

CONSTRAINTS FACED BY URBAN CONSUMERS IN CONSUMPTION OF DAIRY PRODUCTS

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ABSTRACT

The present study was undertaken to identify various constraints faced by urban consumers and to assess the interrelationships between constraint score in consumption of dairy products and the socio-demographic factors. For this research work, Chennai metro city was purposively selected due to its massive urbanization. A total of 195 household dairy products consumers were selected by a simple random sampling procedure from North, Central and South regions of Chennai city (65 from each) and primary data was collected with the help of well-structured and pre tested interview schedule. The results indicated that the major constraints faced by consumers in consumption of dairy products was in the order of poor accessibility, insufficient supply, poor shopping environment, outlet not open on all the days, non-availability in preferred quantity and poor packaging. The results indicated that the variable, monthly family income was found to be positively influencing the constraint score whereas, family size, hindu religion, educational status of the head of the household and presence of children in the family were found to be negatively influencing constraint score in consumption of fluid milk whereas in case of ghee, khoa and ice cream, the variable, food habit of the family was found to be positively influencing the constraint score whereas, family size, monthly family income, educational status of the head of the household and presence of children in the family was found to be negatively influencing constraint score in consumption of ghee, khoa and ice cream.

Keywords: Consumer, Constraints, Consumption, Dairy Products, Urban areas.

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INTRODUCTION

Dairying in India has come forth as an important sub-sector with an encouraging growth rate of five per cent over the years. India has emerged as the largest producer of milk with 20.17 per cent share in total milk

production in the world (Animal Husbandry Policy Note, 2020-21). The milk group forms the bulk of the livestock GVA (Gross Value Added), and its value-output is growing at 13 per cent (Pai, 2020). The country is the world largest milk producer, contributing 18.5% of the world's total milk production (FAO Agricultural Outlook, 2016-2025, Economic Survey, 2015-16). At the same time, India is the world's largest consumer of dairy products as it consumes almost 100% of its own milk production and even started to import as the demand is skewed towards dairy products. The dairy sector stretch its hand to 150 million farm households by providing nutritive food, supplementary income and productive employment for family labour, mainly for women (Payal *et al.*, 2018). Indian Dairying contributes about 5.3 per cent to India's agricultural GDP, milk is a leading agricultural produce (Belhekar and Dash, 2016). During the post independence period, the dairy sector showed increase in growth rate (Ashish, 2017).

Dairy products are considered as cheap and nutritious food to millions of people in India as it is the only acceptable source of animal protein for large vegetarian segment of Indian population (Amit and Monojit, 2015); it will protect against the most prevalent chronic diseases (Thorning *et al.*, 2016); it will supply energy and high-quality protein with a range of essential micronutrients in an easily absorbed form (Górska-Warsewicz *et al.*, 2019; Hossain *et al.*, 2016) and it is considered as essential food for child consumers as helps in healthy development and growth (Žáková Kroupová *et al.*, 2020). In connection with the recent

situation from the pandemic of the COVID-19, milk consumption is becoming vital, as it has been shown to have positive effects on consumers' immunity and its strengthening (Kubicova, 2021). Today's consumers are placing increasing importance on food quality, food safety and environmental quality more than ever (Harish and Asokan, 2019). A number of factors can influence purchasing behavior of consumers, in which, income is seems to be the most influential factor followed by price factor. The consumers face various limitations in reaching out the desired product with desired quality. The present study was undertaken to identify various constraints faced by urban consumers and to assess the interrelationships between constraint score in consumption of dairy products and the socio-demographic factors.

MATERIALS AND METHODS

For this research work, Chennai metro city, the capital of Tamil Nadu was purposively selected. The most observable fact in Chennai city is its massive urbanization (100 per cent). Chennai city has three regions viz., North, Central and South. From each region, 65 household dairy products consumers were selected by a simple random sampling procedure thus yielding a total sample size of 195 household consumers for the study. A survey method was adopted for the collection of primary data from consumers with the help of well-structured and pre tested interview schedule. The data collected from household consumers were tabulated and analyzed. The tools used for the analysis of the data are presented and discussed below:

Garret's ranking technique was adopted to rank the constraints faced by urban consumers in the study area. A list of constraints was given to the consumers to rank it (1 to 13). The order of merit given by the respondents was converted into ranks (Garret and Woodworth, 1969).

$$\frac{100(R_{ij} - 0.50)}{N_j} \text{ Percent position} =$$

Where,

R_{ij} = Rank given for i^{th} factor by j^{th} individual

N_j = Number of factors ranked by j^{th} individual.

These mean scores for all the reasons were arranged in descending order and the most important reason for the preference of dairy products was ranked first and the least important reason was ranked as the last.

In order to assess the interrelationships between constraint score in consumption of dairy products and the socio-demographic factors, as described by Rani *et al.* (1999), Semi-log function was fitted. The functional form was as below:

$$\ln Y_{1 \text{ to } 4} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \mu$$

Where,

Y_1 = Constraint score in consumption of fluid milk; Y_2 = Constraint score in consumption of ghee; Y_3 = Constraint score in consumption of khoa; Y_4 = Constraint score in consumption of

ice cream; X_1 = Family size in consumption units; X_2 = Age of the head of the household – continuous; X_3 = Educational status of the head of the household (0 – If illiterate; 1 – If primary; 2 – If secondary; and 3 – If College); X_4 = Family income in Rupees; X_5 = Dummy - Hindu religion (1 – If the household is a Hindu; 0 – otherwise).

X_6 = Dummy - Christian religion (1 - If the household is a Christian; 0 – otherwise); X_7 = Dummy – Presence of Child in the family (1 – If a family had a child (ren) below 14 years; 0 – otherwise); X_8 = Dummy – Presence of Aged person (1 - If household with aged person(s) above 60 years; 0 – otherwise).

X_9 = Dummy - Food habit of the family (1 - If non – vegetarian; 0 – otherwise); X_{10} = Dummy - Type of family (1 – If nuclear; 0 – joint); α = Intercept; β_i = Regression coefficients to be estimated; μ = stochastic disturbance term.

RESULTS AND DISCUSSION

The ranks for the constraint involved in consumption of dairy products were collected from the sample household consumers; scores were calculated and compared for their order of importance. Based on the total scores obtained for each constraint, they were ranked and the results are presented in Table I. The results revealed that poor accessibility was considered as first and foremost constraint faced by consumers in consumption of fluid milk. This might be due to less number of preferred outlets, thus made consumers to reach for the products. In the study conducted by Abinaya and Santhi, (2018a) revealed that

easy accesses' as the prime consideration for selecting the particular store to purchase dairy products. The other major constraints faced by consumers in consumption of fluid milk were in the order of insufficient supply, poor shopping environment, outlet not open on all the days, non-availability in preferred quantity and poor packaging. Insufficient supply was the first important constraint for the household consumers in consumption of flavoured milk from retail outlets, as there is more demand for flavoured milk due to its taste and safety to have followed by other constraints like poor accessibility, poor packaging, low shelf life and outlet not open on all the days. Similarly, improper packing was the foremost reason in the study conducted by Abinaya and Santhi, (2018b). Poor shopping environment, not available in preferred quantity and insufficient supply was considered as foremost constraint faced by consumers while purchasing of butter milk, ice cream and ghee, respectively. The results indicated that in case of consumption of paneer, khoa and chocobar, outlet not open on all the days, unreliable supply and poor shopping environment was the foremost constraints perceived by consumers on consumption, respectively.

In order to examine whether the constraint score given by consumers on consumption of major dairy products could be attributed to variations in the socio-economic factors, a separate logistic regression function was fitted and the results of the same was presented in the Table II. The regression model showed a good fit with the adjusted R^2 of 0.576, indicating that 57.60 per cent

of variation in the dependent variable was explained by the independent variables incorporated. The ANOVA also exhibited that the model had a good fit with a significant 'F' value of 48.486. Of the independent variables, only variable, monthly family income was found to be positively influencing the constraint score whereas, family size, hindu religion, educational status of the head of the household and presence of children in the family was found to be negatively influencing constraint score in consumption of fluid milk. Income, price, and availability of milk and dairy products affect how dairy consumers buy and use milk and dairy products (Kabir, 2016). This implied that less number of family size, not belong to hindu religion, less educated and absence of children in the family will cause the constraint score to rise.

The regression model showed a good fit with the adjusted R^2 of 0.575, indicating that 57.50 per cent of variation in the dependent variable was explained by the independent variables incorporated. The ANOVA also exhibited that the model had a good fit with a significant 'F' value of 48.224. Of the independent variables, only variable, food habit of the family was found to be positively influencing the constraint score whereas, family size, monthly family income, educational status of the head of the household and presence of children in the family was found to be negatively influencing constraint score in consumption of ghee. The results indicated that the food habit of the family positively influenced the constraint score in consumption of ghee by 157.40 per

Table I: Constraints involved in the consumption of Milk and Milk products

S. No	Constraints	Milk products															
		Fluid milk		Flavoured milk		Butter milk		Ice cream		Ghee		Pancar		Khoa		Chocobar	
		Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank	Score	Rank
1	Not available in preferred quantity	68.0	V	69.3	IX	62.0	VIII	77.2	I	76.8	IV	38.0	VIII	74.7	III	58.0	XI
2	Insufficient supply	76.2	II	76.6	I	75.8	IV	72.2	V	80.6	I	67.5	IV	76.9	II	84.0	III
3	Unreliable supply	58.0	X	71.9	VIII	47.0	IX	76.0	II	70.2	IX	74.4	III	78.3	I	81.3	IV
4	Low shelf life	59.7	IX	72.9	V	73.0	VI	69.4	VIII	73.8	VI	67.0	V	72.1	VIII	42.0	XIII
5	Poor accessibility	76.7	I	76.2	III	84.3	II	66.0	XI	78.4	III	62.3	VI	73.1	V	84.2	II
6	Inconvenient store timings	63.1	VIII	76.3	II	68.7	VII	74.7	IV	71.5	VIII	58.0	VII	73.6	IV	71.9	VI
7	Staff poor attitude	55.0	XII	65.0	XI	26.0	XI	65.7	XII	26.0	XII	26.0	X	67.5	X	44.5	XII
8	Outlet is not open on all the days	68.4	IV	72.6	VI	75.5	V	70.9	VI	78.7	II	84.0	I	72.7	VII	73.0	V
9	Comparably expensive	50.0	XIII	72.3	VII	84.0	III	67.1	X	47.3	XI	16.0	XI	70.4	IX	67.0	VII
10	Poor taste	56.3	XI	47.0	XIII	26.0	XI	70.3	VII	16.0	XIII	33.0	IX	67.0	XI	58.8	X
11	Poor hygiene	64.2	VII	54.0	XII	38.0	X	69.0	IX	73.0	VII	26.0	X	54.0	XIII	64.5	VIII
12	Poor shopping environment	75.5	III	68.4	X	84.7	I	53.3	XIII	75.1	V	80.0	II	57.1	XII	84.5	I
13	Poor packaging	64.3	VI	75.5	IV	16.0	XII	75.4	III	58.7	X	38.0	VIII	73.0	VI	62.0	IX

Table II: Constraints involved in consumption of Milk and Milk products

Explanatory factors	Explained variables			
	Fluid milk	Ghee	Khoa	Ice cream
(Constant)	29.856**	27.111**	27.687**	29.820**
Family size	-0.869**	-0.785**	0.089	-0.995**
	(0.201)	(0.184)	(0.156)	(0.129)
Age of the household head	-0.002	0.002	-0.003	0.034
	(0.026)	(0.026)	(0.024)	(0.022)
Hindu	-1.144*	-0.528	-0.431	0.099
	(0.363)	(0.364)	(0.330)	(0.301)
Christian	0.329	0.706	0.479	-0.173
	(0.439)	(0.423)	(0.386)	(0.353)
Education level of the household head	-0.666**	-0.478*	0.052	-0.023
	(0.172)	(0.157)	(0.141)	(0.143)
Food habit	-0.526	1.574**	1.176**	0.225
	(0.363)	(0.401)	(0.372)	(0.368)
Type of family	-0.282	-0.358	-0.277	-0.026
	(0.310)	(0.313)	(0.284)	(0.256)
Aged	0.424	-0.109	1.495**	-0.527
	(0.341)	(0.305)	(0.331)	(0.259)
Child	-1.044*	-1.864**	-0.608*	-1.007**
	(0.354)	(0.367)	(0.258)	(0.313)
Monthly Income	0.964**	-0.866**	-0.583**	-0.977**
	(0.284)	(0.200)	(0.178)	(0.276)
R²	0.588	0.587	0.658	0.719
Adjusted R²	0.576	0.575	0.648	0.711
'F' value	48.486**	48.224**	65.229**	86.784**

Figures in parentheses indicate standard errors.

Dependent variable: Constraint intensity per household

**Significant ($P \leq 0.05$); ** Significant ($P \leq 0.01$)*

cent from the mean level, *ceteris paribus*. This indicated that family belongs to non-vegetarians, constraint score raises, which means vegetarians tend to have higher demand for ghee when compared to non-vegetarians. This implied that less number of family size, less educated less monthly income and absence of children in the family will cause the constraint score to rise.

The regression model showed a good fit with the adjusted R^2 of 0.648, indicating that 64.80 per cent of variation in the dependent variable was explained by the independent variables incorporated. The ANOVA also exhibited that the model had a good fit with a significant 'F' value of 65.229. Of the independent variables, only variable, food habit of the family was found to be positively influencing the constraint score whereas, family size, monthly family income, educational status of the head of the household and presence of children in the family was found to be negatively influencing constraint score in consumption of khoa. The results indicated that the food habit of the family and presence of aged person in the family positively influenced the constraint score in consumption of khoa by 117.60 per cent and 149.50 per cent from the mean level, respectively, *ceteris paribus*. This indicated that family belongs to non-vegetarians and presence of aged person in the family, constraint score raises, which means vegetarians tend to have higher demand for khoa when compared to non-vegetarians and aged persons tend to avoid the consumption of khoa giving importance to health issues. This implied that less monthly

income and absence of children in the family will cause the constraint score to rise. The regression model showed a good fit with the adjusted R^2 of 0.711, indicating that 71.10 per cent of variation in the dependent variable was explained by the independent variables incorporated. The ANOVA also exhibited that the model had a good fit with a significant 'F' value of 86.784. Of the independent variables, variables such as family size, monthly family income and presence of children in the family were found to be negatively influencing the constraint score given by consumers in consumption of ice cream. This implied that less number of family size, less monthly income and absence of children in the family will cause the constraint score to rise.

CONCLUSION

It is concluded that the consumption of dairy products per consumption unit was increasing with the increase in family income i.e. the demand for dairy products are income elastic. Hence, in developing countries like India, where the per capita income is on rise, will definitely result in increasing demand for dairy products. This imparts the need to enhance the production of quality dairy products, together with organized distribution system. Since the dairy products are of highly perishable nature, there would arise a need for well knit dairy products processing system to meet the ever growing demand for various dairy products. A producer can analyze the part-worth utilities of each of the attribute to ascertain how he can increase the consumer's utility from the product. Also, the producer

has to focus on various aspects so as to reach the targeted customers with right product and quantity at right place and time. These results have the potential to assist in the construction of a market strategy which in turn helps in increasing their sales and profit.

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