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Factors Influencing the Purchase Intention of Basmati Rice in Chittoor District of Andhra Pradesh

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ABSTRACT

Basmati rice is unique among other aromatic long grain rice varieties. Agro-climatic conditions of the specific geographical area, as well as method of harvesting, processing and aging, attribute these characteristic features to basmati rice. This paper made a humble attempt to understand the factors influencing the purchase intention of basmati rice in Chittoor district of Andhra Pradesh. Major retailers in the district were identified and five retailers were randomly chosen for the study. Thirty consumers visiting each retail shop were identified and randomly selected; the total sample size is 150. The collected data was analysed by using Likert scale and factor analysis. Seasoning factor was the most considered factor for purchase the basmati rice.

Keywords: Basmati rice, chittoor district, consumers' preferences

INTRODUCTION

Rice (*Oryza sativa L.*) is a dietary staple for about 62.80 per cent of the inhabitants on the planet and account for 20 per cent of the calorie intake of the world population. Rice that possesses an aroma in plant parts and grains are known as scented rice. Basmati rice has always had a special place in countries where rice is the staple. Quality rice is characterized by not only aroma but several other traits like grain length and width, elongation after cooking, *etc*.

Basmati rice constitutes a small but special group of rice which is considered best in quality. This rice has long been popular in the orient and is now becoming more popular in Middle East, Europe and the United States.

The domestic consumption of basmati rice is expected to grow at a healthy CAGR of 15 per cent over the medium term, buoyed by the increasing spending power of the middle-income sections of the society. Moreover, the proliferation of the modern retailing format has helped the consumption of a higher quantum of branded products, as Indian consumers are fast embracing the mall culture and organized retail, triggering a shift from unbranded to branded rice and from economy to premium brands.

METHODOLOGY

The study was undertaken in Chittoor district of Andhra Pradesh. The list of major retailers in the district was identified and five retailers were randomly chosen for the study. Thirty consumers visiting each

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retail shop were randomly selected and interviewed. The total sample size was 150. The collected data was analysed by using Likert's scale technique and Factor analysis in SPSS software.

A Likert scale is a psychometric scale commonly involved in research that employs questionnaires. It is the most widely used approach to scaling responses in survey research.

A Likert item is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective criteria and the level of agreement or disagreement is measured and according to the score is given.

Response	Score
Strongly disagree	1
Disagree	2
Neutral	3
Agree	4
Strongly agree	5

The scores were summed up, and the mean of each attribute was calculated and satisfaction levels were ranked based on it. The mean score was used for simple comparison of the level of satisfaction. The mean score was calculated by using the following formula:

Mean score = $\sum_{i=1}^{n} \mathbf{wixi} / \sum_{i=1}^{n} \mathbf{xi}$

^{W}i = Weight of the variable.

^{X}i = Variable.

Factor Analysis

Factor analysis is a multivariate technique in which, most commonly employed factor analytic procedures in marketing applications are principal and common factor analysis. The major objective to employ this analysis is to determine the variables which influence the purchase intention of sample consumers for basmati rice.

Principal component analysis can accommodate a large number of variables and reduce the information to a convenient size. The inter-relationship among a set of many interrelated variables are examined and represented in terms of a few underlying factors or dimensions that explains the correlation among a set of variables. This assumes that the observed variables are linear combinations of some underlying source variables, which are known as factors.

The factor analysis program uses the correlation matrix as input to identify interrelations between variables. Using those correlations one can see what information and hypotheses can be obtained. Factor loadings provide the correlation between the variable and the underlying dimension. The product of corresponding factor loadings can obtain the correlation between any two variables.

Since the objective of the factor analysis is to represent each of the variables as linear combination of the smaller set factors, we can express this as

$X1= \lambda 11F1 + \lambda 12F2+\ldots+ \lambda\ 1m\ Fm+ e1$

$X2= \lambda 21F1 + \lambda 22F2+\ldots+ \lambda\ 2m\ Fm+ e2$

… … … … … …

… … … … … …

$Xn= \lambda n1F1 + \lambda n2F2+\ldots+ \lambda\ nm\ Fm+ en$

Where,

X1 to Xn= Standardized scores

F1-Fn= Standardized factor scores

$\lambda 11$-λmn= Factor loadings

e1-en= Error variance

The maximum number of factors possible is equal to the number of variables. However, small number of factors by themselves may be sufficient for retaining most of the information on the original variables.

To identify the underlying factors and to investigate the relationship among the variables that influence the consumer's purchase intention towards basmati rice, factor analysis was applied. For this study, a total of 19 variables on various aspects were selected.

The consumers were asked to indicate their responses on a 5 point scale, whether they strongly disagree, disagree, neutral, agree and strongly agree.

The responses of the consumers were recorded and score was given for each factor, then scores were added to obtain the total score. To test the sampling adequacy, the Kaiser-Meyer-Olkin measure of sampling adequacy was calculated. The Bartlett's test of sphericity was employed to test the validness of factor analysis. Principal component analysis was employed for extracting the factors. The varimax normalized method was used to find a new factor that was easier to interpret. The variables with communalities greater than 0.50 were retained. The factors with Eigenvalues greater than 1.0 were considered and the analysis was conducted.

RESULTS AND DISCUSSION

Socio-economic characteristics of sample respondents: About 73.33% of sample respondents in the study area were female. The respondents varied in their age group, employment and income status. The largest portions of the respondents, (57.33%) were in between 25-35 years of age group, indicating that a younger person in the family makes a decision on buying of essential foods such as basmati rice. Literacy status shows that the greater percentage of respondents was graduates (69.33%). So they can assess the quality of basmati rice varieties consumed and are probably in a more convenient financial position to buy rice than some of their illiterate counterparts. About 47.33% of the respondents had their monthly income between Rs. 25,001 to Rs.50,000, followed by less than Rs. 25,000 (22.67%). Most of the married sample consumers were self-employed. Family size was calculated by totaling the number of occupants residing in the house. Over 66.67% of the respondent's family size was between three to five persons followed by 27.33% of respondents having more than five members. This type of family prefers cooking at home instead of eating out at restaurants which is costly.

Purchasing pattern of sample respondents for basmati rice: The purchasing pattern of sample respondents for basmati rice was studied in terms of consumption duration, frequency of purchase, place of purchase, mode of purchase, source for purchase, quantity of purchase and brand preference of basmati rice. About 81.3 per cent of sample respondents were consuming basmati rice for more than three years and 47.3 per cent of the consumers were purchasing on special occasions. The results show that 31.3 per cent of the consumers were purchasing few times in a year and 55.3 per cent of the consumers were purchasing in supermarket and consumers did not prefer online for purchasing the basmati rice. About all the sample respondents were purchasing basmati rice by going to shops personally. About 26.0 per cent of the sample consumers were using advertisements as their source of information to purchase basmati rice followed by friends (26%), relatives (22.7%) and offers (8%). 33.3 per cent of sample consumers were purchasing less than 1 kg of basmati rice per month and brand preference for basmati rice was more important to only 41.3 per cent of the sample respondents.

Factors Impacting the Purchase Intention of Sample Respondents for Basmati Rice

Principal components analysis: By using SPSS software factor analysis was employed to analyse the most considered factor which impacting the purchase intention of sample consumers. Explanation of the variables is one of the most important representations for factor analysis as it defines the per cent of variance defined by each component. Since those components with Eigenvalue greater than one were considered, the first six components taken as factors. The variations explained by each factor are given in Table 1.

It is inferred from Table 2 that first six components explained 61.995 per cent of the total variance. Factor 1 explains about 15.13 per cent of the variation followed by factor 2 (12.13 per cent), factor 3 (10.19 per cent), factor 4 (9.09 per cent), factor 5 (7.77 per cent) and factor 6 (7.69 per cent).

Table.1. Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.251	22.376	22.376	4.251	22.376	22.376	2.874	15.125	15.125
2	2.318	12.201	34.577	2.318	12.201	34.577	2.304	12.128	27.253
3	1.515	7.974	42.551	1.515	7.974	42.551	1.937	10.193	37.446
4	1.438	7.566	50.117	1.438	7.566	50.117	1.726	9.086	46.532
5	1.228	6.461	56.578	1.228	6.461	56.578	1.477	7.773	54.305
6	1.029	5.417	61.995	1.029	5.417	61.995	1.461	7.690	61.995

Rotated Component Matrix: Varimax rotation was applied in the factor analysis to determine the number of factors. The criteria used for the analysis were that a component loading of 0.5 or more was considered to be a significant loading and with an Eigenvalue of more than one and hence, the rotated components of these nine that have an Eigenvalue of more than one and hence, the rotated components of these six factors are considered. The component loadings for these six factors are presented in Table 2.

It is inferred from the Table. 2 that the variable (attributed to taste) has the highest factor loading of 0.590 and was represented in factor one, the variable (attributed to grain size) has the highest factor loading of 0.553 and was represented in factor five, the variable (attributed to aroma) has the highest factor loading of 0.655 and was represented in factor one, the variable (attributed to colour) has the highest factor loading of 0.720 and was represented in factor three, the variable (attributed to appearance) has the highest

Table 2. Rotated component matrix

	Component					
	1	2	3	4	5	6
Attributed to taste	**.590**	.069	.336	-.019	-.373	.186
Attributed to grain size	-.296	.071	-.359	-.350	**.553**	-.057
Attributed to aroma	**.655**	.049	.362	.097	-.184	.052
Attributed to colour	.205	.183	**.720**	-.313	-.007	-.058
Attributed to appearance	**.766**	.087	.179	.078	.041	.005
Attributed to nutritive value	-.194	-.004	-.599	-.173	.177	-.102
Attributed to premium quality than conventional one	.069	-.031	.444	.017	-.030	**.676**
Attributed to increase in grain size after cooking	-.177	.197	-.366	**.653**	-.145	-.057
Attributed to after cooking shelf life	.200	.017	-.110	-.069	-.158	**.794**
Attributed to ease of cooking	-.100	-.059	-.115	-.603	.004	.379
Attributed to better texture after cooking	.361	-.194	.050	.094	**.617**	-.023
Attributed to less stickiness after cooking	.140	-.086	.057	-.044	-.630	.103
Reference group/peer group/social interactions	.291	.068	.140	**.636**	.320	.246
Friends/relatives	.498	.222	.401	.085	.147	.018
Offers	-.044	**.688**	.284	.193	.092	-.066
Retailers	-.165	**.689**	.002	.441	.001	.248
Advertisements	.353	**.751**	.092	-.057	-.010	-.049
Mass media	.303	**.755**	-.138	-.053	-.084	-.035
Fashion to consume	**.727**	.162	-.060	-.073	.017	.175

factor loading of 0.766 and was represented in factor one, the variable (attributed to premium quality than conventional one) has the highest factor loading of 0.676 and was represented in factor six, the variable (attributed to increase in grain size after cooking) has the highest factor loading of 0.653 and was represented in factor four, the variable (Attributed to after cooking shelf life) has the highest factor loading of 0.794 and was represented in factor six, the variable (Attributed to better texture after cooking) has the highest factor loading of 0.617 and was represented in factor five, the variable (Reference group/peer group/social interactions) has the highest factor loading of 0.636 and was represented in factor four, the variable (Offers) has the highest factor loading of 0.688 and was represented in factor two, the variable (Retailers) has the highest factor loading of 0.689 and was represented in factor two, the variable (Advertisements) has the highest factor loading of 0.751 and was represented in factor two, the variable (Mass media) has the highest factor loading of 0.755 and was represented in factor two and the variable (Fashion to consume) has the highest factor loading of 0.727 and was represented in factor one.

Grouping of the Extracted Factors: The variables which had influenced the purchase intention of consumers for basmati rice were grouped based upon a loading of 0.5 or greater than 0.5. The named factors are listed in Table 3.

Factors Impacting the Purchase Intention of Sample Respondents: The scores of group of variables under each factor were summed up and the mean of each factor was calculated by using SPSS software and the results are provided in Table 4.

It is inferred that the highest mean score (4.33) was obtained for seasoning factor followed by colour factor (4.14). The mean scores of publicity factor, cooking factor, physical & influential factor and keeping quality factor were 3.44, 3.19, 2.76, and 2.55 respectively.

Table 4: Factors Impacting the Purchase Intention of Sample Respondents

Factors	Mean score	Rank
Seasoning Factor	4.33	I
Publicity Factor	3.44	III
Colour Factor	4.14	II
Physical & Influential Factor	2.76	V
Cooking Factor	3.19	IV
Keeping Quality Factor	2.55	VI

Table 3. Grouping of the extracted factors

Factor number	Factor name	Variables Under Factor	Factor Loadings
Factor I	Seasoning Factor	Attributed to taste	0.590
		Attributed to aroma	0.655
		Attributed to appearance	0.766
		Fashion to consume	0.727
Factor II	Publicity Factor	Offers	0.688
		Retailers	0.689
		Advertisements	0.751
		Mass media	0.755
Factor III	Colour Factor	Attributed to colour	0.720
Factor IV	Physical &Influential Factor	Attributed to increase in grain size after cooking	0.653
		Reference group/peer group/social interactions	0.636
Factor V	Cooking Factor	Attributed to grain size	0.553
		Attributed to better texture after cooking	0.617
Factor VI	Keeping Quality Factor	Attributed to premium quality than conventional one	0.676
		Attributed to after cooking shelf life	0.794

Seasoning factor was majorly considered by sample respondents in purchasing basmati rice which includes taste, aroma, appearance and fashion to consume, followed by colour factor.

CONCLUSION

The study concluded that the greater percentage of sample consumers was under the age group of 25-35 years. Majority of the sample consumers had a monthly income of Rs. 25,001-50,000 and most of the consumers were self-employed. The greater percentage of the sample consumers was having family size of 3-5 members. The greater percentage of sample consumers was buying basmati rice for more than three years. The frequency of purchase of basmati rice revealed that the greater percentage of consumers was buying basmati rice on special occasions. The possible reason for this behaviour was the price of the basmati rice and due to their income levels. The greater percentage of the purchase was in supermarkets due to the availability of different brands at single place, offers and the discounts offered by the respondents. Advertisements were the major source of information to purchase basmati rice. The greater percentage of quantity of purchase ranged between 1-2 kg per month due to price of basmati rice, family size and frequency of consumption. Sample consumers seemed to thrust the brand of basmati rice and brand with consistent quality is likely to increase the purchase of basmati rice. The result shows that seasoning factor was majorly considered by sample respondents in purchasing basmati rice which includes taste, aroma, appearance and fashion to consume, followed by colour factor.

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REFERENCES

Agbogo, E. A., Udouso, Aniedi, B. And Tiku, Ejor N., (2013), Analysis of Factors Affecting Rice Consumption in Cross River State, Nigeria. *Journal of Agriculture and Veterinary Science*, 4(2), 29-33.

Al-Hassan, R. M., Agbekpornu, H. G., Andsarpong, D. B. (2008). Consumer preferences for rice quality characteristics in Accra and the effects of these preferences on price. *Agricultural and Food Science Journal of Ghana*, 7, 575-591.

Kassali, R., Kareem, R. O., Oluwasola, O., & Ohaegbulam, O. M. (2010). Analysis of Demand for Rice in Ile Ife, Osun State, Nigeria. Journal of Sustainable Development in Africa, 12(2), 63-78.

Supakornchuwong, C and Suwannaporn, P. (2012). Attitudes towards rice compared with potatoes and pasta among British, French, Dutch and Belgian consumers. *Journal of Sensory Studies*, 27, 71–77.

Zhigang, W., Jiajie, L., Shi, Z., Masahiro, M and Susumu, F. (2013). Factors affecting Chinese consumer awareness and acceptance of Japanese rice. *Journal of the Faculty of Agriculture Kyushu University,* 58(2), 459-465.