

## CUSTOMER SATISFACTION ON THE LABELLING OF PACKAGED FOOD PRODUCTS IN BANGLADESH

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### ABSTRACT

*Customer satisfaction depends on various attributes of the products and services, which include product quality, product availability, clarity and reliability, accuracy, transparency, comprehensiveness, label design, format, compliance, sustainability and after sales services. Labelling, of packaged food product may also have a significant impact on the customer satisfaction, as it conveys important information about quality and reliability of the product. A proper labelling of packaged food product increases the awareness of product quality, availability, reliability and ingredients used in the product. This paper is aimed at identifying the determinants of labelling that contributes to the customer satisfaction. Moreover, the impact of labelling of packaged food products on the customer satisfaction has been examined in this study. An extensive review of related literature and research works have been conducted in order to develop conceptual and theoretical framework for this study. In addition, primary data regarding the customer's perception of labelling of packaged food products has been collected through structured questionnaire, and analyzed using descriptive statistics, factor analysis and regression analysis. SPSS has been used for statistical analysis, and Microsoft Excel has been used for data tabulation and graphical presentation. Results of the analysis highlights the importance of labelling of packaged food products on meeting customer's expectations and ensuring customer satisfaction. The study also concludes that a transparency, reliability and comprehensiveness of labelling of packaged food products have a significant positive impact on the customer satisfaction. Design and format of labelling of packaged food product also play a vital role in gaining attention of the customers to read labels and increase awareness, which ultimately contribute to customer satisfaction.*

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**Keywords:** Customer Satisfaction, Labelling, Packaged Food Product, Quality, Reliability.

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### Introduction

Food labelling is an essential tool in ensuring that consumers can make informed decisions about the products they buy and consume. It provides essential information related to ingredients, nutritional content, allergens, and more. This paper explores how food labelling affects customer satisfaction and decision-making, with a focus on factors that affect the satisfaction and effectiveness of labelling to meet consumer needs. Food labelling standards are derived from non-government organizations (Codex Alimentarius; Food and Agriculture Organization of Bangladesh), which define rules for pre-packaged foods, nutrition and health claims, and nutrition labels. However, food packaging contains many types of information that are not all mandatory under the regulations. Indeed, food labels also include marketing information. For commercial purposes, a growing number of labels that identify ethical and external qualities, such as eco, sustainability, fair-trade, carbon footprints, and organic, are being frequently used.

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It should be noted that food labelling rules and standards vary from country to country. Ministry of Industry is responsible for the Standardisation, Certification Marks and Monitoring quality control of food items through its Bangladesh Standard and Testing Institution (BSTI). The responsibilities of BSTI include implementing food quality and packaging standardization in Bangladesh. FSSAI (Food Safety and Standards Authority of India) ensures the safety of food products and regulates their manufacture, storage, distribution, sales, and imports in India. In the United States, for instance, the Food and Drug Administration (FDA) establishes labelling requirements for packaged foods. In the European Union, food labelling is under the control of the European Food Safety Authority (EFSA) and the European Commission.

### **Literature Review**

Latiff et al., (2016) Shown that the consumption age is causing people to become more aware and show greater concern about what they consume. Consumers can make informed decisions about healthy and hygienic food products based on the food label, which is one of the key mediums for identifying foods.

Kumar, N., & Kapoor, S. (2017) The study revealed that young Indian consumers place great value on food labels and read them thoroughly before making a purchase decision. Among young consumers, all product attributes that affect their health are highly valued, not just price. A consumer's decision to purchase a product varies considerably based on gender, age, dietary habits, and residential location.

Jeong et al., (2018) examined consumer preferences for food labelling formats and found that consumers value clear and easy-to-understand labels that provide information on ingredients, allergens, and nutritional content.

Balthazar & Smith (2019) explored the impact of labelling on consumers' health-related choices. Labels that provide comprehensive nutritional information, including calorie counts and macronutrient composition, influence healthier decision making.

Wilson & Sullivan (2020) found that consumers have a strong preference for labels that indicate the presence of additives, preservatives, and artificial ingredients. Meeting these expectations positively impacts consumer satisfaction.

Roberts & Thompson (2020) examined the effect of front-of-package labels on consumer perception. Well-designed labels that emphasize positive nutritional aspects can encourage consumers to select healthier options.

Smith & Johnson (2021) highlighted the role of labelling in fostering trust and transparency between consumers and food manufacturers. Clear labelling builds consumer confidence in the products they purchase.

Olyvia, D. L., & Darwanto, D. (2023) The study shows that halal labelling, product quality and customer satisfaction among Muslims have an effect on customer loyalty. customer satisfaction is affected by the quality and price of products, which has an impact on their satisfaction.

### **Objectives of the Study**

Based on the literature review and identified research gaps, following research objectives have been set for this study:

- To identify the attributes of labelling of packaged food product that contributes to the effectiveness of labelling
- To examine the impact of labelling of packaged food products on customer satisfaction.

### **Research Hypothesis**

An attempt has been made in this research to statistically analyze the primary data in order to achieve the identified research objectives of this research. For this purpose, following two research objectives have been developed:

**H<sub>0</sub>:** Labelling of packaged food product have no significant impact on the customer satisfaction.

**H<sub>1</sub>:** Labelling of packaged food product have a significant impact on the customer satisfaction.

### **Research Methodology**

#### **• Study Area**

The district of Lalmonirhat, which is part of Rangpur Division of Bangladesh, has both urban and rural populations, and a diverse marketing system that includes wholesale, retail, shopping mall, small shop of the consumable goods has been selected for the study.

- **Types of Data Collections**

Both primary and secondary data have been used in this study. Field surveys in the rural areas of the Lalmonirhat district were conducted in a number of different localities. Primary data have been collected from the people regarding their opinions, perceptions, and experiences, which must be supported by statistical evidence. Secondary sources, which include relevant published information, magazines, articles, study reports, government circulars and some of those available on the websites, will also be thoroughly investigated.

- **Selection of Sample**

Lalmonirhat district in Bangladesh is a district that is generally considered to have a poor economy. This zone has a significant number of individuals who are below the poverty line. For the field survey, the Lalmonirhat district has been selected purposely. The district separated into five distinct blocks on five Upazila. Studying case study areas from five Upazila have been made convenient sampling.

- **Sample Size**

Primary data gathered from 200 respondents show structured questionnaires using convenience sampling techniques from Lalmonirhat District in Bangladesh.

- **Statistical Methods Used**

Statistical analyses such as descriptive statistics, factor analysis, and regression analysis have been used to show the most important characteristics of the people for testing the relationship between the variables using SPSS (Statistical Package for Social Sciences).

### **Analysis and Findings**

Before going to analyse the perceptions of the common people on the labelling of packaged food products, the attributes of food labelling have been briefly discussed as:

- **Attributes of Food Labelling**

Customer satisfaction with labelling of packaged food products is a vital aspect of consumer behavior and has a significant role in shaping purchasing decisions. Factors that contribute to customer satisfaction with food labelling:

- **Clarity and Readability:** Customers appreciate clear and readable labels which are easy to read and understand. To present key information, including ingredient lists, nutritional content, and allergen warnings, it is necessary to present it in a concise and accessible way.
- **Accuracy and Transparency:** Customer satisfaction can be achieved by presenting product information correctly and accurately. Labeling is expected to provide accurate and reliable information about ingredients, nutritional values, origin, and any potential health risks.
- **Comprehensive Information:** Customers value detailed information about the content and production processes of packaged food products. Food labels that contain detailed nutritional information on calories, macronutrients, and vitamins enable customers to make informed decisions based on their dietary needs.
- **Allergen and Ingredient Information:** Clear labeling of allergens and ingredients is essential for customers with dietary restrictions or allergies. Accurate and easily identifiable information makes it possible for customers to avoid potential health risks and find suitable products.
- **Label Design and Format:** Customer satisfaction can be impacted by the visual appeal and organization of labels, which have a significant impact on the customer experience. Customers may prefer labels that are visually appealing, well-organized, and use appropriate fonts, colors, and graphics to convey information effectively.
- **Consistency and Compliance:** Customers are concerned about labels that meet uniform standards and regulatory requirements. Consistency of labelling practices for similar products and compliance with food labelling regulations contribute to client satisfaction and confidence.

- **Packaging Sustainability:** In addition to labelling, customers increasingly appreciate environmental packaging and support sustainability efforts. Labels that provide information about packaging materials and recycling instructions can positively impact customer satisfaction.

It's important to note that customer satisfaction with food labeling can vary based on individual preferences, cultural factors, and specific dietary needs.

- **General Perspectives of Common People**

The table 1 presents the results of a survey conducted with 200 respondents, where each respondent was asked to rate various aspects related to food product labelling and their behavior when purchasing food products. The ratings were measured using a scale, and the table displays the mean and standard deviation for each item. 'Labelling must be written in a prominent place on the packaging' this item received the highest average score of 4.27. According to the survey, most people believe that food labels should be prominently displayed on the packaging.

**Table 1: Descriptive Statistics**

	Mean	Std. Deviation
Check the manufacturing date and expiration date at the time of purchase.	4.30	0.963
Read warning/instruction about health risks, and nutritional contents	3.93	1.002
Check for quantitative information about each artificial ingredient used	3.79	0.949
Check for net weight, volume, or number, and total weight.	3.87	0.904
Awareness of the use and preparation methods	3.75	0.950
Check details for manufacturer, packager, supplier, or marketer	3.88	1.035
Belief in the food qualities and nutrition values as mentioned on the printed products package.	3.71	0.980
Food product labels have an impact on the purchase of the products.	3.65	1.030
Avoiding food additives in products.	3.79	0.854
Following the storage instructions on the label.	3.79	0.915
Switching products for ecological reasons.	3.86	0.937
Labelling should be written in local language	4.11	0.843
Labelling must be written in a prominent place on the packaging.	4.27	0.794

Source: Analysed by the Researchers

A clear and easily visible label helps consumers quickly find necessary product information, such as ingredients, nutrition values and best before dates. 'Labelling should be written in the local language' is the second-highest average score which 4.11. This means that respondents highly value having food labels written in their local language. It suggests that consumers prefer information to be presented in a language they understand best, which facilitates better decision-making and enhances their overall experience with the product. On the other hand, 'Labels on food products influence to buy the products' received the lowest average score of 3.65. The lower average indicates that, on average, respondents were less influenced by the labels on food products when making purchasing decisions. In other words, although labels play a part in the choice of some consumers, they are not the main factor influencing the decision to buy a particular product. The second smallest average score was 3.71. This means that respondents, on average, expressed some level of skepticism about the accuracy of the information provided on food product packaging regarding its qualities and nutritional values. Consumers may not fully trust all the claims on the packaging and may seek additional information or verification. It is important to consider the standard deviation along with the mean. A higher standard deviation indicates more variability in the responses, while a lower standard deviation suggests more agreement among respondents regarding the specific item.

Overall, the table provides valuable insights into consumers' attitudes and behaviors related to food product labeling. Food manufacturers and marketers can use this information to better understand what aspects of labeling are most important to consumers and what factors may influence their purchasing decisions.

- **Important Attributes of Labelling**

This is evident from Table 2, which shows that the first component has the highest eigenvalue (1.637) and explains the most significant percentage of total variance (54.566%). As a result, it is often considered the most important factor in the analysis.

**Table 2: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.637	54.566	54.566	1.637	54.566	54.566
2	0.724	24.137	78.703			
3	0.639	21.297	100.000			

Extraction Method: Principal Component Analysis.

Source: Analysed by the Researchers

**Table 3: Component Matrix<sup>a</sup>**

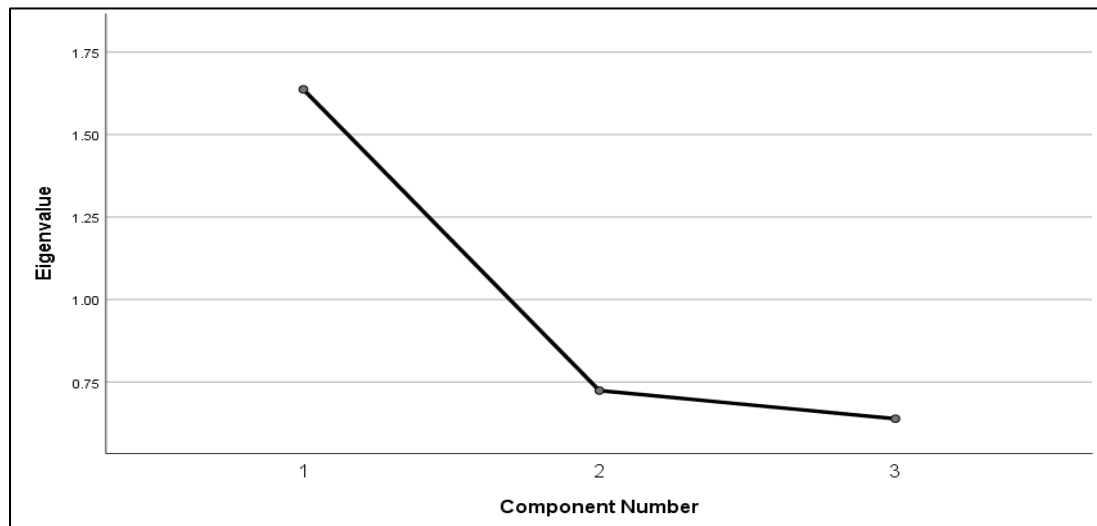
	Component 1
Labelling-Awareness	0.706
Labelling-Reliability	0.746
Labelling-Belief	0.763

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

Source: Analysed by the Researchers

The critical factor, represented by the first principal component, is a latent variable that captures the shared variation among the three measured variables: "Labelling-Awareness," "Labelling-Reliability," and "Labelling-Belief." The positive loadings of the variables on this component (0.706 for "Labelling-Awareness," 0.746 for "Labelling-Reliability," and 0.763 for "Labelling-Belief") indicate that they all positively contribute to this underlying factor (Table 3).

**Figure 1: Scree Plot**

Source: Developed by the Researchers

Based on the results of the factor analysis, it can be observed that Labelling-Belief is the most important factor that contribute that best explain the characteristics and quality of labelling of packaged food product. Higher levels of Labelling-Belief (positive attitudes, trust, or adherence to labels) are positively associated with the critical factor. This suggests that individuals who have positive beliefs or attitudes towards labels may be more likely to possess characteristics represented by the critical factor.

- **Impact of Labelling on Customer Satisfaction**

Table 4 shows the correlation coefficient (R) is 0.327, indicating a positive but relatively weak relationship between "Labelling" and "Customer Satisfaction." Here, R Square is 0.107, which means that approximately 10.7% of the variance in customer satisfaction can be attributed to variations in labelling. The Adjusted R Square is 0.103, which is similar to R Square, indicating that labelling explains about 10.3% of the variance in customer satisfaction after accounting for the number of predictors.

**Regression Model 1: Impact of Labelling on Customer Satisfaction**



Source: Developed by the Researchers

**Table 4: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.327 <sup>a</sup>	0.107	0.103	0.749

a. Predictors: (Constant), Labelling

Source: Analysed by the Researchers

Table 5 shows the analysis of variance (ANOVA) results for the regression model. The regression model explains a significant amount of variance (13.304) with 1 degree of freedom. The model residuals are the differences between the actual values and the predicted values from the regression model. In this case, the F-value is 23.728, and the associated p-value (Sig.) is 0.000, indicating that the regression model is statistically significant.

**Table 5 ANOVA<sup>a</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.304	1	13.304	23.728	0.000 <sup>b</sup>
	Residual	111.016	198	0.561		
	Total	124.320	199			

a. Dependent Variable: Customer Satisfaction

b. Predictors: (Constant), Labelling

Source: Analysed by the Researchers

Table 6 shows the coefficients of the regression model. In this case, the estimated intercept (Constant) is 2.055, and the regression coefficient for "Labelling" is 0.428. The standardized coefficient for "Labelling" is 0.327, indicating that for every one standard deviation increase in "Labelling," there is a 0.327 standard deviation increase in "Customer Satisfaction." The significance level (p-value) associated with each coefficient. It indicates the probability of observing the coefficient estimate if the true coefficient in the population is zero. In this case, both the constant and "Labelling" coefficient have p-values of 0.000, indicating that they are statistically significant.

**Table 6: Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.055	0.346		5.940	0.000
	Labelling	.428	0.088	0.327	4.871	0.000

a. Dependent Variable: Customer Satisfaction

Source: Analysed by the Researchers

Based on the regression analysis, the model suggests that there is a statistically significant positive relationship between "Labelling" and "Customer Satisfaction." The coefficient of 0.428 for "Labelling" indicates that, on average, for each one-unit increase in the Labelling score, there is an increase of 0.428 in the Customer Satisfaction score.

**Conclusion**

Customer satisfaction and decision-making are significantly impacted by food labelling. Labelling that is clear and accurate, aligned with customer preferences and expectations, increases customer satisfaction and trust. Labels that facilitate informed choices and promote health and wellness positively influence customer behavior. To continuously improve food labelling practices, it is crucial to conduct more research and collaborate with regulators and industry stakeholders. The review highlights the importance of customer satisfaction, packaging with labelling of packaged food products. Factors such as clarity, accuracy, comprehensiveness, information, and label design significantly impact customer satisfaction and choices. To enhance customer satisfaction, food manufacturers should focus on meeting customer expectations, ensuring regulatory compliance, and providing clear and accurate information on labels.

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