

Technology-Enabled Nutrition Information and Restaurant Consumers' Purchase Motivation: Implications for Digital Menu Labelling in Nigeria

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Abstract

The increasing use of digital technologies in hospitality is creating new opportunities for restaurants to provide consumers with accessible and timely nutritional information at the point of food selection. This study examines the relationship between restaurant menu nutrition labelling and consumers' purchase motivation, while extending the discussion to technology-enabled nutrition information and digital menu labelling. The study draws on survey evidence from 120 usable responses obtained from restaurant consumers and other respondents in Owerri, Imo State, Nigeria. Data were analysed using frequencies, percentages and mean scores. The findings indicate positive perceptions of the role of nutrition labelling in consumer decision-making. Health motivation recorded a mean score of 3.83; nutrition labelling as a motivation to purchase restaurant food recorded 4.11; avoidance of unhealthy foods recorded 3.88; and limiting calories, fats, sugars and sodium recorded 4.03. These results suggest that nutrition information can contribute to consumers' motivation to make health-oriented restaurant choices. Recent literature further indicates that the effectiveness of menu labelling depends partly on how information is presented, interpreted and accessed, with emerging evidence supporting greater attention to online and digitally mediated food environments. The article therefore proposes technology-enabled nutrition labelling through digital menus, QR-linked nutritional information and other accessible digital interfaces as an opportunity for Nigerian restaurants. However, these technological applications are presented as implications and future directions rather than variables empirically tested in the present dataset.

Keywords

nutrition labelling; restaurant consumers; purchase motivation; digital menu; technology-enabled nutrition information; healthy food choice; hospitality industry; Nigeria.

1.Introduction

Food consumption outside the home has become an important context for consumer decision-making, making restaurants relevant not only to hospitality and tourism but also to contemporary discussions about healthy food environments. Recent evidence shows that consumers can find healthier choices particularly difficult when eating outside the home.

Nutrition labelling represents one mechanism through which restaurants can make information about food composition available during purchase decisions. A recent systematic review of restaurant-menu nutrition information identified evidence concerning awareness, consumer perceptions, purchase intentions, nutritional values of selected foods and other consumer outcomes. Importantly, the review found that the effects of nutrition information are not uniform and can vary according to the information provided, consumer characteristics and presentation format.

The importance of presentation is particularly relevant to contemporary hospitality businesses because nutrition information is no longer restricted to conventional printed menus. Restaurant consumers increasingly interact with businesses through websites, online ordering platforms, mobile devices and other digital interfaces. Recent review evidence has identified online food environments as an important area requiring further research.

Recent empirical evidence also demonstrates that the way nutritional information is presented can affect consumer responses. Chung et al. (2024), for example, found that calorie information per menu item reduced calorie consumption in their study, illustrating that information quantity and presentation can interact in complex ways.

The Nigerian restaurant environment provides a particularly relevant context for examining this issue. While nutrition labelling has traditionally been considered from the perspective of printed menus and point-of-purchase information, digital transformation creates possibilities for restaurants to provide more flexible and accessible nutritional information.

The empirical study underlying this article was designed to investigate nutritional labelling of restaurant menus and customer choice in Imo State. Its specific objectives included determining the effect of nutrition labelling on consumers' motivation to purchase restaurant food and examining factors affecting consumers' intention to use nutrition labelling.

The present article therefore focuses specifically on the purchase-motivation dimension, while using the emerging digital hospitality environment to extend the practical implications of the findings. Technology is discussed as an application pathway and future research direction rather than as an empirically tested independent variable.

2.Problem Statement

Although restaurant nutrition information is increasingly recognised as a potential tool for supporting healthier consumer decisions, evidence concerning its effectiveness remains mixed. Recent systematic-review evidence identifies positive effects on some consumer outcomes but also reports inconsistencies across studies, food categories and consumer groups.

A further challenge concerns information accessibility. Consumers cannot easily use nutrition information if they do not notice it, understand it or encounter it at the point of decision-making. The problem becomes more important as restaurant consumption moves increasingly into online and technology-mediated environments.

In Nigeria, there is therefore a need to consider how existing nutrition-labelling practices can be connected with emerging digital hospitality technologies. Before technology can be effectively deployed, however, it is necessary to understand whether consumers perceive nutrition information as relevant to their purchase motivation. This study addresses that foundation using empirical evidence from restaurant consumers in Owerri.

3. Objective of the Study

To examine the influence of nutrition labelling on restaurant consumers' purchase motivation and discuss the implications of technology-enabled nutrition information for digital restaurant menu systems in Nigeria.

4.Research Question

How does nutrition labelling on restaurant menus influence consumers' motivation to purchase food from restaurants, and what are the implications for technology-enabled digital menu labelling in Nigeria?

5.Literature Review

5.1 Restaurant Nutrition Labelling and Consumer Decision- Making

Restaurant nutrition labelling involves providing consumers with information concerning nutrients or energy content associated with food and beverage options. The purpose is to make relevant information available during food selection rather than requiring consumers to search for it separately. Recent evidence suggests that nutrition information can influence consumer decisions, but the magnitude and direction of its effect depend on contextual factors. Abbas and Hatch (2025) found evidence involving consumer awareness, purchase intentions, menu perceptions and nutritional values of foods selected, while also noting heterogeneity across studies.

5.2 Nutrition Information and Purchase Motivation

Purchase motivation refers to the psychological and behavioural forces influencing consumers' willingness to select or purchase a product. Within restaurant environments, nutrition information may become part of the decision process when consumers are concerned about health, calorie intake or nutritional quality.

The present thesis data provide supporting evidence from the Nigerian context. Fifty percent of respondents strongly agreed that nutrition labelling of restaurant menus helps motivate consumers to purchase a product, while 20.8% agreed. The resulting mean score was 4.11, above the study's 3.00 acceptance criterion.

5.3 Health Motivation and Nutrition Information

Health motivation provides an important explanation for why consumers may respond differently to the same nutritional information. In the present study, 33% of respondents strongly agreed and another 33% agreed that health motivation positively moderates the effect of nutrition labels on dietary judgement and nutrition-evaluation accuracy. The item recorded a mean of 3.83.

5.4 Nutrition Labelling and Avoidance of Unhealthy Foods

The value of nutrition information may extend beyond encouraging purchase of labelled products. It can also support consumers who wish to avoid foods perceived as unhealthy. In the present study, 33% strongly agreed and 37% agreed that nutrition labelling helps consumers avoid unhealthy foods. The item recorded a mean score of 3.88. Similarly, 45.8% strongly agreed and 26.7% agreed that nutrition labelling helps consumers avoid or limit calories, fats, sugars and sodium, producing a mean of 4.03.

6. Technology-Enabled Nutrition Information in Hospitality

Technology provides an opportunity to extend nutrition information beyond the conventional printed menu.

Digital menu systems can potentially connect menu items with expanded nutritional information without requiring restaurants to display extensive text on the main menu. QR codes, for example, could provide access to detailed nutritional information through consumers' smartphones. Online ordering systems could similarly display calorie and nutrient information before consumers complete a purchase.

Recent review evidence identifies online food environments as an important gap in the existing menu-labelling evidence base. Recent online menu research also demonstrates the growing relevance of digital food-ordering environments to nutrition-information research.

However, technology should not be assumed to automatically improve consumer decisions. Evidence demonstrates that combining different forms of nutrition information can produce unexpected outcomes, highlighting the importance of information design and cognitive processing. Consequently, technology-enabled nutrition labelling should prioritise simplicity, accessibility, interpretability and relevance rather than simply increasing the quantity of information presented.

7. Conceptual Framework

Nutrition information availability



Perceived usefulness/accessibility

↓
Health motivation
↓
Purchase motivation
↓

Health-oriented food choice

Technology provides an enabling layer across the process:

Digital menus / QR codes / online ordering / mobile access

Because these technology variables were not directly measured in the original questionnaire, they are presented as a conceptual extension rather than tested statistical relationships.

8. Methodology

8.1 Research Design

The study adopted a survey research design. The original research was conducted in Owerri, Imo State, with restaurant managers and consumers forming the population of interest.

8.2 Sample and Data Collection

A total of 132 questionnaires were administered, with 120 correctly completed questionnaires returned.

8.3 Instrument Reliability

The study reported a Cronbach's alpha reliability coefficient of 0.76, indicating acceptable internal consistency for the research instrument.

8.4. Data Analysis

The original study used frequencies, percentages and mean scores for analysing the research questions. A mean score of 3.00 or above was regarded as acceptable for the five-point Likert-scale items.

9. Results

Table 1. Consumers' perceptions of nutrition labelling and purchase motivation
Indicator Mean

Health motivation positively influences the effect of nutrition labels on dietary judgement and nutrition evaluation | 3.83

Nutrition labelling motivates consumers to purchase restaurant products | 4.11

Nutrition labelling helps consumers avoid unhealthy foods | 3.88

Nutrition labelling helps consumers limit calories, fats, sugars and sodium | 4.03
Decision criterion = 3.00

The results show that all four indicators exceeded the study's acceptance threshold. The highest mean score was recorded for the statement that nutrition labelling motivates consumers to purchase restaurant products (M = 4.11).

10. Discussion

The findings indicate a generally positive perceived relationship between nutrition labelling and restaurant purchase motivation. This is consistent with broader literature, although the present study should be interpreted as evidence of consumer perceptions rather than experimental proof of causality. The purchase-motivation finding is particularly important. With a mean of 4.11, respondents generally perceived nutrition labelling as capable of motivating restaurant purchases. This supports recent systematic-review evidence identifying positive effects of nutrition information on stated purchase intentions in several studies while also emphasising heterogeneity across contexts. The findings concerning unhealthy-food avoidance also have practical significance. The mean of 3.88 suggests that respondents perceived nutrition information as useful not only for identifying preferred products but also for avoiding less healthy options.

The result for limiting calories, fats, sugars and sodium, which recorded a mean of 4.03, further indicates that consumers may value nutrition labelling as a decision-support mechanism.

Nevertheless, existing research warns against assuming that information provision alone will always produce healthier choices.

The technology implication is therefore particularly important. If restaurants migrate nutrition labelling from printed menus to digital menus, the objective should not simply be to provide more information. Digital systems should provide information in a form that is easy to locate, understand and use.

For Nigerian restaurants, this creates an opportunity to connect nutrition information with existing digital hospitality systems. A restaurant could, for example, provide a short nutritional summary beside each menu item and allow consumers to scan a QR code for more detailed information.

11. Implications for Hospitality Management

11.1 Digital menu development

Restaurants can incorporate nutrition information into digital menus and online ordering platforms.

11.2 QR-enabled nutrition information

QR codes could provide a relatively simple bridge between physical menus and digital nutritional information.

11.3 Consumer-centred information design

Technology should be used to improve clarity and usability, not simply increase information volume.

11.4 Digital hospitality innovation

Nutrition information can become part of wider digital transformation within restaurants, including online menus, ordering systems and mobile interfaces.

12. Conclusion

This study examined consumers' perceptions of the relationship between restaurant nutrition labelling and purchase motivation and considered the implications of emerging digital technologies for nutrition information delivery.

The findings indicate that respondents generally perceived nutrition labelling positively. Health motivation recorded a mean of 3.83, purchase motivation 4.11, avoidance of unhealthy foods 3.88, and limiting calories, fats, sugars and sodium 4.03.

The findings suggest that nutrition labelling may serve as a useful consumer decision-support mechanism within restaurant environments. However, the broader evidence shows that the effectiveness of nutrition information is dependent on presentation, context and consumer characteristics.

Technology offers an opportunity to extend nutrition information into digital menus, QR-based systems and online ordering environments. Nevertheless, because the present dataset did not directly measure these technologies, their role should be regarded as a practical and conceptual extension requiring future empirical investigation.

13. Recommendations

1. Restaurants should make nutrition information accessible at the point of purchase, including through digital ordering platforms.
2. Restaurants should explore QR-enabled nutrition information as a means of connecting physical menus with more detailed digital nutritional information.
3. Digital nutrition information should be simple and consumer-centred, avoiding unnecessary information overload.
4. Restaurant managers should integrate nutrition information into online menus and ordering systems where technologically feasible
5. Future Nigerian studies should directly measure digital nutrition technologies, including QR codes, mobile applications, digital menu boards and online nutrition information.
6. Future research should use experimental or structural-equation approaches to determine whether technology-enabled nutrition information actually influences purchase intention and behaviour.

14.Limitations

The principal limitation is that the study used a descriptive survey design and analysed responses using frequencies, percentages and mean scores. Therefore, the findings demonstrate respondents' perceptions rather than experimental causality.

A second limitation is that the original instrument focused on nutrition labelling and consumer behaviour and did not directly measure digital technologies such as QR codes, mobile applications, digital menus or AI-based nutrition recommendations. Accordingly, the technology component is presented as an implication and future research direction rather than as a statistically tested component of the original study.

A third limitation is geographical: the empirical research was conducted in Owerri, Imo State, meaning that generalisation to all Nigerian restaurant consumers should be undertaken cautiously.

15.References

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Submission note. The technology component is intentionally framed as a conceptual/practical extension because the original questionnaire did not directly measure QR codes, digital menus, mobile applications or AI.