Original Research Article

AN EMPIRICAL ANALYSIS ON BUYING BEHAVIOUR OF FLUID MILK CONSUMERS IN MEHSANA DISTRICT, GUJARAT

ABSTRACT

The purpose of the study was to understand the socio-economic profile of consumers, buying behaviour and factors influencing the consumption expenditure of fluid milk in Mehsana district. Four talukas were selected for the study: Mehsana, Unjha, Becharaji and Jotana. A sample size of 160 consumers provided insights into various aspects of buying behaviour through an interview survey schedule research methodology for the survey. Percentage analysis, Tabular analysis and Regression analysis were used to interpret data. The study highlighted distinct demographic and socio-economic trends among rural and urban households. In rural areas, the majority of households were characterized by older individuals, while urban areas had a younger demographic. Male respondents predominated in both rural and urban areas, with families typically consisting of up to 5 members in both households. Hinduism was the predominant religion and primary education prevailed in rural areas, while higher secondary education was more common in urban areas. Married, nuclear families were prevalent across both rural and urban areas. Monthly expenditure fell within the medium range for the majority of households, with service occupation being the most common employment type. Monthly income fell within the medium range for the majority of households. In rural areas, the majority of consumers preferred home-produced milk, while urban consumers mostly bought from milkmen, while most opting for unbranded milk paid in cash. Majorly consumers bought fluid milk, typically in the morning, once a day, in purchasing quantities up to 40 liters/month in both rural and urban areas. The coefficient of multiple regression (R^2) that describes the factors influencing consumption expenditure on fluid milk was 0.9052 in rural areas and 0.7572 in urban areas. Consumer's purchasing behavior for fluid milk reflects their preference for sourcing from stores or milkmen and their decision to make or buy milk products.

Keywords: Socio economic, Buying behaviour, Consumption Expenditure, FluidMilk, Mehsana, Survey Schedule, Regression analysis.

1. INTRODUCTION

Milk is called *Payas, Dugdha* and *Kshira* in Sanskrit. Milk and dairy products are crucial elements of the human diet. Milk provides much needed animal protein essential to the infants and vegetarian population in India. For centuries, milk from various animals like cow, buffalo, goat and camel has been used in the diet of people throughout the world. Milk is the pivotal product of livestock, which contributes about 68.00 per cent of value of output from livestock sector of the total livestock product. Milk is also essential for individual for healthy life. According to the Indian Council of Medical Research, a person requires 240 grams of milk daily for a healthy life (Anonymous, 2024).[1]

The importance of milk and milk products in human nutrition has been wide since the dawn of civilization. The examination of milk and milk products consumption patterns is critical in the formation of a development plan in a developing economy. In India, there is a rising market for livestock goods and it is well established that consumer preferences are shifting toward high-

value items such as fruits and vegetables, milk and milk products, meat and eggs (Kumar *et al.*, 2011). [2]

Milk is essential for human growth and development, body maintenance and disease prevention. Cow milk generally contains between 3 and 4 g of fat /100g, although values as high as 5.5 g/100g have been reported in raw milk. Dairy is a vital part of the global food system, providing economic, nutritional and social benefits to a large proportion of the world population, with up to one billion people living on dairy farms, dairying plays a major role within the economics of numerous communities, region and countries across the global. Dairy and dairy products provide livelihood to millions of homes in Indian villages. They supply quality milk and its products to people of both urban and rural areas. Dairying has become an essential secondary source of income for millions of rural families. It enhanced socio-economic development during the 21st century is throwing up challenging issues like food security, food safety, quality and their linkages with the national and international markets the demands for the food are increasing (Ahila. D. and Dr. C. Boopathi, 2015) [3]. Humans are consuming milk since the beginning of recorded history, using it to provide both fresh and storable nutritious foods. In certain countries, nearly half of the milk produced is consumed as fresh pasteurized whole, low-fat, or skim milk. However, the majority of milk is processed into more stable dairy products that are traded globally, such as butter, cheese, dried milk, ice cream and condensed milk. Cow's milk (from the bovine species) is the predominant type used worldwide. Other animals utilized for their milk production include buffalo (in India, China, Egypt and Philippines), goats (in Mediterranean countries), reindeer (in Northern Europe) and sheep (in Southern Europe). Generally, the processing techniques developed for cow's milk can be effectively applied to milk from these other species. Dairy plays a significant part in numerous aspects of Indian society, including religion, culture and the economy. India has the world's largest dairy herd with over 300 million bovines, producing over 187.7 million tonnes of milk. India ranks first globally in both milk production and consumption. While most of the milk is consumed domestically, a small portion is also exported. Indian cuisine, especially North Indian cuisine, includes various dairy products such as paneer. Additionally, milk and dairy products are integral to Hindu religious practices and mythology.

World milk production is expected to increase by 01.60 per cent annually between 2020 and 2029 and reach 997 million tonnes in 2029, according to Global scenario milk and milk products and current market status report (Anonymous, 2020) [4]. This report indicates that the rise in milk production is closely linked to the diet. In countries where grazing-based livestock breeding is carried out, milk production increases are mostly related to the number of herds, while in countries where special feeding is common, production increases due to productivity.

As per the Food and Agriculture Organization of the United Nations, approximately 150 million households globally were involved in milk production. While in most of the developing countries production is carried out in small family farms, in developed countries the transformation to large-scale industrial enterprises continues intensely. It is believed that the expansion of herds, particularly the improvement in yield, will positively impact milk production. Enhancements in milk production systems, better animal health, increased feeding efficiency and improved genetics are key factors contributing to productivity growth. The collective annual milk output from these endeavors amounts to around 850 million tonnes. Almost all of this production is obtained from cows, buffalo, goats, sheep and camels. More than 80.00 per cent of the total production from all species is provided only from cows. This rate constitutes almost 100.00 per cent of production, especially in developed countries(Anonymous, 2023). [5]

India is known as the "Milk bowl of the world". India is the world's largest milk producer, accounting for 24.00 per cent of global milk production in 2021-22. The milk production of India has registered 61.00 per cent increase during the last eight years *i.e.,* during the year 2013-14 and 2021-22 and increased to 221.1 million tonnes in the year 2021-22. The milk production has increased by 05.29 per cent over the previous year 2020-21. The survey also added that according to the study conducted by National Dairy Development Board (NDDB) on demand for milk and milk products, the estimated demand for 2030 in India is 266.5 million metric tonnes.

In 2030 projections, the rural sector has an estimated share of 57.00 per cent in total consumption. The per capita consumption of milk and milk products in urban areas is 592 ml

followed by rural areas 404 ml. The milk production is 221.1 million tonnes during 2021-22 increased by 11 million tonnes over previous year. The milk production was 84.4 million tonnes in 2001-02. In 2021-22, the per-capita milk availability was 444 grams per day, an increase of 17 grams per day from the previous year. The per capita availability of milk is 222 gram/day during 2001-02 increased by 100.00 per cent over 20 years. It shows a sustained increase in accessibility of milk and milk products for the rapidly increasing population. The country's total milk production in 2021-22 reached 221.06 million tonnes (Anonymous, 2023).[6]

The topic buying behaviour of consumers has drawn substantial attention in recent years as a field of study. It is dynamic field, and many facts are yet to be covered. Consumers today are well aware of various brands in the market and are becoming more conscious of the available to consumer. They pick and choose carefully according to their need, lifestyles and preferences and nowadays consumers are well informed because of the technology development mainly the mass media.

Buying behaviour on milk and milk products is largely influenced by several factors such as better quality, flavour, colour, freshness, preferred taste, fat content, brand image, price, easy availability, convenience, advertisements, offers, clean and attractive packing, product safety, retailers influence, peer group influence, family members influence, availability of product on credit, availability at required quantity, regular supply and awareness about the brand and socio-economic factors like monthly income of family, age, education level and the like. These factors play a vital role in the decision-making process and consumer buying behaviour.

India holds the distinction of being the world's largest milk producer, a matter of great pride for the country. Among the estimates of total milk production of the country, Gujarat state gives about 07.56 per cent contribution and also enjoys fourth rank among the all state and union territory of the country in the year 2021-22. Gujarat state had contributed 01.79 per cent milk towards the whole world's milk production in the year 2020. This is the unique mile stone for the state. In the year 2021-22, the estimated milk yield per day per milk animal varied across different categories: crossbreed cow, indigenous cow, non-descript cow, indigenous buffalo, non-descript buffalo and goat of the Gujarat state is 9.51 kg, 4.77 kg, 4.11 kg, 5.51 kg, 4.72 kg and 0.50 kg respectively. Whereas milk yield per day of India is 8.32 kg, 4.07 kg, 2.83 kg, 6.62 kg, 4.81 kg and 0.47 kg respectively this shows high productivity as compared to national average (except indigenous and non-descript buffalo). The total estimated milk production for the state during 2021-22 works out to be 16722.11 thousand tonnes, which shows an increase of 5.48 over the previous year's estimate of 15852.69 thousand tonnes(Anonymous, 2023).[6]

- **Objectives of the study**
  - Socio-economic profile of fluid milk consumers in Mehsana district
  - Buying behaviour of fluid milk consumers in Mehsana district
  - Factors influencing the consumption expenditure on fluid milk

2. METHODOLOGY

The study used a descriptive research methodology to understand the characteristics and preferences of fluid milk consumers in the Mehsana district as it has a well established co-operative dairy named Mehsana District Co-operative Milk Producers Union Limited, Mehsana (MDCMPULtd) popularly known as Dudhsagar dairy, (located at Mehsana in Gujarat) one of thelargest co-operative dairy in India.

The sample distribution encompasses four talukas -Mehsana, Unjha, Becharaji and Jotana that were selected randomly and included 160 consumers. 40 consumers from each taluka were selected for the study. Both primary and secondary data were utilized to achieve the study's objectives. Primary data were collected through personal interviews with the consumers using a structured survey schedule, allowing for in-depth insights into consumer's practices and perceptions. Secondary data sourced from literature, private and government publications and websites, provided additional context and background information.

2.1 Simple tabular method

The simple tabular method is a systematic and logical arrangement of data in the form of rows and columns concerning the characteristics of data. It is an orderly arrangement which is compact and self-explanatory. To study the socio-economic profile characteristics namely age, gender, size of family, religion, education level, marital status, type of family, occupation, food habits, monthly expenditure and monthly income of consumers, the simple tabular method was used.

2.2 Frequency and Percentage

Some of the data were subjected to frequencies and percentages and used to know the distribution of the respondents according to selected variables.

- Frequency is the number of items a variable is repeated
- Percentage is the number/ amount/ rate *etc.*, expressed as if, it is part of a total which is 100

$$P = \frac{X}{Y} \times 100$$

Where,

X = Number of respondents falling in specific category to be measured

Y = Total number of respondents

2.3 Standard Deviations

Standard deviation is the square root of the mean of sum of the squares of the deviation taken from the mean of the distribution.

$$S = \sqrt{\frac{\sum (X_i - \overline{X})^2}{n-1}}$$

Where,

S = Standard deviation

X_i = Sum of the deviation of the scores form the mean

$\sum$ = Summation

n = Number of items

$\overline{X}$ = Mean

2.4 Mean Score

Mean score is calculated for assigning the ranks. The mean score was obtained by total scores of an item divided by the total number of consumers. The mean was calculated by using the following formula.

$$\overline{X} = \frac{\sum X_i}{n}$$

Where,

$\overline{X}$ = Mean

n = Total number of respondents

X_i = Value of the i^{th} respondents

2.5 Regression analysis

Multiple regression analysis was used to look at the variables that influence the amount of money spent on milk. It is used to assess the strength of relationship between dependent and independent variables.

The regression function is used in the following way:

$C_{ij} = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9)$

Where,

C_{ij} = For the j^{th} household, per capita monthly expenditure on milk for the i^{th} item
X_1 = Household's education score (Illiterate-1, primary level-2, secondary level-3, higher secondary-4, graduation/post-graduation-5)
X_2 = Average age of family members
X_3 = Total quantity of milk purchase
X_4 = Price of milk
X_5 = Size of family
X_6 = Dependency ratio
X_7 = Monthly income (Rs.)
X_8 = Monthly saving (Rs.)
X_9 = Monthly per capita expenditure other than milk

3. RESULTS AND DISCUSSION

A survey of 160 consumers provided insights into various aspects of buying behaviour including age, gender, size of family, religion, education level, marital status, type of family, occupation, food habits, monthly expenditure, monthly income of consumers and factors influencing the consumption expenditure on milk.

3.1 Socio-economic profile of fluid milk consumers

Several socio-economic factors influence the buying behaviour of fluid milk consumers. These factors can be grouped as follows:

Table 1: Socio-Economic Profile of Fluid Milk Consumers in Mehsana district

Sr. No.	Particulars	Rural (n=80)		Urban (n=80)	
		F	%	F	%
1.	Age (Years)				
a.	Young (18 to 35 year)	13	16.25	32	40.00
b.	Middle (36 to 50 year)	27	33.75	27	33.75
c.	Old (Above 51 year)	40	50.00	21	26.25
	Total:	80	100.00	80	100.00
2.	Gender				
a.	Male	45	56.25	40	50.00
b.	Female	35	43.75	40	50.00
	Total:	80	100.00	80	100.00
3.	Size of family				
a.	Up to 5	58	72.50	66	82.50
b.	6 to 10	21	26.25	14	17.50
c.	More than 10	01	01.25	00	0.00
	Total:	80	100.00	80	100.00

4.	Religion				
a.	Hindu	58	72.50	57	71.50
b.	Jain	10	12.50	06	07.50
c.	Muslim	09	11.25	17	21.25
d.	Christian	03	03.75	00	0.00
	Total:	80	100.00	80	100.00
5.	Education level				
a.	Illiterate	04	05.00	06	07.50
b.	Primary level (1^{st} to 8^{th} Std.)	29	36.25	14	17.50
c.	Secondary level (9^{th} and 10^{th} Std.)	23	28.75	18	22.50
d.	Higher secondary (11^{th} and 12^{th} Std)	15	18.75	22	27.50
e.	Graduation/Post-graduation	09	11.25	20	25.00
	Total:	80	100.00	80	100.00
6.	Marital status				
a.	Married	68	85.00	67	83.75
b.	Unmarried	03	03.75	06	07.50
c.	Widow	09	11.25	07	08.75
	Total:	80	100.00	80	100.00
7.	Type of family				
a.	Nuclear	58	72.50	67	83.75
b.	Joint	22	27.50	13	16.25
	Total:	80	100.00	80	100.00
8.	Occupation				
a.	Farming	16	20.00	01	01.25
b.	Animal husbandry	04	05.00	05	06.25
c.	Farming + Animal husbandry	18	22.50	02	02.50
d.	Business	15	18.75	17	21.25

e.	Labour	05	06.25	20	25.00
f.	Pensioner	01	01.25	06	07.50
g.	Service	21	26.25	29	36.25
	Total:	80	100.00	80	100.00
9.	Food habit				
a.	Vegetarian	68	85.00	63	78.75
b.	Non-vegetarian	12	15.00	17	21.25
	Total:	80	100.00	80	100.00

**(F-Frequency, % -Percentage)*

Table 2: Monthly expenditure of consumers in rural and urban areas

Sr. No.	Range	Rural (n=80)		Range	Urban (n=80)	
		F	%		F	%
1.	Low (₹≤9000)	13	16.25	Low (₹ ≤ 12000)	03	03.75
2.	Medium (₹9001-31000)	58	72.50	Medium (₹ 12001-30000)	65	81.25
3.	High (₹≥31001)	09	11.25	High (₹ ≥ 30001)	12	15.00
	Total:	80	100.00	Total:	80	100.00

**(Mean, S.D.)*

Table 3:Monthly income of consumers in rural and urban areas

Sr. No.	Range	Rural (n=80)		Range	Urban (n=80)	
		F	%		F	%
1.	Low (₹ ≤ 11000)	00	0.00	Low (₹ ≤ 17000)	00	0.00
2.	Medium (₹11001-69000)	72	90.00	Medium (₹ 17001 to ₹ 69000)	67	83.75
3.	High (₹ ≥ 69001)	08	10.00	High (₹ ≥ 69001)	13	16.25
	Total:	80	100.00	Total:	80	100.00

**(Mean, S.D.)*

Demographically, majority of the respondents in rural areas fall within the old age group (Above 51 years) *i.e.,* 50.00 per cent, followed by aged 36-50 years with 33.75 per cent and 18-35 years with 16.25 per cent in rural areas. Whereas in urban areas, majority of the respondents fall within the 18-35 years *i.e.,* 40.00 per cent, followed by those aged 36-50 years with 33.75 per cent and with 26.25 per cent old age group (Above 51 years). The majority of respondents have family size up to 5 members with 72.50 per cent, followed by 26.25 per cent were from 6 to 10 family members and 01.25 per cent were more than 10 family members in rural areas. Whereas in urban areas, 82.50 per cent were up to 5 family members followed by 17.50 per cent were from 6 to 10 family members.

Education level varies, with 36.25 per cent having completed schooling up to the primary level, 28.75 per cent up to the secondary level followed by 18.75 per cent have studied till higher secondary level, whereas 11.25 per cent of consumers have studied up to graduation/post-graduation and 05.00 per cent of consumers were reported to be illiterate in rural areas. Whereas in urban areas, 27.50 per cent have completed schooling up to the higher secondary level and 25.00 per cent completed graduation/post-graduationfollowed by 22.50 per cent belonged to secondary level, 17.50 per cent of consumers have studied up to primary level and 07.50 per cent consumers were reported illiterate. The majority of respondents live in nuclear households *i.e.,* 72.50 per cent and 83.75 per cent in rural and urban areas. In terms of occupation, (26.25%) of the consumers had service as their occupation followed by farming with animal husbandry (22.50%), farming (20.00%), business (18.75%), labour (06.25%), animal husbandry (05.00%) and pensioner (01.25%) in rural areas. Whereas in urban areas majority (36.25%) of the consumers had service as their occupation followed by labour (25.00%), business (21.25%), pensioner (07.50%), animal husbandry (06.25%), farming with animal husbandry (02.50%) and farming (01.25%). Similar results were also reported by Ajay Uttam Pawar (1996) in Pune city. [7]

There is a notable gender disparity, with 56.25 per cent of respondents being male and 43.75 per cent of respondents being female in rural areas and in urban areas equal number of consumers were found.Similar results were also reported by Bhopal Singh and R. K. Patel (1984)in Munzaffarnagar district of Western Uttar Pradesh (India) [8]. In food habits, majority of consumers were vegetarian with 85.00 per cent in rural areas and 78.75 per cent in urban areas. Similar results of food habit were also reported by Avinash singh (2021) in Varanasi city.[9] In terms of expenditure, 72.50 per cent of respondents were between ₹9001-₹31000 per month in rural areas and 81.25 per cent of respondents were between ₹12001-₹30000 per month in urban areas. Similar results were also reported by Avinash singh (2021) in Varanasi city of food habit and monthly expenditure of households.[9]

Majority of respondents were Hindus in rural and urban areas *i.e.,*72.50 per cent and 71.50 per cent. Majority of the respondents were married *i.e.,*85.00 per cent in rural areas and 83.75 per cent in urban areas. In terms of income, 90.00 per cent of respondents earn between ₹11001-₹69000 per month in rural areas and 83.75 per cent of respondents earn between ₹17001-₹69000 per month in urban areas.

3.2 Buying behaviour of fluid milk consumers in Mehsana district

The buying behaviour of fluid milk consumers is shown in Table 4.

Table 4: Buying behaviour of fluid milk consumers in Mehsana district

Sr. No.	Particulars	Rural		Urban	
		F	%	F	%
A. Place of buying					
1.	Milkman	06	07.50	27	33.75
2.	Grocery shop	18	22.50	26	32.50
3.	Dairy outlets	05	06.25	07	08.75
4.	Co-operative dairy	10	12.50	05	06.25
5.	Neighbours (P2P)	19	23.75	08	10.00
6.	Own	22	27.50	07	08.75
	Total:	80	100.00	80	100.00

B. Time of purchase					
1.	Morning	25	43.10	38	52.06
2.	Evening	19	32.76	24	32.87
3.	Morning, Evening	14	24.14	11	15.07
	Total:	58	100.00	73	100.00
C. Brand preferences					
1.	Amul	19	32.75	26	35.62
2.	Unbranded	39	67.24	47	64.38
	Total:	58	100.00	73	100.00
D. Availability of credit facility (Mode of payment)					
1.	Cash	37	63.79	43	64.18
2.	Credit	21	36.21	24	35.82
	Total:	58	100.00	73	100.00
E. Frequency of purchase					
1.	Once in a day	44	75.86	62	84.93
2.	Twice in a day	14	24.14	11	15.07
	Total:	58	100.00	73	100.00
F. Quantity purchase (Liters/month)					
1.	Up to 40	43	74.14	60	82.19
2.	40-80	13	22.41	11	15.07
3.	More than 80	02	03.45	02	02.74
	Total:	58	100.00	73	100.00
G. Price of milk (Rs./Liter)					
1.	Up to 60	07	12.07	17	23.29
2.	60-120	51	87.93	56	76.71
	Total:	58	100.00	73	100.00
H. Amount spent on purchase of milk (Rs./ month)					
Average		1544.90		1676.53	

**(F-Frequency, % -Percentage)*

Consumer preference for different brands of milk and their buying behaviour were studied and inferred that among consumers, 27.50 per cent preferred milk from home as they had animal

husbandry at home, 23.75 per cent were buying from neighbours (P2P), 22.50 per cent from grocery shops, 12.50 per cent from cooperative dairy, 07.50 per cent from milkman and 06.25 per cent from dairy outlets in rural areas. In urban areas, 33.75 per cent were buying milk from milkmen followed by 32.50 per cent from grocery shops, 10.00 per cent from neighbours (P2P), 08.75 per cent preferred milk from home as they were having animal husbandry at home, 08.75 per cent from dairy outlets and 06.25 per cent from cooperative dairy. The study reveals that rural consumers predominantly rely on home-produced and neighbour-sourced milk, while urban consumers prefer milkmen and grocery shops, with a majority in both areas favouring unbranded milk for its freshness and local availability. Time of purchase of milk in rural and urban areas was found maximum during the morning, with 43.10 per cent and 52.06 per cent. In rural and urban areas majority of consumers were found maximum buying unbranded milk *i.e.,* 67.24 per cent and 64.38 per cent.

Mode of payment in rural areas, 63.79 per cent of consumers were buying milk by cash and in urban areas 64.18 per cent were buying milk by cash basis. While analyzing the frequency of purchase of milk, 75.86 per cent of the consumers were buying milk once in a day and 24.14 per cent were buying twice a day in rural areas. In urban areas, 84.93 per cent of the consumers were buying milk once in a day and 15.07 per cent were buying twice a day. It was also observed that in one month, 74.14 per cent of the consumers purchased up to 40 litres of milk followed by 22.41 per cent purchasing 40 to 80 litres and 03.45 per cent were purchasing more than 80 litres in rural areas. In urban areas, 82.19 per cent of consumers purchased up to 40 litres of milk followed by 15.07 per cent purchasing 40 to 80 litres and only 02.74 per cent were purchasing more than 80 litres. Depending upon size of families quantity of fluid milk purchase varies in both areas. The buying behaviour according to the price of milk was found to be maximum in the range ₹60-₹120 *i.e.,* (87.93%) followed by (12.07%) in the range up to ₹60 in rural areas and urban areas was maximum in the range ₹60-₹120 *i.e.,* (76.71%) followed by (23.29%) in the range up to ₹60. The average amount spent on milk was ₹1544.90 per month in rural areas and ₹1676.53 per month in urban areas.Similar results were also reported by Saranya Palanisamy (2017) in Salem city of Tamil Nadu. [10]

3.3 Factors influencing the consumption expenditure on fluid milk

Factors influencing the consumption expenditure on milk in rural and urban areas are shown in Tables 5 and 6.

Table 5: Regression analysis for factors influencing consumption expenditure on fluid milk in rural areas

(n=58)

Sr. No.	Factors	Coefficients	Standard error	P-value
1	Intercept	68.805	191.237	0.7205
2	Household's education score	-12.263	10.865	0.2646
3	Average age of family members	-3.046**	1.024	0.0045
4	Total quantity of milk purchase	372.474**	39.318	0.0000
5	Price of milk	11.003**	1.279	0.0000
6	Size of family	-97.463**	32.602	0.0043
7	Dependency ratio	-0.332	0.255	0.1987
8	Monthly income	-0.004	0.009	0.6234
9	Monthly saving	0.003	0.009	0.7506
10	Monthly per capita expenditure other than milk	0.002	0.041	0.9438

R^2	0.9052

***Significant at 1 per cent level of significance*
**Significant at 5 per cent level of significance*

Out of 80 fluid milk consumers from rural areas, 58 consumers where purchasing milk from other places as majority of consumers had cattle at home and hence the N value varied in rural areas.

According to the findings in rural areas, the average age of family members, the total quantity of milk purchased, price of milk and size of the family had significant influences on per capita monthly expenditure on milk. While other factors were not found significant. According to the study regression coefficients for the total quantity of milk purchased and price of milk were positive and statistically significant. The regression coefficients for the average age of family members and size of the family were found negative effect on per capita expenditure on milk as depicted in Table 5. The above result showed that the coefficient of multiple determination (R^2) was 0.9052 in rural areas. In other words, 90.52 per cent in rural areas of total variation in the per capita monthly expenditure on milk was explained by the selected independent variables.Soumitra Singha Roy (2004) [11] in the rural areas of Burdwan district (West Bengal) in his study also had the similar finding.

Table 6: Regression analysis for factors influencing consumption expenditure on fluid milk in urban areas

(n=67)

Sr. No.	Factors	Coefficients	Standard Error	P-value
1	Intercept	609.778	211.645	0.0054
2	Household's education score	18.581	13.942	0.1874
3	Average age of family members	-0.158	1.359	0.9072
4	Total quantity of milk purchase	324.827**	36.280	0.0000
5	Price of milk	1.344	0.750	0.0780
6	Size of family	-134.664**	47.157	0.0058
7	Dependency ratio	0.427	0.350	0.2265
8	Monthly income	-8.1648	0.008	0.9920
9	Monthly saving	0.0051	0.008	0.5481
10	Monthly per capita expenditure other than milk	-0.0314	0.036	0.3864
	R^2	0.7572		

***Significant at 1 per cent level of significance*
**Significant at 5 per cent level of significance*

Out of 80 fluid milk consumers from urban areas, only 67 consumers were purchasing milk from other places as some of the consumers were living in peri-urban areas prefer to have cattle at home to consume fresh milk and hence the value of N varied in urban areas.

According to the findings in urban areas total quantity of milk purchased and size of the family had a significant influence on per capita monthly expenditure on milk. While other factors were not found significant. According to the study, the regression coefficients for the total quantity of milk purchased were positive and statistically significant. The regression coefficient for the size of the family had a negative effect on per capita expenditure on milk as depicted in Table 6. The above result showed that the coefficient of multiple determination (R^2) was 0.7572 in urban areas. In other words, 75.72 per

cent in urban areas of total variation in the per capita monthly expenditure on milk was explained by the selected independent variable.

4. MAJORFINDINGS AND RECOMMONDATIONS

The study conducted in selected talukas of Mehsana districts that include Mehsana, Unjha, Becharaji and Jotana sought to gain insights into fluid milk consumers. Through as survey involving 160 consumers, various aspects of socio-economic, buying behaviour and factors influencing the consumption expenditure on fluid milk by consumers were examined. Findings revealed that consumers in rural areas, the majority of households were characterized by older individuals, while urban areas had a younger demographic. Male respondents predominated in both rural and urban areas, with families typically consisting of up to 5 members in rural and urban households. Hinduism was the predominant religion in rural and urban areas and primary education prevailed in rural areas, while higher secondary education was more common in urban areas. Married, nuclear families were prevalent across both rural and urban areas. Monthly expenditures fell within the medium range for the majority of households in rural and urban areas, with service occupations being the most common employment type. Monthly income fell within the medium range for the majority of households, in rural and urban areas. In rural areas, the majority of consumers preferred home-produced milk because they have cattle at home, while urban consumers mostly bought from milkmen as they choose to consume fresh milk, and most opted for unbranded milk paid in cash. Majorly consumers in rural and urban areas bought, typically in the morning, once a day, in purchasing quantities up to 40 litres/month. As the buying behaviour of fluid milk vary according to the mindset and requirement of consumers. The coefficient of multiple regression (R^2) that describes the factors influencing consumption expenditure on fluid milk was 0.9052 in rural areas and 0.7572 in urban areas. In multiple regression, variables other than those mentioned in the studied urban areas affect the consumption and expenditure of milk.

5. CONCLUSION

Buying behaviour of fluid milk varies depending on age, size of family, monthly income, expenditure, preferences to buy branded or unbranded milk, freshness and quality they require, time of purchase, quantity needed to consume, frequency of consumption and price of fluid milk. Buying behaviour of consumers varies according to mindset and requirement of milk by consumers. In rural areas indicates that higher total milk purchases and milk prices lead to increased per capita expenditure on milk. The study concludes that in urban areas, per capita monthly milk expenditure is significantly influenced by the total quantity of milk purchased (positively) and family size (negatively), while other factors have no significant impact.

6. SUGGESTIONS

- To address higher milk prices, stakeholders could use subsidies or price stabilization to make milk affordable, especially in rural areas
- Educating consumers on the benefits and nutrition of unadulterated milk can boost confidence and promote healthier choices
- Supporting dairy farmers with training, better practices and fair pricing can ensure sustainable production and benefit consumers

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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