The Impact of Customer Key Purchasing Determinants on Brand Equity of Toothpaste Market

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Abstract

In present world toothpaste industry is one of the fastest growing industries in the world and there is a highly competitive market for toothpaste in Sri Lanka as well. In such a situation, this study was conducted "To Identify the customer key purchasing determinants on brand equity of toothpaste market''. Relevant primary data have been collected mainly through the questionnaire to achieve the objectives. Data collection was based on the Colombo district and 100 respondents were randomly selected for the study. Based on the results revealed by the factor analysis, image of the product, sales, advertising and awareness can be identified as the customer key purchasing determinants on brand equity of toothpaste market. The chi square test statistics revealed that there is a significant relationship between education level, profession, monthly income and brand loyalty. Moreover, it further revealed that gender has an impact on brand awareness. This analysis also revealed that there is a significant relationship between age, monthly income and brand association. Considering this analysis, it is also clear that there is a relationship between gender, monthly income and perceived quality. Finally, it can be concluded that the brand equity in the toothpaste market can be developed through the improvement of toothpaste according to the customer key purchasing determinants derived by this study and by adopting effective marketing strategies such as creative packaging with a strong message, creative advertising, and discounts.

Key words: Brand equity, Colombo district, Key purchasing determinants, Toothpaste market

1. Introduction

"Customer buying behaviour refers to the buying behaviour of the ultimate customer". Many factors impact on customer buying behaviour, mainly social, cultural, economic, personal and psychological factors. A buying decision is a

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result of each of these factors (Ramya & Ali, 2016). A buying decision is the thought process by which a customer identifies needs, generates alternatives and choose a specific product and brand. The attributes that customers value most when making a buying decision are called customer key purchasing determinants (Simpson, Griskevicius, & Roth, 2012). It is important to study the customer key purchasing determinants for the success of business organizations (Aaker, 2003).

Many industries in this era are trying to expand their market worldwide. Today, with the rapid development of the economy, the standard of living of human beings has also improved rapidly. Due to this, the needs and wants of human beings are increasing today. Therefore, maintaining good oral health has become a major human need at present (Wijesinghe, 2016). In practice, brushing teeth is the easiest way to maintain good oral health. Toothpaste is used to get the best results through brushing teeth (American Dental Center, 2021).

In today's competitive economy, there is a lot of competition among toothpaste brands today. Various multinational companies and domestic toothpaste manufacturers in Sri Lanka are engaged in the sale of this toothpaste brands. Because of this, many people are concerned about brands. Although the concepts of brand have recently been debated in the field of marketing, these concepts are as old as stone age (Holt, 2004). From the earliest times manufacturers have used their brands to distinguish their products. The brand can be identified as a very important thing for sustainability in the modern business environment (Wijesinghe, 2016).

Brand equity is created through brands. Brand equity is a concept. It is often defined as ''added value endowed by the brand to the product'' (Pitta & Katsanis, 1995). Even in case where the alternatives have more features, people choose the one brand over other brands because of the impact of brand equity. This phenomenon is described in the brand equity concept (Adam & Akber, 2016). According to this, it is clear that brand equity has a huge impact on the success of a business. Therefore, it is important to study the brand equity of the organizations and the key purchasing determinants that affect them. Accordingly, this study identifies the customer key purchasing determinants on brand equity of toothpaste market.

2. Literature Review

The global toothpaste industry goes back to ancient Egyptian civilization. By the 18th century, a toothpaste market had been created, where the toothpaste was packaged in ceramic jars (Wijesinghe, 2016). In 1873, Colgate & Co. produced toothpaste in a toothpaste jar first time. Then in 1892, the toothpaste was first put into a collapsible tube by Dr. Washington Sheffield. The discovery of fluoride in 1914 was a major milestone in the toothpaste industry, and the British patent GB3,034 for it was obtained in 1915. Procter & Gamble introduced Crest toothpaste to the United States in 1956 as the first toothpaste to be sold worldwide (Lippert, 2013).

The global toothpaste market is entering a new phase with the advancement of biotechnology. Inventions and inventions have changed the oral hygiene habits of people and as a result, the market demand for toothpaste has increased by about 55%. Currently, 97% of the population in developed countries use at least one type of toothpaste. Sales of toothpaste fell by 1%, 2% during the global financial crisis of late 2008. Europe dominates the global toothpaste market, according to the new market research report. The Asia Pacific and the United States are next in line, respectively. Church & Dwight, Colgate-Palmolive company, Colgate-Palmolive Gmbh, Colgate-Palmolive (India) Limited, Gaba Holding AG, GlaxoSmithKline, Henkel AG & Co. KgaA, Johnson and Johnson, Procter & Gamble Company, Unilever and Hindustan Unilever Limited are the leading market participants in the global market (San, 2012).

According to the Global Industry Analysists - GIA (2021), they predict that by 2024, the global toothpaste market will grow to the US $ 17.6 billion. The compounded annual growth rate (CAGR) for the period under analysis was 4.4%. Europe is the largest toothpaste market in the global market, accounting for a 37.7% share of the global market. By the end of the analysis period, the global toothpaste market aims to reach the US $ 6.7 billion. During the period under analysis, China is expected to emerge as the fastest-growing regional market with a CAGR of 6.7%.

Expenditure on sanitary products in China and India has risen as never before with popular growth. It has mainly influenced the growth of toothpaste brands in these countries. According to the National Oral Health Epidemiological
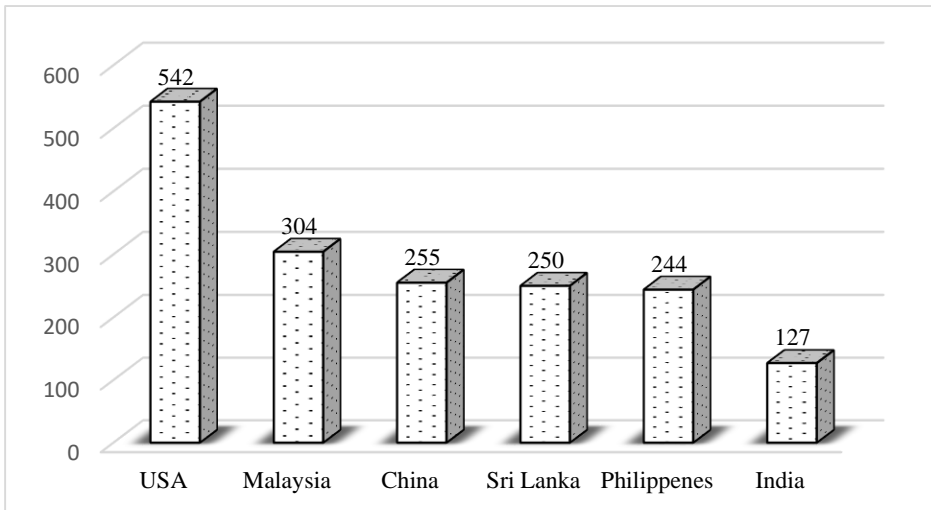
Investigation in China, one of the reasons for the increase in demand for toothpaste is the increase in oral health problems in China (Wijesinghe, 2016).

Figure 1: Asia-Pacific Toothpaste Market Share (%), 2018
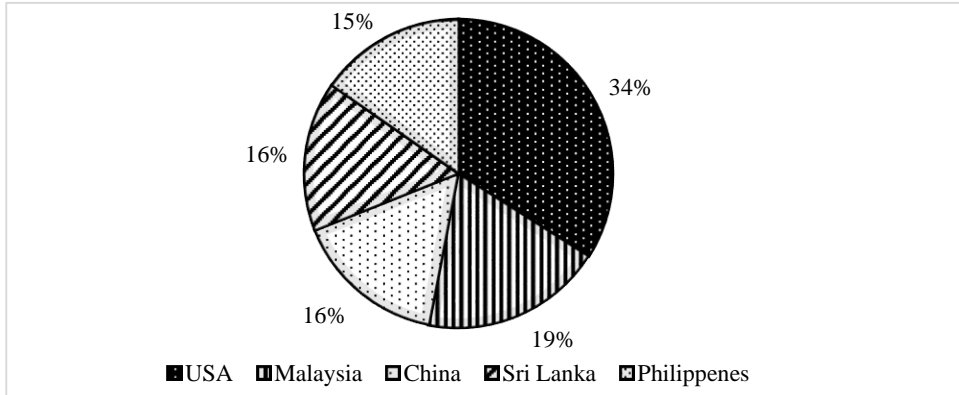
Source: Mordor intelligence, 2018

Figure 2: Per Capita Toothpaste Consumption

Source: Wijesinghe, 2016

The highest per capita toothpaste consumption is reported from the United State of America. It is at 542 g/year. Malaysia, China, Sri Lanka, Philippines then shows the highest per capita toothpaste consumption and it is at 304 g/year, 255 g/year, 250 g/year and 244 g/year respectively. The lowest per capita toothpaste consumption is in India and it is at 127 g/year (Wijesinghe, 2016)

Based on above facts and figures, the objectives of this study can be derived as identifying the customer key purchasing determinants on brand equity and identifying the relationship between demographic factors and brand equity.

3. Research Methodology

To achieve research objectives, the field of study and the methodology used is explained here. The "Yamane'' method is used to calculate the sample size for this study. The sample size was selected according to the 90% satisfaction level. 100 people of the district population of Colombo were selected for the sample and simple random sampling method was used for that. A structured questionnaire was used to obtain the data from these peoples.

Data analysis was done in different ways to achieve the research objectives through the collected data. A factor analysis was done to identify the customer key purchasing determinants on brand equity. Identifying the relationship between demographic factors and brand equity, which is the specific purpose, has been done by the chi square test. Brand equity is the dependent variable and reliability, availability, satisfaction, company image, first choice, familiarity, knowledge, advertising, memory, symbol and logo, uniqueness, favourability, desirability, strength, life experiences, price, quantity, performance and usage period are the independent variables of this study.

4. Results and Discussion

The results obtained in related to the objectives of identifying the customer key purchasing determinants on brand equity and identifying the relationship between demographic factors and brand equity are analysed below.

4.1. Identifying the Relationship between Demographic Factors and Brand Equity

There are various factors associated with brand equity. Among those factors, this section focuses on demographic factors. In this way the chi square test is used to check if there is a relationship between demographic factors and brand equity. Here, decided hypothesis of the chi square test is accepting or reject.

H_0: There is no significant relationship between demographic factors and brand loyalty.

Table 1: The Relationship Between Demographic Factors and Brand Loyalty

Brand Loyalty	χ^2 values	df	p-value
Gender	19.010	18	0.391
Marital status	20.837	18	0.288
Age	100.178	90	0.217
Education level	94.004	72	0.042
Profession	118.393	90	0.024
Monthly income	99.016	72	0.019

Source: Survey data, 2022

According to the Table 1 examines that the relationship between brand loyalty which is a dimension of brand equity, and demographic factors. Here, confirms that there is no relationship among gender, marital status, age and brand loyalty. It also confirms that there is a relationship among education level, profession, monthly income and brand loyalty. That is, it has become statistically significant.

H_0: There is no significant relationship between demographic factors and brand awareness.

Table 2: The Relationship Between Demographic Factors and Brand Awareness

Brand Awareness	χ^2 values	df	p-value
Gender	30.466	15	0.010
Marital status	15.613	15	0.408
Age	82.228	75	0.266
Education level	63.942	60	0.340
Profession	61.176	75	0.875
Monthly income	51.251	60	0.782

Source: Survey data, 2022

According to the Table 2 examines that the relationship between brand awareness which is a dimension of brand equity, and demographic factors. Here, confirms that there is no relationship among marital status, age, education level, profession, monthly income and brand awareness. It also confirms that there is a relationship between gender and brand awareness. That is, it has become statistically significant.

H_0: There is no significant relationship between demographic factors and brand association.

Table 3: The Relationship Between Demographic Factors and Brand Association

Brand Association	χ^2 values	df	p-value
Gender	18.270	16	0.308
Marital status	21.323	16	0.166
Age	106.972	80	0.024
Education level	76.078	64	0.143
Profession	100.448	80	0.061
Monthly income	106.050	64	0.001

Source: Survey data, 2022

According to the Table 3 examines that the relationship between brand association which is a dimension of brand equity, and demographic factors. Here, confirms that there is no relationship among gender, marital status, education level, profession and brand association. It also confirms that there is a relationship among age, monthly income and brand association. That is, it has become statistically significant.

H_0: There is no significant relationship between demographic factors and perceived quality.

Table 4: The Relationship Between Demographic Factors and Perceived Quality

Perceived Quality	χ^2 values	df	p-value
Gender	29.915	18	0.038
Marital status	23.288	18	0.180
Age	102.879	90	0.167
Education level	79.216	72	0.262
Profession	112.082	90	0.057
Monthly income	113.536	72	0.001

Source: Sample Survey Data, 2022

According to the Table 4 examines that the relationship between perceived quality which is a dimension of brand equity, and demographic factors. Here, confirms that there is no relationship among marital status, age, education level, profession and perceived quality. It also confirms that there is a

relationship among gender, monthly income and perceived quality. That is, it has become statistically significant.

4.2. Identifying the Customer Key Purchasing Determinants on Brand Equity

The main objective of this study is identifying the customer key purchasing determinants on brand equity and factor analysis was used to achieve this objective. The KMO test and the Bartlett's test are used to check the validity of the data used for factor analysis. The KMO test check the adequacy of the sample and Bartlett's test check the sphericity of the sample. The KMO value should be greater than 0.5 and the P value of the Bartlett's value should be less than 0.05. According to this study, KMO value is 0.889 and P value is 0.000, so this factor analysis is an appropriate test.

Table 5: Total Variance Explained (Principal Component Factoring)

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %
1	8.787	43.937	43.937	8.787	43.937	43.937
2	2.288	11.442	55.380	2.288	11.442	55.380
3	1.248	6.238	61.618	1.248	6.238	61.618
4	1.113	5.563	67.181	1.113	5.563	67.181
5	.855	4.275	71.456			
6	.796	3.981	75.437			
7	.721	3.604	79.041			
8	.684	3.418	82.459			
9	.480	2.401	84.860			
10	.426	2.129	86.989			
11	.415	2.077	89.066			
12	.383	1.915	90.981			
13	.355	1.777	92.758			
14	.290	1.448	94.206			
15	.288	1.442	95.648			
16	.228	1.139	96.787			
17	.210	1.049	97.836			
18	.186	.932	98.768			
19	.141	.703	99.471			
20	.106	.529	100.000			

Source: Survey data, 2022

The factor analysis performed under the factor extraction method of Principal Component Factoring (PCF) without factor rotation method is shown in table 5. According to the Table 5, there are 4 components where the eigen value is greater than 1. Based on the eigen value, the 4 components are taken as the main factors. These 4 factors describe 67.2% from the variance of 20 variables. From the variance of 20 variables, 43.9% are described by the first factor, 11.4% are described by the second factor, 6.2% are described by the third factor and 5.6% are described by the fourth factor.

Table 6 shows how the variables are divided into 4 main factors according to the varimax method. Under first factor, there are 11 variables and the 2nd factor has 4 variables. Third factor has 3 variables while the 4th one is having 2 variables.

Table 6: Factor Loadings of 4-Factor Model (PCF and Varimax)

Factors	Components			
	1	2	3	4
Reliability	**.775**	.157	.185	.087
Availability	**.532**	.499	.379	-.071
Satisfaction	**.746**	.187	.308	.010
Company Image	**.453**	.423	.301	.167
First Choice	**.583**	-.247	.384	.110
Familiarity	**.751**	.109	.340	.121
Knowledge	.076	-.042	.103	**.848**
Advertising	.278	.343	**.636**	.083
Memory	.091	.108	**.850**	.146
Symbol or Logo	.430	.253	**.663**	.070
Uniqueness	**.710**	.093	.432	.171
Favorability	**.839**	.210	-.011	.250
Desirability	**.614**	.292	.032	-.023
Strength	.290	**.602**	.253	.155
Life experiences	.347	.326	.239	**.602**
Price	.175	**.765**	.029	.147
Quantity	.104	**.900**	.139	-.036
Type	**.653**	.446	.200	.128
Performance	**.679**	.142	.014	.470
Usage period	.071	**.874**	.130	-.016

Source: Survey data, 2022

The first factor includes reliability, availability, satisfaction, company image, first choice, familiarity, uniqueness, favourability, desirability, type and performance. These factors are referred to as "Image of the product''. The second factor includes strength, price, quantity and usage period. These factors are referred to as "Sales''. Advertising, memory and symbol or logo is associated with third factor. These factors are referred to as "Advertising''. Knowledge and life experience is associated with fourth factor. These two factors referred to as "Awareness''.

Figure 1: Identifying the Customer Key Purchasing Determinants on Brand Equity based on Factor Analysis by PCF and Varimax Method
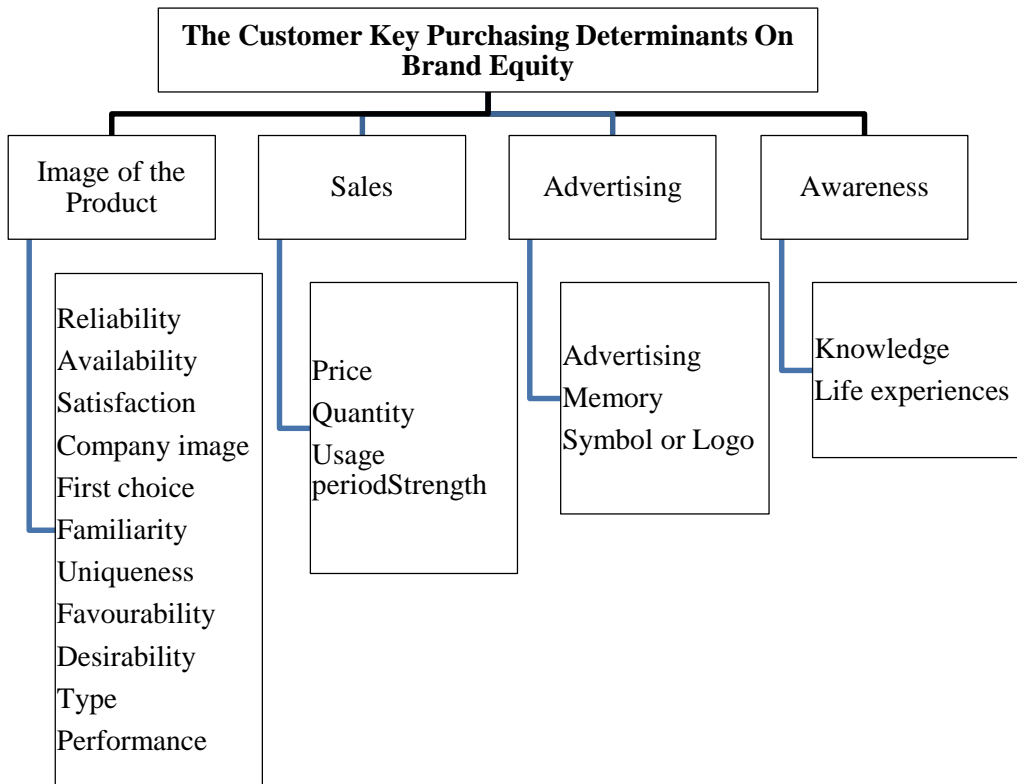
Source: Survey data, 2022

5. Conclusion and Recommendations

The main objective of this study is identifying the customer key purchasing determinants on brand equity and factor analysis was used to achieve this main objective. Here the analysis is done according to the factor rotation method of varimax under the factor extraction method of Principal Component Factoring (PCF). The 20 variables used in this study are divided into 4 main factors. These 4 factors describe 67.2% from the variance of 20 variables. These factors can be named as Image of the product, Sales, Advertising and Awareness.

The specific objective of this study is to identify the relationship between demographic factors and brand equity. Here the relationship between each dimension of brand equity, and demographic factors was measured. Here, confirmed that there is no relationship among gender, marital status, age and brand loyalty. It also confirmed that there is a relationship among education level, profession, monthly income and brand loyalty. According to chi square test it was confirms that there is no relationship among marital status, age, education level, profession, monthly income and brand awareness. It also confirmed that there is a relationship between gender and brand awareness. Here, confirmed that there is no relationship among gender, marital status, education level, profession and brand association. It also confirmed that there is a relationship among age, monthly income and brand association. And also, this analysis confirmed that there is no relationship among marital status, age, education level, profession and perceived quality. It also confirmed that there is a relationship among gender, monthly income and perceived quality.

Finally, it can be concluded that the brand equity in the toothpaste market can be developed through the improvement of toothpaste according to the customer key purchasing determinants derived by this study and by adopting effective marketing strategies such as creative packaging with a strong message, creative advertising, and discounts.

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