Food Products Packaging : A Study Of Its Effect On Consumer Behaviour

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INTRODUCTION

In today's competitive business environment, the role of packaging has changed due to the consumers' lifestyle change & increasing self service. Packages act as a very good tool of sales promotion, which also stimulates consumer impulsive buying behaviour (Wells, Farley &Armstrong, 2007), which increases market share & cuts various costs involved in marketing. Packaging is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use. Packaging also refers to the process of design, evaluation, and production of packages. Packaging can be described as a coordinated system of preparing goods for transport, warehousing, logistics, sale, and end use. Packaging contains, protects, preserves, transports, informs and sells (Soroka, 2002) . As of 2003, the packaging sector accounted for about two percent of the gross national product in developed countries. About half of this market was related to food packaging (Y. Schneider; C. Kluge, U. Weib, H. Rohm, 2010). Accordingto Rundh (2005), packaging also helps in attracting consumer's attention to a particular brand and influences consumer's perceptions or buying behaviour about a product. In other words, we can say that package/packaging acts as one of the most important factors in influencing consumer's purchase decision & also acts as an effective tool of marketing communication.

Some of the researchers try to find all possible elements of a package, which has a strong impact on consumer's purchase decision (Silayoi & Speece , 2004 ; Silayoi & Speece, 2007; Butkeviciene, Stravinskiene & Rutelione, 2008), while some others investigate different elements of a package involved and its impact on consumer buying behaviour (e.g., Vila & Ampuero, 2007; Madden, Hewett & Roth, 2000; Underwood et al., 2001; Bloch, 1995). Moreover, some researchers have investigated the impact of packages and their elements on consumer's overall purchase decision (e.g., Underwood et al., 2001). Food products brands use a range of packaging attributes, combining colors, designs, shapes, symbols, and messages (Nancarrow et al., 1998). These attract and sustain attention, helping consumers identify with the images presented. The importance of packaging design and the use of packaging as a vehicle for communication and branding is growing, as it is estimated that 73 % of purchase decisions are made at the point of sale. In scanning packs at the point of sale, perception is rapid, and quick recognition is important for inclusion in the decision process (Rettie and Brewer, 2000).

Other researches have pointed out that using an illustration in the package design can draw more attention to the product (Regina W.Y. Wang and Wen-Chun Chen, 2007). Based on the results of previous research, this paper tries to find out those key packaging elements which have an impact on the consumer buying behaviour.

LITERATURE REVIEW

Many studies have been carried out to know the effect of different packaging elements on consumer buying behaviour like Kuvykaite R. (2009) said that a package attracts consumers' attention to a particular brand, enhances its image, and influences consumers' perceptions about a product. In this study, empirical research was used. The research result shows the impact of different package elements on consumers' purchase decisions can be stronger. She concluded that a Package could be treated as one of the most valuable tool in today's marketing communications, which necessitate more detail analysis of its elements and an impact of those elements on consumers' buying behaviour. The impact of packaging and its elements on consumer's purchase decision can be revealed by the help of detailed analysis. Sharma

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(2008) in his paper studied New Consumer Products Branding, Packaging and Labelling in Nepal, while focusing on existing practice of branding, packaging and labelling of new products in consumer product manufacturing units. He concluded that the majority of the consumer product manufacturers, i.e. 84.37% (27 out of 32 responses) are using product labels as a simple tag attached to the product or an elaborately designed graphic that is a part of the package. Blackman (2005) has concluded that current shifts in food trends of consumers has led to changes in normal day to day food marketing to a focus on healthy food marketing, hence impacting on consumer's behaviour. The impact of the change is more apparent on consumer perception, tests and needs including changes in products (foods) that are being manufactured and their subsequent positioning. These changes have increased consumer awareness and have led to the demand for healthy food and information on the content of the food they consume. It is now common for packaging and communications to contain tags such as *"Trans fat free"* or *"with no added sugar"* as marketers look to reassure consumers that their offerings will have no negative impact on consumers and their family's health. He also emphasized the importance of healthy eating trends in the food industry by describing it as a war with *"food and health as the key battlefront"*. It is now becoming common knowledge that in order to satisfy customers, marketers are becoming increasingly ethically conscious - by reacting to demand for more responsible behaviour in terms of the ways and manners in which products are presented to customers, like product packaging, and provision of clear information on nutritional content of their products, particularly where products could be seen as being marketed towards vulnerable groups such as children (Pettersson and Fjellstrom, 2006). This study, therefore, aims to explore the effect of packaging on children's product preferences.

Hill and Tilley (2002) carried out a study with consumers to determine whether packaging has an impact on the preferences of children and their related decision-making processes. Through focus groups, they concluded that all children have a preference for the different kind of characters printed on the product packages. This emphasized for the use of characters in communication with children. Marshall et al. (2006) also found that colour was an important element in food choice. Products marketed towards children are brightly coloured in order to attract their eye and make them seem fun and exciting; this is in line with Roberts (2005) concept of *"eatertainment"*. That is, children may respond to food products not necessarily because of the nutritious nature, but for the fun or perceived imaginary or actual entertainment to be enjoyed.

Food products' brands use a range of packaging attributes, combining colours, designs, shapes, symbols, and messages (Nancarrow et al., 1998). The package's outlook and features give it the most suitable uniqueness and originality it needed . The various features like quality are being self explained by the package, if a package explains that it has high quality, then consumers will also think on similar lines for the product & likewise, if it has poor packaging, then it will be very difficult to convince a consumer that the package contains a good product (Underwood et al., 2001; Silayoi and Speece, 2004). The package becomes the symbol that communicates favourable or unfavourable implied meaning about the product. Underwood et al. (2001) suggested that consumers are more likely to spontaneously imagine aspects of how a product looks, tastes, feels, smells, or sounds while viewing product pictures on the package. Expectations for the food products in a package can be easily generated from the various factors such as packaging, labelling, product information, and stereotypes. The effect of colour is the most obvious and well studied (Imram, 1999). Consumer perceptions of an acceptable colour are associated with perceptions of other quality attributes, such as flavour and nutrition, and also with satisfaction levels. Positive effect can be achieved by manipulating one or more packaging variables, including packaging colour, clear packs that allow viewing food colour, incident light, nomenclature and brand name appearance.

In food service, the food products chosen for display and sale by caterers are selected for their colour and appearance attributes (Imram, 1999). Prendergast and Pitt (1996) concluded that the main function of packaging is either logistics or marketing. The function of packaging that mainly helps to protect the product during movement through the distribution channels is a logistical one. This could cause added packaging expenses, but serves to reduce the incidence of damage, spoilage, or loss through theft or misplaced goods. The second function of packaging is essentially a marketing role. Packaging provides an easy method to convey messages about product attributes to consumers. Whatever the functional aspects of packaging are, as related to logistics considerations, packaging is one of the product attributes perceived by consumers. It cannot escape performing the marketing function, even if a company does not explicitly recognize the marketing aspects of a package. There is, of course, a danger that the package communicates negatively, but a package well designed for its marketing function helps sell the product by attracting attention and spreading positive impression for a brand.

Anderson and Zarkin, (1992) in their paper found the trend of nutritional labelling affecting the consumer purchase behaviour considerably. On the demand side, consumer's interest in the purchase of diets and products with improved nutritional profiles has a direct effect on nutrient intake. Consumers' ability to choose their diets depends partly on the quantity and quality of information available through a variety of sources, including nutrition panel food labels (Caswell and Padberg, 1999). Nayga (1996) in his paper suggested that there are no specific guidelines accepted for evaluating the factors that influence the willingness to pay for nutritional labelling on food items. However, Guthrie et al., (1995) and Nayga (1996) approached the information provided by nutrition labels as a commodity, which consumers will continue to make use of as long as the benefits surpass the costs of label usage. This methodology initially proposed by Stigler (1961), specified models that consumer's use for information search has shown to be influenced by individual characteristics and many other characteristics. Similarly, previous studies on nutritional labelling have incorporated some of the above variables and have explained their influence on consumer buying behaviour. Govindasamy and Italia (1999) and Beus and Dunlap (1992) have concluded that females are more likely to use nutritional labelling than males and have shown that gender plays a major role in buying behaviour. Bender and Derby (1992), Nayga (1997), Govindasamy and Italia (1999) concluded that age is found to be significantly influencing the use of nutritional labelling where younger individuals are more likely to use nutritional labels than older individuals. The other paper by Nayga (1997) showed that income has a significant effect on the use of nutritional labelling; Caswell and Padberg (1999) revealed that income does not necessarily indicate a higher willingness to pay for nutritional information on food items. The level of education is considered to have a positive relationship with nutritional label use (Nayga, 1997; Govindasamy and Italia, 1999). Further, many researchers have concluded that special dietary status has a significant effect on the willingness to pay for nutritional information on food items (Caswell and Padberg, 1999; Govindasamy and Italia, 1999). Over the past many years, considerable efforts have been made to reduce the environmental impacts of packaging by focusing on issues such as light-weighting and material selection (Lewis et al., 2001; Holdway et al., 2002). The use of refillable packaging has long been cited as a possible solution to this problem, however, in the past, attempts to extend the use of refillables beyond a few traditional areas have met with little success. Thus, Packaging can be seen to relate to both marketing and logistics. For marketing, the package sells the product by attracting attention and communicating. For logistics, the package allows the product to be contained, apportioned, unitized and communicated.

RESEARCH METHODOLOGY

The review of literature suggests that in order to reveal the most important elements of a package for consumer's purchase decision, the quantitative method employing personal (direct) survey was selected and for this purpose, the descriptive type of research has been chosen to determine different elements of package/packaging having the highest amount of impact on consumer's purchase decision . The study is based upon the primary survey, and data was collected from 250 respondents from Jammu region (J&K) with the help of a well-designed pre-tested structured questionnaire. The present study is descriptive and conclusive in nature, and the sampling technique used was simple random sampling and convenience sampling. The function of descriptive statistical analysis has been performed for each of the section, and factor analysis was also used to reduce the large number of factors to few factors, i.e. the most important factors that consumers keep in mind before going for the purchase of the packed food products; with the help of SPSS. Factor analysis is a statistical method used to describe variability among observed variables in terms of a potentially lower number of unobserved variables called factors. In other words, it is possible, for example, that variations in three or four observed variables mainly reflect the variations in a single unobserved variable, or in a reduced number of unobserved variables. Factor analysis searches for such joint variations in response to unobserved latent variables. The deduced variables are modelled as linear combinations of the potential factors, plus *"error"* terms. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset. After getting the key factors that influence the buying behaviour of consumers, and for quantifying the buying behaviour of consumers, the linear regression model has been used; as stated in equation (1).

$$Y = \beta_0 + \beta_1 Y_1 + \beta_2 Y_2 + - - - + \beta_n Y_{n+} \mu_l \quad \text{.....} \quad (1)$$

$$\text{Here; } B = f(Y_1 + Y_2 + ---- Y_n) \quad \text{----------} \quad (2)$$

Where *"B"* is the buying behaviour of consumers, X_1, X_2 & X_n will be those factors which have an impact on the

consumer buying behaviour, β_1, β_2, & β_n are the regression coefficients of respective factors with consumer buying behaviour & μ_1 is the error term. Then data is interpreted along with the analysis to make it more understandable to evaluate the responses of the respondents towards different factors of packaging they consider before going for the purchase of a particular product.

RESULTS AND DISCUSSION

The result from the descriptive statistics in SPSS shows that among the overall respondents, 69 % were females and all of the respondents fell in age group between 18 to 26 years. The sample collected has been first checked for the reliability using Cronbach's Alpha in Factor Analysis and is shown in the Table1.

Table1 : Descriptive Statistics for Reliability

Cronbach's Alpha	No of Items
0.796	27

The Table 1 depicts that the value of the Cronbach's Alpha is 0.796, and as it comes out to be greater than 0.6; it implies that the data collected was reliable. Cronbach Alpha can take any value less than or equal to 1, including negative values, although only positive values make sense. Higher values of alpha are more desirable (Cronbach, L. J., 1951).

Table 2: Descriptive Statistics For Mean, Standard Deviation & Variance

FACTORS	N	Mean	Std. Deviation	Variance
Price	250	2.21	0.9459643	0.89484848
Contents	250	2.13	0.9811867	0.96272727
Ingredients	250	2.28	1.0158342	1.03191919
Brand Name	250	1.82	1.0672347	1.1389899
Flavour	250	1.35	0.5751592	0.33080808
Calorie chart	250	2.99	1.3065105	1.7069697
Colour	250	3.26	0.824131	0.67919192
Endorser	250	3.02	1.3025228	1.69656566
Celebrity picture	250	3.63	1.2764772	1.62939394
Manufacturing date	250	1.2	0.4714045	0.22222222
Expiry date	250	1.15	0.4578165	0.20959596
Recipe information	250	2.5	0.8587047	0.73737374
Toll free no	250	2.93	1.3503086	1.82333333
Promotion	250	2.3	0.9374369	0.87878788
Non-veg information	250	2.28	1.5379378	2.36525253
Place of manufacture	250	2.66	1.1994948	1.43878788
Experience by others	250	2.575758	1.0310576	1.06307978
Type of packaging	250	2.08	0.7611793	0.57939394
Creative idea	250	2.37	0.9173413	0.84151515
Facts about products	250	2.02	1.0048368	1.00969697
Means of reclosing	250	2.02	1.1099186	1.23191919
Your mood	250	2.17	0.9954949	0.9910101
Eco friendly messages	250	2.3	1.0492903	1.1010101
Logo	250	2.39	0.8151966	0.66454545
Tagline	250	2.2	0.9534626	0.90909091
Size of package	250	2.21	0.8077278	0.65242424

The Table 2 shows the mean, standard deviation & variance of the various variables used in the study. Mean was found to be highest for the celebrity picture on the pack & the lowest for the expiry date information; standard deviation for the vegetarian & non-vegetarian information was the highest & the lowest for the expiry date information. Similarly, variance was the highest for the vegetarian & non-vegetarian information & was the lowest for the expiry date information. In the next step, factor analysis was conducted on the collected sample observations; so first of all, KMO and Bartlett's Test was conducted, whose results are shown in the Table 3.

The value of KMO from the results was 0.764, which should be above 0.5, & also the value of Bartlett's test was

Table 3 : KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.764**
Bartlett's Test of Sphericity	Approx. Chi-Square	1993.132
	Df	325
	Sig.	.000

Table 4 : Descriptive Statistics For Rotated Component Matrix

Rotated Component Matrix.	**Component**								
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Colour	0.845								
Endorser	0.736								
Logo	0.637								
Your mood	0.612								0.501
Price	0.577								
Celebrity picture	0.530								
Toll free no		0.755							
Recipe information		0.739							
Non-veg information		0.645							
Ingredients		0.639							
Brand Name		0.522							
Calorie chart		0.498							
Promotion			-0.767						
Tagline			-0.761						
Contents			0.715						
Means of reclosing				0.833					
Facts about products				0.802					
Type of packaging				0.594					
Place of manufacture				0.524					
Manufacturing date					0.904				
Expiry date					0.891				
Creative idea						0.827			
Eco-friendly messages						0.652			
Experience by others						0.496			
Flavour							-0.861		
Size of package								0.815	
Age									0.749

significant, so it can be assumed that the factor analysis test is suitable for the data/samples collected (Kaiser, H. F. 1963, Bartlett, M. S. , 1950).

Table 5 : Descriptive Statistics of Regression Analysis

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F value	df1	df2	Sig. F Change
X_1	.754	0.568	0.54	0.3227	0.568	20.169	6	92	0.000
X_2	.892	0.795	0.766	0.23006	0.227	15.834	6	86	0.000
X_3	.899	0.808	0.773	0.22645	0.013	1.92	3	83	0.133
X_4	.908	0.824	0.781	0.2224	0.016	1.763	4	79	0.145
X_5	.908	0.825	0.778	0.22437	0.001	0.31	2	77	0.000
X_6	.931	0.867	0.823	0.19998	0.041	7.643	3	74	0.050
X_7	.933	0.871	0.827	0.19811	0.004	2.399	1	73	0.126
X_8	.936	0.875	0.83	0.19601	0.004	2.579	1	72	0.113
X_9	.941	0.886	0.842	0.18898	0.01	6.457	1	71	0.131

In the Table 4, all the variables having factor loading less than 0.4 are not shown, then the obtained results from the Table 4 show that variables like *'Colour', 'Endorser,' 'Logo', 'Mood', 'Price',* 'and *'Celebrity Picture'* have the highest loadings at first component. Hence, they are grouped under the factor named *'Outlook & Price of The Pack'*. Variables like '*Toll Free No', 'Recipe Information', 'Non-veg Information', 'Ingredients', 'Brand Name', 'Calorie Chart'* have the highest loadings at the second component, so they are grouped under the factor named *'Information and Labelling On The Package'*. Variables like *'Promotion', 'Tagline'* and *'Contents'* have the highest loadings at the third component, so they are grouped under the factor called *'Package Promotion'*. Variables like '*Means Of Reclosing', 'Facts About Products', 'Type Of Packaging'* and *'Place Of Manufacture'* have the highest loading at the fourth component, so they are grouped under the factor called *'Packaging Technique'*. Variables like *'Manufacturing Date'* and *'Expiry Date'* have the highest loading at the fifth component, hence they are grouped under the factor called '*Product Labelling & Information'*. Variables like '*Creative Idea', 'Eco-friendly Messages',* and *'Experience By Others'* have the highest loading at the sixth component, so they are grouped under the factor called *'Creativity & Social Message'*. The variable *'Flavour'* has the highest loading at the seventh component, hence named as *'Factor Flavours'* of packed food. Variable size of the package has the highest loading at the eighth component, and hence, it was named as *'Factor Sizes of The Package Available'*. The variable *'Age'* has the highest loading at the ninth component, hence named as factor *'Age'*.

Now, we will apply regression analysis on these grouped factors to know about the factors which affect the consumer buying decision before going for the purchase of the packed food.

As;

$$Y = \beta_0 + \beta_1 Y_1 + \beta_2 Y_2 + - - - + \beta_n Y_n + \mu_l \text{ ..... From eq. (1) and;}$$

$$B = f(Y_1 + Y_2 + ---- Y_n) \text{ from eq. (2)}$$

Where

$Y_1 = f(X_7, X_8, X_{24}, X_{22}, X_1, X_9)$

$Y_2 = f(X_{13}, X_{12}, X_{15}, X_3, X_4, X_6)$

$Y_3 = f(X_{14}, X_{25}, X_2)$

$Y_4 = f(X_{21}, X_{20}, X_{18}, X_{16})$

$Y_5 = f(X_{10}, X_{11})$

$Y_6 = f(X_{19}, X_{23}, X_{17})$

$Y_7 = f(X_5)$

$Y_8 = f(X_{26})$

$Y_9 = f(X_{27})$.

$\beta_1, \beta_2, \beta_3 \_ \_ \_ \beta_n$ represents the regression coefficient of the corresponding factors.
μ_i is the error term and B is buying behaviour of consumer.
Results of the regression analysis are depicted in the Table 5.
From the Table 5, it was concluded that factors like *'Product Labelling & Information'* have the highest coefficient (0.908) of regression with the buying behaviour of consumers; the factor called *'Information and Labelling On The Package'* was found to have a regression coefficient value of (0.892) with the buying behaviour of consumers, the factor called the *'Outlook & Price of A Pack'* has regression coefficient value of (0.754) with the buying behaviour of consumers; and the factor called *'Creativity & Social Message'* has a regression coefficient value of (0.931) with the buying behaviour of consumers. So, by using this regression analysis, the equation can be formulated as shown below :

$$\textbf{B (Buying Behaviour Of Consumer)} = 0.754\ X_1 + 0\ .892\ X_2 + 0.908\ X_5 + 0.931\ X_6 + \mu_i$$

Rest of the factors are not considered because they are not significant at the 5 % level of significance. The outcome from this research analysis shows that factors like *'Product Labelling & Information', 'Information of Product & Labelling On Package', 'Outlook & Price of A Pack'* have the maximum effect on the consumer buying behaviour, which is in concurrence with the study by P. H. K. Prathiraja and A. Ariyawardana (2003). The results from this study also emphasize the importance of packaging as an element of the marketing mix, i.e. *'the silent salesman'* (McNeal and Ji, 2003) and the power it can have as a communications tool (Vila & Ampuero, 2007; Madden, Hewett & Roth, 2000; Underwood et al., 2001; Bloch, 1995). The results, therefore, contribute to the theory outlined in the literature relating to the importance of packaging as one of the most important factors for an organization.

CONCLUSION AND RECOMMENDATIONS

From the deduced regression equation, we can easily understand that out of nine grouped factors, there are only four factors which are affecting the buying behaviour of the consumers. The factor *'Creative Promotion And Social Message'* has the highest impact on the buying behaviour of consumers. Also, the factor *'Product Labelling & Information'* has the second most highest impact on the buying behaviour of the consumers, information labels on the packs also have a great impact on the consumer buying and at last, outlook of the pack and price are the key features of a pack that a consumer keeps in mind before going for the purchase of the packed products. Hence, an organization should give emphasis towards giving better packaging of the products to the consumers, keeping in mind the factors like creative promotion, informative labelling, price of pack and information about the product on the pack if they want to sustain themselves in the competitive environment. The factors like packaging technique, different numbers of flavours, shape of packs & age are not considered important as per the analysis, because they were not significant at 5 % level of significance. The results of this study did support the propositions that visual elements of the package influence choice of the product to a great extent, and labels , social messages ,graphics and colour are frequently the major influence. Attractive packaging generates consumer attention by breaking through the competitive clutter. Picture of the endorser or celebrity has the most positive impact for products with lower levels of involvement. However, informational elements like calorie chart, recipe information are becoming increasingly important and influence choice. The participants tend to judge the food products by reading the label, and if they are considering products more carefully, this is also supported by the study done by Silayoi P., & Speece, M. (2004). Appropriately delivered information on packaging generates strong impact on the consumers' purchase decision.

LIMITATIONS OF THE STUDY

The study was conducted in Jammu region only, and the responses depend upon the mood of the respondent while answering the questions, so in the future, the study can be extended beyond the Jammu region & a wide variety of products can be involved, with more number of specific variables and also, some different methods of analysis can be used for the researchwork.

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