

## Factor Analysis on Attributes Influencing the Purchasing Behaviour of Consumer: A Study on Grocery Products

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**ABSTRACT:** The present study attempts to investigate the influence of factors on consumer purchase behaviour towards grocery products, this study aims to explore the factors like Factors Of Attributes and Motivational Factors influencing on consumers purchase behaviour towards the purchase of Grocery products. A structured questionnaire using 5-point Likert scales were administered to 207 randomly selected consumers with 29 items Collecting data was analysed using principle component using SPSS 20.0. and tools like Percentage analysis, ANOVAs and Factor analysis used. The results of the ANOVAs showed that demographical variables significant different with factors of attributes and motivational factors and results of factor analysis indicates that, all factors found significant with consumer purchase behaviour.

**Keywords:** Consumer, consumer behaviour, Attributes factors, Motivational factors, Grocery products

### 1. INTRODUCTION

A consumer refers to a current or potential buyer or user of the products. This is typically through purchasing or renting goods or services. The idea that customers prefer one product or one service over another is not new. Consumers are always willing to move to new products/brands because of changing lifestyles, rising disposable income, etc. The ability to identify and measure the elements of such preferences is of recent origin. When we look at the market in India, we find consumers are more conscious before purchasing a FMCG product. This is because they consumer have alternative options to select another branded product available in the same market. With competition on the rise each brand attempts to remain at the top of the head. A small negligence in the market could lead to heavy loss of the brand image. FMCG goods - which stands for Fast Moving Consumer Goods are supplied through retail marketing. FMCG generally include a wide range of frequently purchased consumer products such as toiletries, soap, cosmetics, tooth cleaning products, shaving products and detergents, as well as other non-durables such as glassware, bulbs, batteries, paper products, and plastic goods. FMCG may also include pharmaceuticals, consumer electronics, packaged food products, soft drinks, tissue paper, and chocolate bars. Retail Market focuses on the daily needs and demand of a consumer. A focussed marketing plan is essential to fulfil these needs. A consumer buys FMCG products for they have a relatively low cost, leave alone a fast turnover rate. In order to fulfil the needs of the consumer one needs effective selling and marketing and distribution network as consumer needs have to be

satisfied at right time & place. Even when the consumer decides to buy the product, the brand is at the back of his mind. In addition to the brand a consumer even checks the quality, its components, attached benefits and date of packaging of the product.

## **2. REVIEW LITERATURE**

The free dictionary website refers cosmetics as noun in two ways: Firstly, “A preparation, such as powder or skin cream, designed to beautify the body by direct application.” Secondly, “it is something superficial that is used to cover deficiency or defect.” As an adjective it refers to “Serving to beautify the body, especially the face and hair.” For cosmetic surgery, it refers to “Serving to modify or improve the appearance of a physical feature, defect or irregularity.

Dr. Nuntasaree Sujato and Dr. Barry Elsey has examined the phenomena of male consumer behaviour in buying skin care products in “A model of male consumer behaviour in 6 www.ssiomar.in buying skin care products in Thailand”. Fishbein and Ajzen’s theory of reasoned action model is employed as a theoretical framework and modified by adding the self-image construct.

According to Dr. Nuntasaree Sujato and Dr. Barry Elsey study, Theory of Reasoned Action can be successfully applied to Thai male consumers, particularly in Bangkok. Further, this modified theory of reasoned action with additional construct “Self-image” appears to fit in a Thai context in terms of explaining or predicting male consumer behaviour in buying specific cosmetic products. In the aspect of normative influences, family and friends were related to self-image. There are some limitations as follows. Firstly, there is a national limitation. The findings of the study were confined to Bangkok metropolitan in Thailand. As a result, generalizing the results reported in this research to other countries should be done carefully. Secondly, the sampling frame was Thai male consumers aged 21 to 50 years old. With the sample, it is limited to the scope of this study with regard to reflection of other male age groups such as teenagers.

The research paper titled “Factors affecting consumption behaviour of metro sexual toward male grooming products” by Fan Shean Cheng, Cheng Soon Ooi and Ding Hooi Ting investigates the effect of self image, social expectation and celebrity endorsement on the consumption of metrosexuals toward male grooming products in Malaysia. Study also attempts to determine the moderating impacts of perceptions on the relationship between the variables and consumption behavior. However, this study only researches on the consumption of male grooming products as a whole. Therefore, the study may not be applicable to all the male grooming product categories available in the market. There are many categories of male grooming products which include aftershave, cosmetic, gel etc.

Research paper titled as “Thai Consumers’ Perception on Herbal Cosmetic Products: A Comparative Study of Thai and Imported Products” published by Rojanadilok Thanisorn, Nanagara Byaporn and Bunchapattanasakda Chanchai investigated the factors that influence perception of Thai consumers on facial herbal cosmetic products in Thailand. This study revealed that most of the interviewees were female with age between 26-30 years, casual worker, bachelor degree being the highest education and salary from 10,000 -15,000 baht

(\$285-430) per month. According to study, the marketing mix was the key factors influencing Thai consumers' perception on facial herbal cosmetic products.

According to Dr. Vinith Kumar Nair and Dr. Prakash Pillai R research paper "A Study on Purchase Pattern of Cosmetics among Consumers in Kerala" male consumers generally prefer to purchase and make the brand selection of cosmetics individually. Quality is the major factor influencing the purchase decision of male consumers. They tend to buy cosmetic items from a single shop of their convenience. It is also observed that male consumers buy all their cosmetic items from one shop. Male consumers tend to spend more on cosmetics i.e. Rs. 301- 500 per month when compared to females and that is mainly due to the demand for men's hair care, deodorants, razors and blades. Paper titled "Consuming Constructions: A Critique of Dove's Campaign for Real Beauty" by Lauren Dye focuses on promotional strategies on product promises which influences buying behaviour with special reference to Dove's campaign in the United States. Researcher argues that the message of Dove's Campaign for Real Beauty is not only contradicted by its product-line, but that Dove exploits women's desire for such an inclusive message. The appeal of the campaign works to create a deep brand loyalty that covers up its own inherent flaw: that Dove itself upholds the beauty myths and expectations it claims to aim to reverse, expectations that are both consuming and consumed.

As stated by Pascal Huguet in his research paper „Is "What Has Been Cared For" Necessarily Good? Further Evidence for the Negative Impact of Cosmetics Use on Impression Formation" to cosmetics provides evidence that facial makeup can have negative effects on perceived personality, especially for young targets. As such, they run against Graham and Jouhar's (1981) hypothesis of a cosmetic stereotype that would be necessarily positive. Second, and more consistent with these authors' perspective, they reveal that cosmetic effects can be direct or independent of physical attractiveness.

Research paper titled "Research of Female Consumer Behavior in Cosmetics Market: Case Study of Female Consumers in Hsinchu Area Taiwan" by Chang-Tzu Chiang and WanChen Yu states that the rapidly changing social situation in the latter part of the 20th century, such as revolutionary movement for women's equal rights, significantly affects the women consumer behaviors as well as improves their social status. The awakening of female consumer's consciousness during the recent years leads to alteration of consumer behavior, and influences the women's usual conception for pursuing fashion and cosmetics application, in fact, the makeup practice has already been regarded as a social politeness and necessary requirement for interpersonal activities. The limitation of the study is that this research is only limited to female consumers however male are also consumers for the cosmetics products and male might be going through the same practices what female must be going through.

Nicolas Gueguen and Celine Jacob stated in the paper titled "Enhanced female attractiveness with use of cosmetics and male tipping behaviour in restaurants" that the makeup conditions were associated with a significant increase in the tipping behaviour of male customers. It was

also found that the effect of make on tipping behaviour was mediated by the perception of the physical attractiveness of the waitress, but only when considering male customers. Thus the study has found that cosmetics improve female facial attractiveness.

Paper titled “the effects of male age and physical appearance on evaluation of attractiveness, social desirability and resourcefulness” by Arthur Peruni demonstrate that attractive male targets, whether younger or older, were rated similarly in social desirability to unattractive targets; moreover elderly males were seen as equally desirable as younger males. Ascriptions of resourcefulness to male targets were affected by the age of the female judge, rather than by male target. Young compared to elderly, judges also perceived the male targets to be “younger looking”. This clearly states the importance of male grooming in the society.

“Understanding consumer purchase behaviour in the Japanese personal grooming sector” by Caroline SueLin and TAN demonstrates that complexity involved in the consumer decision-making processes which shaped by the interaction of various forces, such as culture, self perception, emotions and the emotional and psychological state and needs of the individual. As corporations seek to develop products and services that trigger purchase behavior and consumption, their focus is on understanding the driving forces behind consumer decision-making. However, on the consumer’s end there is a need to understand why we buy and consumer products and services as a means to address the concerns of the „consuming society“ issues that have surfaced in the recent decades.

A study done by Mert Topoyan and Zeki Atıl Bulut states in the research paper titled “packaging value of cosmetics products: an insight from the view point of consumers” that consumers expect more sophisticated packages from known brands, consumers are willing to pay more on better packages and better packaging designs positively influence customer satisfaction.

### **3. OBJECTIVE**

This research work has been carried out to achieve the following objectives:

- To assess the impact of Products attributes on demographical variables of customers?
- To study the motivational factors affecting on demographical variables of customers?
- Factor analysis to determine the attributes which impact on purchasing behaviour of apparel consumers

### **4. HYPOTHESIS**

The following are the hypothesis designed with above objectives

- **HO<sup>1</sup>**: There is no significant impact Products attributes on demographical variables of customers.
- **HO<sup>2</sup>**: There is no significant affect of motivational factors on demographical variables of customers.

### **5. RESEARCH METHODOLOGY**

- **Research Design**: Descriptive research
- **Sources of data**: Primary source of data is collected from the respondents through structured questionnaire and it was in order to collect data on the factors which affect consumer perception behaviour towards Grocery products, those snakes and

beverages, chocolates, biscuits etc. Secondary data is collected from various Journals, Periodicals such as Magazines, Business newspapers, and from subject related books and websites.

- **Data collections methods:** Data has been collected using structure questionnaire through customer survey method and personal interview of consumers
- **Sampling area:** Hyderabad city
- **Sampling Method:** Convenience sampling method has been used to collect sample of 207 respondents.
- **Statistical tools used:** ANOVAs and Factor analysis using SPSS 20.0.

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.718	.738	29

From the Table 1, it shown that the questionnaire is tested for its reliability and presented the results here under. The questionnaire developed is pretested and validated through face validity as it was sent to a carefully selected sample of experts and it also has a sufficiently good reliability score. The result given the value of the as **0.718**. It indicates that, the data has a high reliability and validity.

Summary Item Statistics: It is evident that the summary of the means, variances, covariance and inter-item correlations are presented in the following table.

	Mean	Minimum	Maximum	Range	Maximum / Minimum	Variance	N of Items
Item Means	2.853	2.058	3.976	1.918	1.932	.262	29
Item Variances	1.829	1.101	2.856	1.754	2.593	.182	29
Inter-Item Covariances	.147	-1.092	2.856	3.948	-2.615	.457	29
Inter-Item Correlations	.088	-.609	1.000	1.609	-1.643	.138	29

It is obvious the minimum and maximum mean, Range, and variance values for item means, item variances are positive. Maximum mean is witnessed for Item means is 3.976. Maximum variance is 2.856, maximum inter item covariance is witnessed is 2.856 and maximum inter-item Correlations is found to be 1.609.

In order to understand relationship between the different demographic variables like Age, Gender, Education, Occupation, Income (in rupees), influence of Attributes on consumer perception, motivational factor influence mean, standard deviation, skewness and kurtosis are calculated and presented in the following table.

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis

	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Age	207	1	4	2.77	.873	.027	.169	-.974	.337
Gender	207	1	2	1.42	.495	.325	.169	-1.913	.337
Education	207	1	4	2.87	.618	-.662	.169	1.419	.337
Occupation	207	1	3	2.25	.904	-.508	.169	-1.591	.337
Family Income ( In Rupees)	207	1	5	2.56	.911	.675	.169	.583	.337
Attributes factors	207	1.38	4.13	2.6008	.96031	.376	.169	-1.194	.337
Motivational factors	207	1.20	4.80	2.9430	.83471	.461	.169	-.408	.337
Valid N (Listwise)	207								

The mean values for Age, Gender, Education, Occupation, Income (in rupees), Attributes factors, Motivational factors are found to be 2.77, 1.42, 2.87, 2.25, 2.56, 2.6008, and 32.9430 followed by Std. Deviation values are .873, .495, .618, .904, .911, .96031, and .83471, respectively.

Demographic Variables: The frequency distribution of demographic variables is presented in the following table.

*Table-4: Demographic Analysis*

Particulars	Classification	No of Responses	Percentage
Age	Below 20 years	10	4.8
	21 - 30 years	78	37.7
	31 - 40 years	69	33.3
	41 - 50years	50	24.2
Gender	Male	120	58.0
	Female	87	42.0
Education	Intermediate	6	2.9
	Graduation	36	17.4
	PG	143	69.1
	Above PG	22	10.6
Occupation	House wife	65	31.4
	Employee	26	12.6
	Private employee	116	56.0
Monthly income	Below Rs. 10,000	17	8.2
	Rs.10,001 - 20,000	91	44.0



(in rupees)	Rs. 20,001 - 30,000	74	35.7
	Rs. 30,001 - 40,000	16	7.7
	Above Rs. 40,001	9	4.3
Total		<i>n = 207</i>	<i>100%</i>

The descriptive analysis of all the demographical variables is shown in Table-4, from that more than 37% of respondents in the group of 21-30 years and 33% of respondents in the group of 31-40 years, followed by 58% of the respondents belonged male and 42% of respondents belonged female, and 69% of respondents studied Post graduation and with followed 17% of respondents studied Graduation degree, 56% of respondents working as a Private Employees, 31% are the House wife and 44% of respondents earned Rs.10,001-20,000 for month and 35% of respondents earned Rs.20,001-30,000 respectively.

**(a) ANOVA**

It is conducted in order in order to understand whether there is any significant difference in opinions of respondents by Attributes factors, Motivational factors and the results are presented in the following table.

- **HO<sup>1</sup>**: There is no significant impact Products attributes on demographical variables of customers.
- **HO<sup>2</sup>**: There is no significant affect of motivational factors on demographical variables of customers.

*Table-5:ANOVA*

S.NO	Dimensio n	Age		Gender		Education		Occupation		Income in rupees	
		F	Sig.	F	Sig.	F	Sig.	F	Sig.	F	Sig.
1	Attributes factors	10.889	.000	4.151	.000	13.249	.000	15.189	.000	16.986	.000
2	Motivatio nal factors	8.609	.000	4.416	.000	6.844	.000	4.580	.000	8.506	.000

It is evident that from the above table, dimensions like Attributes factors, Motivational factors of the F value is found to be significant, meaning there by there is significant different with demographical variables like age, education, occupation and income in rupees.

- **Factor analysis to determine the attributes which impact on purchasing behaviour of consumers.**

**(b) MEASURE THE SAMPLING ADEQUACY**

KMO and Bartlett's Test : In order measure the sampling adequacy, KMO and Bartlett's test is conducted . The Kaiser - Meyer- Olkin Measure of Sampling Adequacy is a statistic that shows the proportion of the variance in the variable that might be caused the underlying factor. The Kaiser-Meyer-Olkin measure of sampling adequacy tests whether the partial correlations among variables are small. High values (close to 1.0) generally indicate that a factor analysis may be useful with data. Bartlett's test of sphericity tests the hypothesis that correlation matrix is an identity matrix, which would indicate that variables are unrelated. Small values (less than 0.05) of the significance level indicate that a factor analysis may be

useful with data. Table no 6 indicates that in the present test the Kaiser-Meyer-Olkin (KMO) measure was 0.714. Bartlett's sphericity test indicating Chi-Square = 1357.320, df = 131 with a significance of 0.000.

*Table 6- KMO and Bartlett's Test*

<b>KMO and Bartlett's Test</b>		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	1357.320
	df	131
	Sig.	.000

**(b) PRINCIPLE COMPONENT ANALYSIS:** The principle component analysis of the data has extracted the communalities for the different variable and the same is presented in the following table, Extraction communalities are estimates of the variance in each variable accounted for by the components.

*Table-7: Communalities*

	Initial	Extraction
Friends/ Peer Groups	1.000	.968
Parents	1.000	.968
Celebrity Endorsement	1.000	.768
Shop owners	1.000	.968
Newspaper/Magazine	1.000	.969
T.V/ Radio	1.000	.784
Internet	1.000	.979
Posters	1.000	.969
Advertisements	1.000	.978
Attractive Display of products	1.000	.539
Branded products	1.000	.983
Availability of Products	1.000	.979
Trust worthy Products	1.000	.946
Service of Employees	1.000	.922
Promotional Offers / Discounts	1.000	.932
Celebrity Endorsement in Ads	1.000	.795
Extensive Varieties of Products	1.000	.736
Taste / flavours of the product	1.000	<b>.991</b>
Awareness of grocery products	1.000	<b>.994</b>
Quality of grocery products	1.000	<b>.997</b>
Price ranges of products	1.000	.952
Attractive designs of products	1.000	.777



Habit of purchase	1.000	.961
Cleanliness of place	1.000	.961
Packaging of products	1.000	.928
Purchase convenience	1.000	.673
Discount of products	1.000	.928
Food Safety, while consuming	1.000	<b>.682</b>
Freshness of products	1.000	.792
Extraction Method: Principal Component Analysis.		

The Communalities indicate the amount of the variance in each variable that is accounted for initial communalities are estimates of the variance in each variable accounted for by all components of factor. Extraction communalities are estimates of the variance in each variable accounted for by the factor ( or components) in the factor solution.

In the table above, Quality of grocery products with 0.997, followed with , Awareness of grocery products and Awareness of grocery products with 0.994, 0.991 respectively. Lowest communality is extracted by Food Safety, while consuming with a communality 0.682.

*Table-8: Total Variance Explained*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.636	29.780	29.780	8.636	29.780	29.780
2	6.886	23.744	53.524	6.886	23.744	53.524
3	3.248	11.200	64.724	3.248	11.200	64.724
4	2.554	8.807	73.531	2.554	8.807	73.531
5	1.758	6.063	79.594	1.758	6.063	79.594
6	1.280	4.414	84.008	1.280	4.414	84.008
7	1.128	3.890	87.898	1.128	3.890	87.898
8	.767	2.646	90.544			
9	.723	2.495	93.038			
10	.573	1.976	95.014			
11	.432	1.489	96.502			
12	.316	1.089	97.591			
13	.251	.865	98.457			
14	.168	.579	99.036			
15	.101	.348	99.384			
16	.079	.274	99.657			
17	.050	.172	99.830			
18	.034	.116	99.946			

19	.015	.051	99.998			
20	.001	.002	100.000			
21	3.189E-016	1.100E-015	100.000			
22	2.207E-017	7.610E-017	100.000			
23	8.157E-018	2.813E-017	100.000			
24	6.297E-034	2.171E-033	100.000			
25	-3.295E-050	-1.136E-049	100.000			
26	-8.757E-018	-3.020E-017	100.000			
27	-2.197E-017	-7.577E-017	100.000			
28	-3.178E-017	-1.096E-016	100.000			
29	-6.274E-017	-2.163E-016	100.000			

Extraction Method: Principal Component Analysis.

This table shows the actual factors that were extracted . First Factor explains the variance in the dependent variable to an extent 29.780, followed by second , third and fourth factors with 23.744, 11.200, and 8.807 respectively thus, 7<sup>th</sup> factor are explaining the cumulative variance in the Dependent variable to an extent of 87.898%.

*Table-9: Component Matrix<sup>a</sup>*

	Component						
	1	2	3	4	5	6	7
Friends/ Peer Groups	-.576	.715	.252	.096	.222	.009	-.047
Parents	-.576	.715	.252	.096	.222	.009	-.047
Celebrity Endorsement	.744	.210	-.374	-.011	-.120	-.108	-.067
Shop owners	-.576	.715	.252	.096	.222	.009	-.047
Newspaper/Magazine	.050	-.669	.696	-.074	.167	.011	-.017
T.V/ Radio	.513	-.218	.284	.104	.051	.107	.261
Internet	.050	-.669	<b>.699</b>	-.074	.167	.011	-.017
Posters	.050	-.669	.696	-.074	.167	.011	-.017
Advertisements	-.576	<b>.717</b>	.252	.096	.222	.009	-.047
Attractive Display of products	.223	.630	-.128	.136	.206	-.080	-.093
Branded products	.699	.527	.401	-.055	-.226	-.016	.036
Availability of Products	.700	.527	.395	-.051	-.225	-.014	.027
Trust worthy Products	.685	.496	.407	-.004	-.248	-.045	.045
Service of Employees	.681	.476	.420	-.047	-.229	-.031	.007

Promotional Offers / Discounts	.678	.493	.419	-.078	-.203	-.030	.073
Celebrity Endorsement in Ads	-.205	.386	.429	.113	<b>.605</b>	-.359	-.154
Extensive Varieties of Products	.241	.112	.139	-.075	-.095	<b>.794</b>	-.031
Taste / flavours of the product	.502	-.122	-.052	.839	.104	.069	-.050
Awareness of grocery products	.502	-.122	-.052	<b>.842</b>	.104	.069	-.050
Quality of grocery products	.502	-.122	-.052	.839	.104	.069	-.050
Price ranges of products	.741	.369	-.231	-.273	.323	.132	-.129
Attractive designs of products	-.107	-.673	.050	-.121	.425	.335	.046
Habit of purchase	<b>.705</b>	.386	-.235	-.282	.377	.154	-.127
Cleanliness of place	.703	.386	-.235	-.282	.377	.154	-.127
Packaging of products	-.758	.511	-.052	.117	-.154	.183	.138
Purchase convenience	.554	-.266	-.224	-.184	.148	-.371	-.228
Discount of products	-.758	.511	-.052	.117	-.154	.183	.138
Food Safety, while consuming	.392	.207	-.135	-.128	.427	.127	.503
Freshness of products	.221	.065	-.133	.050	.206	-.273	<b>.776</b>

Extraction Method: Principal Component Analysis.

a. 7 components extracted.

The principal component analysis has been extracted for 7 factors. The 1st factor includes the variable like "Habit of purchase" and so on, followed with 2nd factor includes the variables like "Advertisements", 3rd factor includes variable like "Internet", 4th factor includes the variables like "Awareness of grocery products", 5th factor includes the variables like "Celebrity Endorsement in Ads", 6th factor includes variable like "Extensive Varieties of Products", 7th factor includes variable like "Freshness of products".

## 7. CONCLUSION

The present research paper attempts to examine a contributions of various factors of attributes and motivational factors. There are three two major objective and data collected with through questionnaire. It was analysed by the percentages, ANOVAs, and Factor analysis. As per the results 37% of respondents in the group of 21-30 years and 33% of respondents in the group of 31-40 years, followed by 58% of the respondents belonged male and 42% of respondents belonged female, and 69% of respondents studied Post graduation and with followed 17% of respondents studied Graduation degree, 56% of respondents working as a Private Employees,

31% are the House wife and 44% of respondents earned Rs.10,001-20,000 for month and 35% of respondents earned Rs.20,001-30,000, followed with the results of the ANOVAs showed that demographical variables significant different with attributes factors and motivational factor, and results of factor analysis indicates that, all factors are respective dimensions found significant with influencing Consumer perception towards grocery products.

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