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A Study on Consumer Attitude towards Packaging Characteristics of Food and Beverages with Special Reference to Chennai City

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ABSTRACT

This Paper examines the consumer attitude towards packaging characteristics of food and beverages with special reference to Chennai city assumed a lot of importance in present day situation packages in a wrapped pouch, bag, box, cup, tray, can, tube, bottle or other container form to perform one or more of the following functions: containment, protection, preservation, communication, utility and performance. This study is used to identify the level of concentration of information on packaging and also shows the packaging factors which influence the respondents to buy a particular product. Proper packaging plays a crucial role in increasing the shelf life of the products. Food products specifically require protection from light and oxygen to prevent oxidation during storage.

Introduction

In today's world, packaging is universal and important too. The primary function of any package is to contain the food and facilitate handling, storage, and distribution all the way from the manufacturer to the ultimate user or even the time the rest portion is utilized by the consumer.

"Packaging is the container for a product encompassing the physical appearance of the container and including the design, color, shape, labeling and materials used"

Packaging has a huge role to play in the positioning of products. Package design shapes consumer perceptions and can be the determining factor in point-of-purchase decisions which characterize the majority of shopping occasions in recent years the marketing environment has become increasingly complex and competitive.

Packaging today has grown in importance and is regarded as a vital marketing tool. Better packaging results in protection and saved transportation of products, reduces loss, damage and wastage of products and produce. It enhances product value and hence expands markets within and outside the country.

Model of packaging characteristics of food and beverages

Fig.1 shows the characteristics of package

Objectives of the study

- To know the consumer attitudes towards packaging characteristics of food and beverages
- To identify the level of concentration of information on packaging.
- To measure the packaging factors which influence the respondents to buy a particular product.

Statement of the problem

Packaging decisions are to be considered in early marketing plans as an integral part of the total marketing strategy. Packaging is an important integrative aspect of the product and often a critical factor in the success or failure of a product. Accordingly, that this research tries to find that the people concentrate the following information given in packaging. Price, Nutritional information, Size, Shape, Packaging material, Graphics and color, Type, Shelf life, Contact address, Veg. and NonVeg. Symbol, Expiry date.

Scope of the study

- The present study is to understand the most important factors of packaging characteristics of food and beverages.
- This study gives information regarding customer's awareness, performance, factors of packaging characteristics of food processing.

Literature review

Soma Shekar (2021) This study clarifies customers' buying behaviour in the FMCG sector. As urban markets reach saturation, FMCG product consumption is rising quickly. The entry of multinational companies in India has increased competition for local businesses. The study concludes that marketers should pay attention to these factors to boost their revenue. Therefore, it is important for marketers to understand how customer behaviour is changing.

Bhagyashree Tripathi (2022) This study explores how packaging serves as a sales promotion tool and its effect on consumer buying behaviour, highlighting the importance of packaging elements such as color, quality of material, design, innovation, and product information.

Young Teck Kim (2013) This study clarifies the proper selection of packaging material which is crucial for ensuring food safety and quality, with gas barrier properties being the most important factor for shelf-life assurance.

Charles Spence (2022) analysed the Visual communication through the design of food and beverages packaging associated with taste and flavour.

Sutrisno Trisno, I. K. Gunarta, Erwin Widodo (2024) this study explored how to use Optimal packaging design for food and beverage manufacturers should focus on design, image, typography, color, size, material, and quality, considering consumer habits and costs, to maximize profit and customer retention.

Hugar and Vijayakumar (1996) in their study on the factors influencing the consumption of vegetables in Dharwad district of Karnataka, revealed that education level and gender find significant influence on the quality and frequency of consumption as females purchased more when compared to male income and price also had a significant influence on the quality purchased.

Hutchings and Deliza (2003) suggested that Color and graphics in fruit juice packages represent key elements of the total appearance in a package design. Intensifying the fruit colors could strengthen expectation for the juice flavor. Package designers should consider consumer expectations about the product's sensory attributes when designing the labels. In order to reach consumers needs and be successful in the market, producers should try to understand the sensory and packaging characteristics of a food product. Consumers usually don't choose the attributes one at a time, instead they choose the group of attributes that provide them the greatest utility.

Some literature has been devoted to consumer perception of labeling and packaging, and the role of information on consumer intention to purchase. For instance, in Roe, Levy and Derby (1999) study, nutritional and health claims presented on the front label were more important than back-label nutrition facts**. Bond, Thilmany, Keeling (2007)** noticed that health claims regarding a diet rich in fruits and vegetables, and the power of these products reducing the risk of coronary disease and cancer, proved to be the most effective claim when attracting consumers. **Teisl, Bockstael, and Levy (2001)** examined the effects of nutritional claims on front label for several grocery products, and determined that these claims tent to change consumer's behavior; however, they stated that the health alternative did not always increase market share.

Research methodology

Research Design

The design of the present study is "Descriptive design" of conclusive nature

Data Source

The present study depends upon both primary data and secondary data.

Sample Design

Convenient sampling method was applied for the selection of samples from the Chennai city. The researcher personally drew 278 samples for this study

Sample Size

Considering the time and resources, as well as the frame work of analysis, it is taught fit to have an adequate sample size of 278 samples residing in Chennai City.

Data collection tool

For the collection of primary data, a field survey was conducted with the help of a well-structured Questionnaire.

Factor Analysis

Mathematically, factor analysis is somewhat similar to the multiple regression analysis. Each variable is expressed as a linear combination of the underlying factors. The amount of variance a variable share with all the other variables included in the analysis is referred to as communality. The co-variation among the variables is described in terms of a small number of common factors together with a unique factor for each variable. These factors are not over observed. If the variables are standardized, the factor model may be represented as:

$X_i = A_{i1} F_1 + A_{i2} F_2 + A_{i3} F_3 + \ldots\ldots + A_{im} F_m + V_i U_i$

Where,

X_i = i^{th} standardized variable,

A_{ij} = Standardized multiple regression coefficient of variable 'i' on common factor 'j'

F = Common factor,

V_i = Standardized regression coefficient of variable 'i' on Unique factor 'i'

U_i = The unique factor for variable 'i'

Table 1

Rotated Component Matrixes								
Variables	Component							
	1	2	3	4	5	6	7	8
wrapper message	**.698**							

transparent package	**.672**							
Standardization symbol	**.795**							
MRP		**.978**						
Ingredients of the product		**.978**						
Material of the package			**.519**					
Contact info			**.762**					
Innovative				**.623**				
Nutritional facts				**.841**				
Shelf-life info				**.626**				
Color					**.811**			
Convenient					**.716**			
Size						**.622**		
Shape						**.739**		
Instruction						**-.511**		
Celebrity							**.802**	
Tagline							**.546**	
various uses								**.758**
allergy warning								**-.619**

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

m = Number of common

Table exhibits the rotated factor loadings for the 21 statements (variables) have been reduced to eight factors, namely F1, F2, F3, F4, F5, F6, F7 and F8. The eight factors with suitable names are given below:

F1: Information

F2: MRP and Ingredients

F3: Material and contact

F4: Innovation and safety

F5: Color and Convenience

F6: Size, Shape and Instruction

F7: Celebrity and tagline

F8: Uses and Warning

FACTORS USED TO BUY A PARTICULAR PRODUCT

Table2

S.No.	Nam of the extracted factor	Selected Statement (Variable)	Factor Loading
1	Information	Standardization symbol	**.795**
2	MRP and Ingredients	MRP	**.978**
3	Material and contact	Contact info	**.762**
	Innovation and safety	Nutritional facts	**.841**
5	Color and Convenience	Color	**.811**
6	Size, Shape and Instruction	Shape	**.739**
7	Celebrity and tagline	celebrity	**.802**
8	Uses and Warning	various uses	**.758**

DISCRIMINANT ANALYSIS:

Discriminant Function Analysis (DA) undertakes the same task as multiple linear regression by predicting an outcome. However, multiple linear regression is limited to cases where the dependent variable on the Y axis is an interval variable so that the combination of predictors will, through the regression equation, produce estimated mean population numerical Y values for given values of weighted combinations of X values.

Discriminant analysis linear equation

DA involves the determination of a linear equation like regression that will predict which group the case belongs to. The form of the equation or function is:

D v X v X v X .....v X a 1 1 2 2 3 3 i i = + + = +

Where D = discriminate function

v = the discriminant coefficient or weight for that variable

X = respondent's score for that variable

a = a constant

i = the number of predictor variables

This function is similar to a regression equation or function. The v's are unstandardized discriminant coefficients analogous to the b's in the regression equation. These v's maximize the distance between the means of the criterion (dependent) variable. Standardized discriminant coefficient can also be used like beta weight in regression. Good predictors tend to have large weights. What you want this function to do is maximize the distance between the categories, i.e. come up with an equation that has strong discriminatory power between groups. After using an existing set of data to calculate the discriminant function and classify cases, any new cases can then be classified. The number of discriminant functions is one less the number of groups. There is only one function for the basic two group discriminant analysis.

The outputs of Discriminant analysis are depicted in following tables.

Summary of Canonical Discriminant Functions:

Eigenvalues

Table 3

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	.143[a]	100.0	100.0	.354

a. First 1 canonical discriminant functions were used in the analysis.

An eigenvalue indicates the proposition of variance explained. A large eigenvalue is associated with a strong function. Canonical correlation for this model is 0.354 (not extremely high); it signifies medium type relationship between the discriminant score and their corresponding group. The square of the canonical correlation is (0.354) .

Test of Function(s)	**Wilks' Lambda**	**Chi-square**	**df**	**Sig.**
1	.875	36.121	12	.000

Wilks' Lambda

Table 4

The significance of discriminant is tested by using Wilks 'Lambda score. A small lambda indicates that group means appear to differ significantly. The value of Wilks 'Lambda is 0.875 (high value), indicating insignificance difference. Chi Square indicates the discrimination in between two groups, it is in significant as p value is .000, it is less than 0.05

Standardized Canonical Discriminant Function Coefficients

Table 5

	Function
	1
calories	.145
fat	-.019
carbohydrates	-.097
energy	.277
ingredients	.225
message	-.510
usage	.076
price	-.477
Place of storage	-.218
weight	.982
Veg non & veg	.071
barcode	.200

The discriminant coefficients reflect the relative contribution of each of the predictor on the discriminant function. A small value of the discriminant function coefficient signifies less impact of the predictor. As seen from table Weight has the maximum coefficient of .982 and it is most influencing predictor.

Functions at Group Centroids

Table 6

Gender	Function
	1
male	.369
female	-.385

Functions at group centroids indicate the average discriminant score for the concentration of information of male and female. The mean discriminant scores can be calculated by

$$C = \frac{N1*Y1+N2*Y2}{N1+N2}$$

Where N1 and N2 are the sizes of the sample. Y1 and Y2 are the centroid coefficient.

$$C = \frac{142*(.369)+136*(-.385)}{142+136}$$

$$C = 3.127.$$

According to decision rule, any discriminant value is more than 3.127 then they concentrate on information, if value less than the 3.127 then the respondents may not concentrate on information.

The discriminant coefficients reflect the relative contribution of each of the predictor on the discriminant function. A small value of the discriminant function coefficient signifies less impact of the predictor. As seen from table Weight has the maximum coefficient of .982 and it is most influencing predictor.

Functions at Group Centroids

Table 7

Gender	Function
	1
male	.369
female	-.385

Unstandardized canonical discriminant functions evaluated at group means

Functions at group centroids indicate the average discriminant score for the concentration of information of male and female. The mean discriminant scores can be calculated by

$$C = \frac{N1*Y1+N2*Y2}{N1+N2}$$

Where N1 and N2 are the sizes of the sample. Y1 and Y2 are the centroid coefficient.

$$C = \frac{142*(.369)+136*(-.385)}{14}$$

$$C = 3.127.$$

According to decision rule, any discriminant value is more than 3.127 then they concentrate on information, if value less than the 3.127 then the respondents may not concentrate on information.

Findings

- From the Factor analysis, Standardization symbol with factor loading of .795, MRP with factor loading of .978, Contact information with factor loading of .762, Nutritional facts with factor loading of .841, Color with factor loading of .811, shape with factor loading of .736, celebrity with factor loading of .802, various uses with factor loading of .758, are the statements with the higher loading factors of F1 (Information),F2(MRP and Ingredients),F4(Innovation and safety),F5(Color and Convenience),F6(Size, Shape and Instruction),F7(Celebrity and tagline) and F8(Uses and Warning)respectively. Therefore, these are the identified eight variables, which carry greater influence over the relative factors that the respondent's opinion about factors influences to buy a product.
- The packaging information plays a significantly role in differentiating consumer attitudes between male and female respondents.

Suggestions

- Most of the respondents are looking at the shelf life for the purpose of health conscious so every company may give the health information in their product packaging.
- In food and beverage packaging, the company should print Use by (shelf life) in Bold

- Barcode Number should be known to the Female citizens in order to know which country product. Because male are concentration high when compare to female.

Conclusion

It can be concluded that in general all were aware of packaging and information in packaging. Most of the respondents like coloured packaging. They would also like the packets that should be used for further use. Labelling is claimed to be an important legal document as it expresses the reliability of the product. Research into packaging has found that different packaging cues affects how a product is perceived. Often the packaging is perceived to be part of the product, it can be difficult for consumer to separate the two aspects such as packaging colour, design, and pictures can influence how a product is perceived.

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