

## Factors Affecting the Consumers' Choices of Toothpaste in Jaffna, Sri Lanka

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**Abstract:** Dynamic business environment is highly competitive and rapidly changing. Rivals supply creates more confusion for the selection of suitable product for the consumers. Marketing mixes and many factors usually create a meaningful difference in a brand's performance. The objectives of this paper were to identify the important factors influencing on consumer choices and to measure the effect of the factors on consumer choice of toothpaste. Responses were collected from 100 customers from four major food cities in the Jaffna. Convenient sampling technique was used in selecting the customers. To draw the valid conclusion and test them empirically, an exhaustive use of statistical technique of Factor Analysis was made. To further determine the reliability of the data, Kaiser-Meyer-Olkin (KMO), Bartlett Test of sphericity and Anti-Image correlation were determined. The present study attained four factors as customer delight, product excellence, product attractiveness and advertising. This research revealed that customers had more emphasis on the customer delights than other factors. Customer delight was derived from credibility, availability and fit and finish aspect of toothpaste. However, almost next important weight was given to product excellence as quality, variety and value for money. Third important factor was product attractiveness consists of branding and packaging attributes. Further product awareness was also last influencing factor and all aspect of product was communicated by advertising. Therefore, it can be concluded that the consumer toothpaste choices have highly depended on the adaptability of all the above mentioned factors.

**Keywords:** Consumer Choice, Customer Delight, Product Attractiveness, Product Performance.

### I. INTRODUCTION

Every Business firms want to succeed in its goals it has to do a continuous observation of the consumer behavior and their preference, because consumers are the Kings in the business world. Much brands and market researchers are targeted at understanding the most significant and powerful attributes of a product/service [22]. Usually a client wishes to measure their product or brand as perceived by target markets along several attributes they see important to the brand. If they are in a competitive market, they also sometimes need to know how they rate against competing offerings.

In Sri Lanka there are many varieties of tooth pastes available from national and international wide as Colgate, signal, Pepsodent, Close-up, Clogard etc. Every people use tooth paste in daily basis. The selection of toothpaste may vary according to the attributes related with the marketing mixes preferred by the consumers. Considering product attributes influences on consumer choices for the analysis creates successive marketing for the productive organization.



## II. BACKGROUND

In Sri Lanka, all tooth pastes market has a high degree of penetration through toothpaste products. In 2005, According the Lanka Market Research Bureau , The market is dominated by two brands: Signal – with a 53% volume share in 2005 – marketed by Unilever Sri Lanka; and Clogard – with a 33% share in 2005 – marketed by Hemas [24].

Unilever's Signal brand had 95% market share and high brand equity. Today, Clogard is now placed in a respected position in the marketplace – as a trusted brand with a healthy heritage in oral care, with the one limitation of having the brand's equity very closely linked to clove oil, making expansion a challenging task. But Clogard successfully introduced new range of toothbrushes to complete its oral-care range. But within a very short time, it became the second largest toothpaste brand in the country with a one-third share of market volume. In keeping with the brand's indigenous positioning, Clogard was launched at a significant discount in comparison to the market leader – but over time, it has nearly closed this price differential, with no impact on sales volumes. Most users of toothpaste use multiple brands with different varieties. Clogard has a loyal consumer base of 12% of all users [23].

Today , because of increasing global competition toothpaste product companies clearly indentifies that there must be proper strategies on product attributes to achieve the positioning So, researcher was identified that it was very important to take Analysis of influence of product attributes of tooth paste on consumer choices.

According to the review of background of the study it was important to find out the influencing factors on consumer choices of toothpastes.

RQ<sub>1</sub>: What are the important factors related with the consumer choice of toothpaste?

RQ<sub>2</sub>: How the each product factors effect on consumer choices?

## III. LITERATURE REVIEW

The basic concept of consumer demand theory is that consumers expected wants and needs are satisfied from the attributes of the goods. It assumes that a product can be described in terms of a set of multidimensional attribute profiles, A product is a good, service, or idea consisting of a bundle of tangible and intangible attributes that satisfies consumers and is received in exchange for money or some other unit of value. Product Attributes are the characteristics by which products are identified and differentiated.

The research was originated by Yun and Kelly [25]: “Findings also suggested that it is likely beneficial for wool producers to differentiate their product by promoting products' attributes, such as organic, animal-friendly, and environment-friendly. Further, brief information on product attributes provided with labels could increase consumers' WTPs”.

In the research created by Chung and Joe [2]: “Results suggest that brand name, packaging, and CAS label are the most important attributes that influence consumers' overall judgment of sausage quality. Price and retail outlet are found to be relatively unimportant attributes in consumers' product evaluation. Prices would be relatively small compared with forgoing brand name, packaging, or CAS label. To sausage producers, the most important marketing implication is to



establish brand name loyalties among consumers. Although meat packaging using nitrogen flush technology has the advantages of extending shelf-life and maintaining original color and flavor, this improved method evidently has not gained widespread acceptances among Taiwanese consumers"

Dragan *et al.*, [4] said in their research: "The Effects of Trivial Attributes on Choice of Food Products Subjects understood that trivial attributes are less important than substantive attributes. Substantive (important) quality attributes and economic variables affecting choice were all perceived equal across brands by the subjects in the experiment".

Rajesh and Margaret [17] revealed the fact in their research: "The results suggest that except product price, other store and product attributes have positive effects on customer loyalty. Store attributes such as service quality and convenience of store and product attributes such as product quality, price and availability of new products show significance towards customer loyalty".

Finding of the research of Sara *et al.*, [19] described as: "The focus of the study was to ascertain the food product attributes prioritized by low-income consumers during purchasing choice of their staple food, maize meal. Satiety value and affordability were most importance attributes of maize meal to low income consumers. Value perceived for taste, product acceptability and convenience were higher level importance for each product attributes. For appearance, product quality, nutrient content, texture, product safety and brand loyalty, a higher and mostly significant similarity in value between higher incomes, but lower value for the low-income group".

For the purpose of this study, 12 important product attributes affecting the purchasing decision toothpaste were identified, the selected attributes were:

1. Quality, Credibility [2, 5, 11, 17, 25]
2. Product variety [5, 11, 17]
3. Value for money, Discount [11, 17, 25]
4. Brand Name, Consumer awareness [2, 11, 17, 25]
5. Packaging, Availability, [11, 17]
6. Hope , Promotion [4, 5, 11, 19]

#### IV. OBJECTIVES

The main objectives of the study were to:

- 1) Identify the factors influence on consumer choice of toothpaste in Jaffna, and
- 2) To measure the effect of the factors on consumer choice of toothpaste.

#### V. METHODOLOGY

The methodological aspects related to the research conducted in the present studies are given hereunder:

*Data collection:* As the study was based on primary sources, a questionnaire containing 12 literature based ascertain was utilized to measure the consumer choice towards product attributes of toothpaste. In order to increase the reliability of questionnaire, each construct was operationalised on a five-point Likert scale (1 strong agree and 5 for strong disagree).



*Survey method and technique:* Responses were collected from 100 customers from four major food cities in the Jaffna. However convenient sampling technique was used in selecting the customers. To draw the valid conclusion and test them empirically, an exhaustive use of statistical technique of Factor Analysis was made. Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction to identify a small number of factors that explain most of the variance observed in a much larger number of manifest variables. To determine further the reliability of the data, Kaiser-Meyer-Olkin (KMO), correlation, Bartlett Test of sphericity and Anti-Image correlation were determined.

*Sampling adequacy:* The Kaiser-Meyer-Olkin measure of sampling adequacy tests were constructed for checking out the sample adequacy of the data.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.646
Bartlett's Test of Sphericity	Approx. Chi-Square	596.795
	Df	36
	Sig.	0.000

The value of KMO came out to be 0.646 (Table 1) indicating that the factor analysis test can be preceded correctly and the sample used is adequate the minimum acceptable value of KMO as supported by Othman and owen (0.5). Anti-image correlation measure also depicted the diagonal value of all remaining variables to be greater than 0.5 and of all the diagonal values to be less than 0.5 (Appendix 1). Therefore it can be concluded that the matrix did not suffer from the problem of multicorrenality or singularity.

*Suitability for testing multidimensionality:* In order to test the multidimensionality of the variables, Bartlett Test of sphericity and correlation were conducted. The results of the Bartlett Test of sphericity turned out to be highly significant of 0.000 (see Table 1) which indicate that the factor analysis processes were correct and suitable for testing multidimensionality. The correlation matrix also depicted high correlation among the variables certifying the suitability of application of factor analysis technique on the data (see Appendix 1). Thus, it was derived from the statistical tests that the proposed items and dimensions of instruments were sound enough to measure the consumer choice toward product attributes.

*Data analysis and findings:* Principal factor analysis identified a few higher level dimensions characterizing consumer choice towards product attributes. Correlation among the variables are more than 0.5 correlations in Appendix 1.

From the Table 2 output, there were 4 Eigen values greater than 1.0. The latent root criterion for number of factors to derive would indicate that there were 4 components to be extracted for these variables. The cumulative proportion of variance criteria can be met with 4 components to satisfy the criterion of explaining 71.5% or more of the total variance.



Table 2: Total variance explained

Com	Initial Eigen Values		
	Total	% of Variance	Cumulative %
1	3.226	26.883	26.883
2	2.510	20.918	47.801
3	1.624	13.533	61.335
4	1.217	10.143	71.478
5	0.921	7.677	79.155
6	0.845	7.042	86.197
7	0.721	6.009	92.206
8	0.307	2.555	94.761
9	0.251	2.090	96.851
10	0.226	1.881	98.732
11	0.117	0.973	99.705
12	0.035	0.295	100.000

*Evaluating communalities:* In this research Principal Component Analysis was used as the extraction method. The factor solution should explain at least half of each original variable's variance, so the communality values should be 0.50 or higher. In the Table 4 variables as hope, Discount and promotion are below than 0.5 (Table 3). In Table 4 the revised communalities satisfy for all variables.

Table 3: Communalities

	Initial	Extraction
Quality	1.000	0.814
Variety	1.000	0.733
Hope	1.000	0.495
Credibility	1.000	0.903
Value for money	1.000	0.779
Consumer awareness	1.000	0.660
Discount	1.000	0.362
Availability	1.000	0.934
Fit and Finish	1.000	0.808
Brand Name	1.000	0.823
Promotions	1.000	0.440
Packaging	1.000	0.826

Extraction method: Principal Component Analysis

After deletion of three variables in the process analysis, remaining 9 items were factor analyzed as shown in Table 4. These factor explained 86.7 (Appendix 2) of total variance, which is very much acceptable for the Principal Component Varimax Rotated Factor Loading procedure.



Table 4: Revised Communalities

	Initial	Extraction
Quality	1.000	0.896
Variety	1.000	0.659
Credibility	1.000	0.926
Value for money	1.000	0.879
Consumer awareness	1.000	0.962
Availability	1.000	0.948
Fit and Finish	1.000	0.812
Brand Name	1.000	0.863
Packaging	1.000	0.858

Extraction method: Principal Component Analysis

*Identifying complex structure:* Identified four components were explained by the nine factors. But after the Principal Component Varimax Rotated Factor Loading procedure, there is difference in the factor component values; it is explicated in the Table 5.

Table 5: Rotated Component Matrix<sup>a</sup>

	Component			
	1	2	3	4
Quality	0.042	0.944	-0.029	0.046
Variety	-0.243	0.741	-0.085	-0.208
Credibility	0.960	-0.035	-0.037	-0.031
Value for money	0.053	0.935	-0.038	0.033
Consumer awareness	-0.079	-0.054	0.008	0.976
Availability	0.972	-0.047	-0.024	-0.032
Fit and Finish	0.900	-0.024	0.007	-0.030
Brand Name	-0.062	-0.007	0.914	-0.154
Packaging	0.020	-0.113	0.902	0.175

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization; a. Rotation converged in 4 iterations.

*Relabeling to the components:* These four factors and the variables loading on these factors have been summarized in Table 6 and shown with the scree plot in Figure 1.

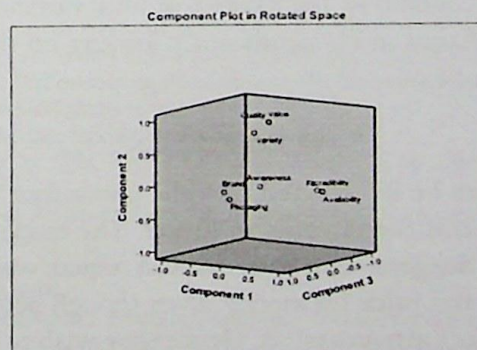


Figure 1: Scree plot in rotate

Figure 1 explains the four components which were created by the nine factors of the product.



Table 6: Summary of factors

Factor	Factor Name	Loadings	Statements
F1	Customer delight	0.960	Credibility
		0.972	Availability
		0.900	Fit and Finish
F2	Product excellence	0.944	Quality,
		0.741	Variety
		0.935	Value for money
F3	Product attractiveness	0.914	Brand Name
		0.902	Packaging
F4	Advertising	0.976	Consumer awareness

These four factors have been defined hereunder:

*Customer delight:* The first factor as customer delight with an eigen value of 3.226 was explained 26.883% of the variance. These three statements namely are credibility, availability and fit and finish. These types of groups often influence a person's behavior and attitude about many different consumer products.

*Product excellence:* Another factor named as product excellence. It consists of quality, variety and value for money which were the basic purpose of the purchase. Studies conducted by Kunz [11], Minoo [14], Rajesh and Virpi [16], Shah and Mrudula [20], Mohod [15] also found quality and its cost are to be important variables affecting customers' behavior to purchase. The second factor of product excellence explained with the eigen value of 2.510 and 20.92% of variance. Therefore this factor explained that better quality variety along with price related variety aspects were very important features for product factor.

*Product attractiveness:* The third factor as product attractiveness with an eigen value of 1.642 was explained 13.533% of the variance. These two statements namely brand name and packaging were loaded significantly on this factor. These types of factors often influence a person's behavior and attitude about many different consumer products.

*Advertising:* The next factor accounted by the 10.143% of total variance with eigen value of 1.217 only one variable awareness was found to be significantly loading on this factors and this factor was named as advertising factor.

## VI. CONCLUSION

From the above analysis it can be interpreted that the above four factors emerged the consumer choice in present times and also the buyouts in future. The modern day organizations lay more emphasis on the customer delights. However, almost equal weight age is given to product excellence as quality, variety and value for money. Even though people wish the product excellent but they also care about product attractiveness. Hence they wish to buy more products only which are more power full brand name and packaging. Moreover, advertising is also given due weight age, more emphasis on quality product along with product variety and value for money. Therefore, it can be concluded that the consumer toothpaste choices will highly depend on the adaptability of all the above mentioned factors.



### Appendix 1: Correlation Matrix

	Quality	Variety	Credibility	Value for money	Consumer awareness	Availability	Fit and Finish	Brand Name	Packaging
<b>Correlation</b>									
Quality	1.000	0.564	0.005	0.873	-0.043	-0.008	-0.019	-0.054	-0.121
variety	0.564	1.000	-0.216	0.536	-0.140	-0.232	-0.187	-0.029	-0.186
credibility	0.005	-0.216	1.000	-0.003	-0.096	0.959	0.774	-0.085	-0.013
Value for money	0.873	0.536	-0.003	1.000	-0.058	-0.011	0.020	-0.056	-0.136
consumer awareness	-0.043	-0.140	-0.096	-0.058	1.000	-0.097	-0.084	-0.089	0.139
Availability	-0.008	-0.232	0.959	-0.011	-0.097	1.000	0.808	-0.071	-0.004
Fit and Finish	-0.019	-0.187	0.774	0.020	-0.084	0.808	1.000	-0.037	0.010
Brand Name	-0.054	-0.029	-0.085	-0.056	-0.089	-0.071	-0.037	1.000	0.659
Packaging	-0.121	-0.186	-0.013	-0.136	0.139	-0.004	0.010	0.659	1.000
<b>Sig. (1-tailed)</b>									
Quality	1.000	0.000	0.481	0.000	0.336	0.469	0.424	0.295	0.115
variety	0.000	1.000	0.015	0.000	0.082	0.010	0.031	0.388	0.032
credibility	0.481	0.015	1.000	0.487	0.172	0.000	0.000	0.200	0.448
Value for money	0.000	0.000	0.487	1.000	0.285	0.457	0.422	0.289	0.089
consumer awareness	0.336	0.082	0.172	0.285	1.000	0.169	0.204	0.191	0.085
Availability	0.469	0.010	0.000	0.457	0.169	1.000	0.000	0.243	0.483
Fit and Finish	0.424	0.031	0.000	0.422	0.204	0.000	1.000	0.357	0.461
Brand Name	0.295	0.388	0.200	0.289	0.191	0.243	0.357	1.000	0.000
Packaging	0.115	0.032	0.448	0.089	0.085	0.483	0.461	0.000	1.000

### Appendix 2: Total Variance Explained

Component	Initial Eigen values		
	Total	% of Variance	Cumulative %
1	2.825	31.392	31.392
2	2.371	26.350	57.741
3	1.575	17.495	75.236
4	1.032	11.465	86.701
5	0.477	5.301	92.002
6	0.296	3.293	95.295
7	0.265	2.940	98.235
8	0.120	1.337	99.571
9	0.039	0.429	100

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