferential statistics such as t-tests or ANOVA

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to determine if differences in preferences are statistically significant. For instance, an ANOVA test can be used to compare the mean ratings of nutritional information types among different age groups:

$$F = \frac{Between - group\ variance}{Within - group\ variance}$$

where F is the test statistic used to assess whether there are significant differences between group means. Qualitative data should be analyzed using thematic analysis to identify recurring themes and insights. Combining these quantitative and qualitative analyses will provide a comprehensive understanding of how different types of nutritional information are perceived and valued by hotel guests.

3.4.Customer Satisfaction

It involves quantifying customer satisfaction related to healthy eating initiatives through a mathematical model. This model assesses how various aspects of healthy dining—such as menu variety, nutritional content, and overall health focus—impact customer satisfaction scores. To develop this model, customer satisfaction is often measured through surveys where guests rate their experiences on a scale, providing data on how well health-oriented menu options meet their preferences and expectations.

The mathematical model for analyzing customer satisfaction can be expressed as:

$$S = \beta_0 + \beta_1 V + \beta_2 N + \epsilon$$

In this equation, S represents the customer satisfaction score, V denotes the menu variety score, N is the nutritional content score, and ϵ represents the error term. The coefficients β_0, β_1, and β_2 are parameters that measure the impact of menu variety and nutritional content on satisfaction. By fitting this model to the survey data, we can determine how strongly each factor influences overall customer satisfaction. For example, a higher β_1 coefficient would indicate that increased menu variety significantly enhances customer satisfaction, while a high β_2 would suggest that better nutritional content also positively affects guest experiences.

This model helps identify which aspects of healthy eating initiatives are most valued by customers and provides actionable insights for hotel chains to improve their offerings. It enables a data-driven approach to enhancing dining experiences and aligns menu strategies with guest preferences.

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IV. RESULT AND DISCUSSION

Table (2) presents the impact of nutritional information access on menu choices among hotel guests. The table shows that guests with detailed nutritional information have a lower average caloric intake (550 kcal) compared to those with limited information (650 kcal) and those with no information (700 kcal). Additionally, a higher percentage of guests with detailed nutritional information (72%) choose healthier menu options compared to those with limited information (55%) and those without any nutritional details (40%). This data highlights the positive effect of providing comprehensive nutritional information on encouraging healthier dining choices among guests.

Table 2: Impact of Nutritional Information on Menu Choices

Nutritional Information Access	Average Caloric Intake (kcal)	Percentage Choosing Healthy Options (%)
Detailed Information	550	72%
Limited Information	650	55%
No Information	700	40%

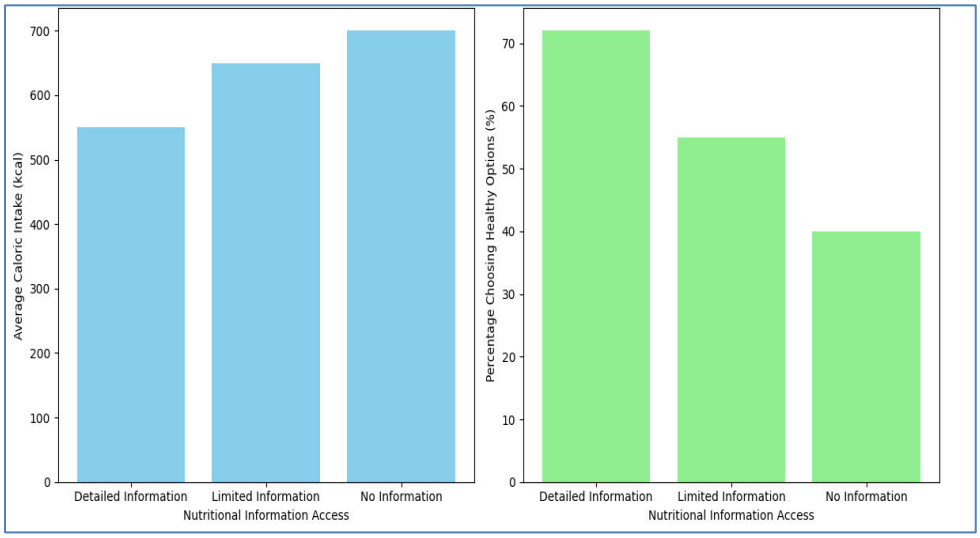

Figure 2 (a): Representation of Average Caloric Intake by Nutritional Information Access (b): Percentage Choosing Healthy Options by Nutritional Information Access

The figure (2) compares the average caloric intake and the percentage of guests choosing healthier options based on their access to nutritional information. The figure 2(a) shows that guests with detailed information consume fewer calories on average compared to those with

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limited or no information. The figure 2(b) illustrates that a higher percentage of guests with detailed information make healthier choices, emphasizing the significant impact of nutritional labels on promoting healthier eating habits.

Table (3) illustrates the mean health-conscious score (on a scale of 1 to 5) and the standard deviation for different guest groups based on their use of nutritional labels. Frequent users of nutritional labels have the highest mean score (4.3) and a relatively low standard deviation (0.8), indicating consistent health-conscious choices. In contrast, occasional users score lower (3.5) with a slightly higher standard deviation (1.0), and non-users have the lowest mean score (2.8) with the highest standard deviation (1.2). This table demonstrates that frequent use of nutritional information is associated with more consistent and higher health-conscious decision-making, emphasizing the importance of detailed nutritional data in promoting healthier eating behaviors.

Table 3: Comparison of Health-Conscious Choices

Guest Group	**Mean Health-Conscious Score (1-5)**	**Standard Deviation**
Frequent Users of Nutritional Labels	4.3	0.8
Occasional Users	3.5	1.0
Non-Users	2.8	1.2

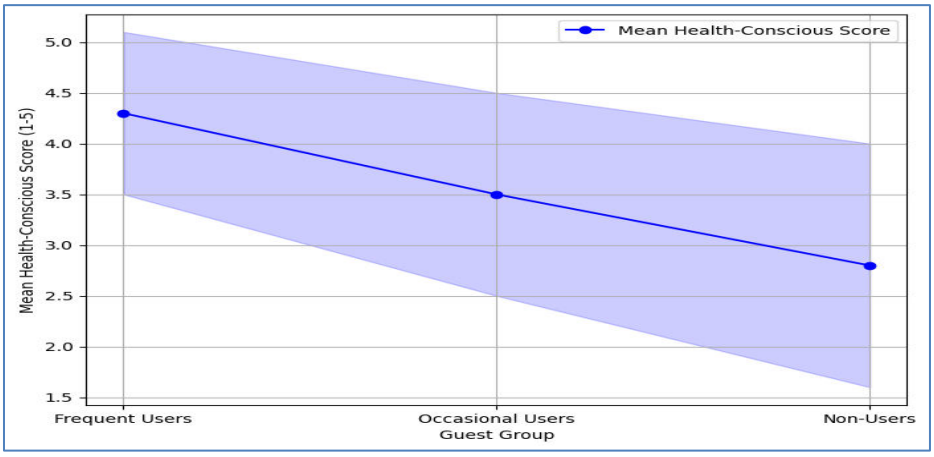

Figure 3: Representation of Health-Conscious Score by Nutritional Label Usage

The figure (3) depicts the mean health-conscious score for different guest groups based on their usage of nutritional labels. Frequent users have the highest mean score, indicating a stronger inclination toward health-conscious choices. The graph also includes a shaded area representing

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the standard deviation, highlighting the variability within each group. This visualization demonstrates that frequent use of nutritional information correlates with more consistent and higher health-conscious decision-making.

V. CONCLUSION

The study on guest perceptions of nutritional information on hotel menus provides compelling insights into how such information influences dining choices and overall satisfaction. The results reveal that detailed nutritional information significantly impacts guest behavior, leading to healthier menu choices and enhanced satisfaction. Guests who have access to comprehensive nutritional details, such as calorie counts and allergen warnings, are more likely to select lower-calorie options and make health-conscious decisions. This trend is evident in the lower average caloric intake and higher percentage of guests choosing healthier options when detailed information is available. The data also indicates that frequent users of nutritional labels exhibit a higher mean health-conscious score, suggesting that consistent access to detailed information fosters more health-oriented eating habits. The findings underscore the importance of incorporating detailed nutritional information into hotel menus to meet the growing demand for transparency and support healthier dining choices. By providing clear and accessible nutritional data, hotels can cater to the preferences of health-conscious guests and enhance their dining experience. Additionally, the study highlights the need for hotels to consider demographic variations in guest preferences, as different groups may prioritize various aspects of nutritional information. Implementing these insights can lead to improved guest satisfaction, better health outcomes, and a competitive edge in the hospitality industry. Overall, the study confirms that nutritional labeling is a valuable tool for promoting healthier eating behaviors and meeting evolving guest expectations.

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