

CONSUMER PREFERENCES FOR DAIRY PRODUCTS: A STUDY IN UNIVERSITY RETAIL OUTLETS

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ABSTRACT

Growing health consciousness and awareness of healthy nutrition have increased consumer demand for dairy products. The present study was carried out to assess the consumer preference for different dairy products available at University retail outlets in Chennai city. 100 respondents who bought dairy products were chosen using systematic random sampling procedure from each University retail outlet in Chennai city viz., (i) Urban Chennai (Madras Veterinary College, Vepery) and (ii) Rural Chennai (College of Food and Dairy Technology, Koduvalli). A survey method was adopted for the collection of primary data from consumers with the help of well-structured and pre tested interview schedule. Majority of the respondents (76.0%) preferred pasteurized raw milk sold at university retail outlet due to its freshness and quality. Overall, majority of the respondents preferred khoa (86.0%) followed by ghee (80.0%), ice cream (75.0%), flavoured milk (72.5%), paneer (63.0%), butter milk (55.5%) and chocobar (39.0%). Overall, product safety and taste were considered as the most important reason for buying dairy products at university retail outlets. Overall, attitude of staff and shopping environment were the least important reason for buying dairy products at university retail outlets. University outlets were ranked third in consumer preference for source of dairy products after supermarket and specialized outlets. Majority of them were purchasing fluid milk and chocobar occasionally whereas majority of the respondents purchase flavoured milk, butter milk and ice cream daily as they are refreshment products. Hence, whenever the product is available, consumers are ready to take which indirectly indicates that there is always demand for the dairy products of University. This imparts the need to enhance the production of quality and variety dairy products.

Key words: Consumer preferences, Dairy products, University retail outlets.

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INTRODUCTION

India has emerged as the world's largest milk producer with 20.17% share of total milk produced. Milk production in India

has steadily increased from 121.8 million tonnes to 187.7 million tonnes in the year 2018-19 with an annual compound growth rate of 5.5%. The daily per capita availability of milk too has reached 394 grams in 2018-19 from 281 in 2010-11 with collinear impacts on society, increase in economic status of farmers, better infrastructure facilities, improved food aid security and nutrition (Shree and Prabu, 2019). Besides, Milk group has emerged as one of the biggest contributor (Rs.448.97 billions) to the value of total livestock output in the country. Food consumption, over the recent years, has diversified itself as a result of rapid progress in the production of food which made India's food basket varied and rich with milk and milk products accounting for an increasingly larger share. Growing health consciousness and awareness of healthy nutrition have increased consumer demand for both traditional and western dairy products. Traditional dairy products are ghee, paneer, khoa, dahi etc., while butter, cheese, yoghurt and similar are classified as Western dairy products. Consumption is primarily skewed towards traditional products; however, westernized products are gradually gaining momentum in the urban areas. Also, economic growth and changes in dietary preferences in the Southeast Asian countries have stimulated consumption of dairy products, even though it is not a part of their traditional diets (Shilpa *et al.*, 2017). The demand for dairy products depends on changing preferences, consumer's income, population size, price of the product, price of substitutes and other factors (Melesse and Beyene, 2009). According to the National Dairy Development Board (NDDB), Indian dairy demand in 2021-22 is estimated to be

between 200 and 210 million metric tons for which the dairy sector needs to grow annually at about 5 percent.

Tamil Nadu is one of the milk surplus states in India with an annual productivity and per capita availability of 8.36 million tonnes (2018-19) and 322 grams, respectively (BAHS, 2019). The GVA in dairy sector, milk produced certainly accounts for only one half, whereas the other half is the processing and sales of milk and milk products that provides the highest proceeds to our dairy farmers where around 65% of the total milk production is consumed as unprocessed fluid milk and the remaining 35% is processed into value added dairy products. Further, around 50% of total milk production is consumed by the urban population alone either as fluid milk or as value added processed dairy products.

Of the urban areas of Tamil Nadu, Chennai city was selected for this study as it is the most populous city and encountered massive urbanization in recent decades. And also Chennai city comprises of different layers of income and educational groups. The consumers of Chennai city are assumed to be highly skewed towards value added livestock products in which dairy products occupy a major space. The demand for different varieties of dairy products at Chennai has been noticed in the recent years. Hence, Chennai city was selected for this study. Tamil Nadu Veterinary & Animal Sciences University (TANUVAS) is recognized as first university in Asia to provide veterinary science degree. TANUVAS has a well-established dairy plant and a separate institute for food sciences. It has also produced many innovative dairy products

and supplied to consumers through well-established retail outlets. There is a need to assess the demand for these dairy products that helps to understand the consumer's perception on quality of dairy products and various factors that influence them to purchase which helps to increase the production, improve the processing of dairy products and maximize the profit. After considering all these above points, the present study was carried out to assess the consumer preference for different dairy products available at University retail outlets in Chennai city.

METHODOLOGY

Two retail outlets of TANUVAS in Chennai city viz., (i) Urban Chennai (Madras Veterinary College, Veperiy) and (ii) Rural Chennai (College of Food and Dairy Technology, Koduvalli) were purposively selected for the study. From each of the outlet, 100 respondents who bought dairy products were chosen using systematic random sampling procedure. The period of study was from September 2019 to March 2020. 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 interview schedule had the demographic and socioeconomic details of the household consumers, followed by consumer preferences for dairy products available at university retail outlets and also the reasons for preference, sources of dairy products and duration of purchase. Following Sturges (1926)'s rule of classification, the respondents of this study were classified into three income groups, viz., low (below Rs. 25,000), medium

(Rs. 25,001 – Rs. 50,000) and high (above Rs. 50,000).

Garret's ranking technique was adopted to analyse the reasons for preference of the dairy products sold at outlets by consumers in the study area. A list of reasons was given to the consumers to rank it (1 to 12). The reasons were safety, reasonable price, shopping environment, taste, University brand, freshness, availability, nutrition value, value for money, attitude of staff, follows food standards and no adulteration. The order of merit given by the respondents was converted into ranks (Garret and Woodworth, 1973).

$$\text{Percent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Where,

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

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

The percent position of each rank thus obtained was converted into scores by referring to table given by Garret. For each reason, the scores of the individual respondents were added together and divided by the total number of respondents for whom scores were given and thus based on the mean scores, the ranks were given.

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.

RESULTS AND DISCUSSION

Consumer preferences for various dairy products

Majority of the respondents (76.0%) preferred pasteurized raw milk sold at university retail outlet due to its freshness and quality. Overall, majority of the respondents preferred khoa (86.0%) followed by ghee (80.0%), ice cream (75.0%), flavoured milk (72.5%), paneer (63.0%), butter milk (55.5%) and chocobar (39.0%). Consumers of low income groups preferred to buy fluid milk, flavoured milk, butter milk and chocobar while middle and high income groups highly preferred to buy ghee, paneer, ice cream and khoa. These results were in accordance with the findings of Shree and Pandian (2016).

Reasons for preference of dairy products by sample households

The respondents were asked to rank the reasons listed for buying specific dairy products, and their responses were converted to garret scores. Overall, product safety and taste were considered as the most important reason for buying dairy products at university retail outlets. Similar results were reported by Jayakumar and Loganathan (2015) and Khanna (2015). Overall, attitude of staff and shopping environment were the least important reason for buying dairy products at university retail outlets.

In case of fluid milk, product safety was the first and foremost important reason to buy at university retail outlet followed by freshness, no adulteration, reasonable price, nutritional value and taste. Taste was

considered as most important reason for buying flavoured milk and ice cream from outlet followed by safety, freshness, reasonable price, university brand and nutritional value. Consumers prefer to buy butter milk from outlet due to its taste followed by safety, freshness, reasonable price, availability and value for money. In case of ghee, product safety was the first and foremost important reason to buy at university retail outlet followed by freshness, no adulteration, nutritional value and reasonable price. Safety was considered as most important reason for buying paneer from outlet followed by freshness, value for money, nutritional value and no adulteration. Consumers prefer to buy khoa from outlet due to its safety followed by freshness, taste, reasonable price and university brand. In case of chocobar, product safety was the first and foremost important reason to buy at university retail outlet followed by freshness, taste, reasonable price and no adulteration.

Sources of dairy products preferred by respondents

Majority of the respondents (47.0%) mostly preferring to buy the dairy products from supermarket and the reasons for their preference was its availability of all the needy items at single place and reasonable price. Specialized outlet was considered as the important source of dairy products by 42% of respondents which might be due to safety, taste, freshness and availability. University outlets and small retail outlets were the important source of dairy products by 29% and 24% of respondents, respectively. Whereas, the studies conducted by Ramya and Ali (2018) and Elangovan and Gomatheeswaran (2015)

Table 1: Preferences of households towards various dairy products (number of households)

| Products | Income groups | | | Overall |
|----------------------------|---|---|---|---|
| | Low | Middle | High | |
| Fluid milk | | | | |
| (Pasteurized raw milk) | 78 (51.32) ^a ; (89.66) ^b | 45 (29.61) ^a ; (67.16) ^b | 29 (19.08) ^a ; (63.04) ^b | 152 (100.00) ^a ; (76.00) ^b |
| Flavoured milk | 83 (57.24) ^a ; (95.40) ^b | 38 (26.21) ^a ; (56.72) ^b | 24 (16.55) ^a ; (52.17) ^b | 145 (100.00) ^a ; (72.50) ^b |
| Butter milk | 52(46.85) ^a ; (59.77) ^b | 41(36.94) ^a ; (61.19) ^b | 18(16.22) ^a ; (39.13) ^b | 111 (100.00) ^a ; (55.50) ^b |
| Ice cream | 43 (28.67) ^a ; (49.43) ^b | 65 (43.33) ^a ; (97.01) ^b | 42 (28.00) ^a ; (91.30) ^b | 150 (100.00) ^a ; (75.00) ^b |
| Ghee | 52 (32.50) ^a ; (59.77) ^b | 63 (39.38) ^a ; (94.03) ^b | 45 (28.13) ^a ; (97.83) ^b | 160 (100.00) ^a ; (80.00) ^b |
| Paneer | 34 (26.98) ^a ; (39.08) ^b | 54 (42.86) ^a ; (80.60) ^b | 38 (30.16) ^a ; (82.61) ^b | 126 (100.00) ^a ; (63.00) ^b |
| Khoa | 69 (40.12) ^a ; (79.31) ^b | 58 (33.72) ^a ; (86.57) ^b | 45 (26.16) ^a ; (97.83) ^b | 172 (100.00) ^a ; (86.00) ^b |
| Chocobar | 30 (38.46) ^a ; (34.48) ^b | 26 (33.33) ^a ; (38.81) ^b | 22 (28.21) ^a ; (47.83) ^b | 78 (100.00) ^a ; (39.00) ^b |
| Total number of households | 87 (43.50) ^a ; (100.00) ^b | 67 (33.50) ^a ; (100.00) ^b | 46 (23.00) ^a ; (100.00) ^b | 200 (100.00) ^a ; (100.00) ^b |

Figures in parentheses indicate

a – Per cent to total across rows within columns.

b – Per cent to total across columns within rows.

Table 2: Reasons for preference of dairy products from University retail outlets

| S. No | Reasons | Milk products | | | | | | | | | | | | | | | | | | | | | | | |
|-------|------------------------|-----------------------------------|------|------|----------------|------|------|-------------|------|------|-----------|------|------|-------|------|------|--------|------|------|-------|------|------|----------|------|------|
| | | Fluid milk (Pasteurized raw milk) | | | Flavoured milk | | | Butter milk | | | Ice cream | | | Ghee | | | Paneer | | | Khoa | | | Chocobar | | |
| | | Score | Rank | Rank | Score | Rank | Rank | Score | Rank | Rank | Score | Rank | Rank | Score | Rank | Rank | Score | Rank | Rank | Score | Rank | Rank | Score | Rank | Rank |
| 1 | Safety | 74.3 | I | 64.2 | II | 62.3 | II | 62.0 | III | 68.6 | I | 68.6 | I | 68.6 | I | 64.8 | I | 64.8 | I | 75.1 | I | 75.1 | I | 75.1 | I |
| 2 | Reasonable price | 54.6 | IV | 50.8 | IV | 56.7 | IV | 57.4 | IV | 52.2 | V | 48.6 | VIII | 48.6 | VIII | 54.6 | IV | 54.6 | IV | 54.0 | IV | 54.0 | IV | 54.0 | IV |
| 3 | Shopping environment | 39.1 | XI | 40.0 | XI | 36.9 | X | 41.8 | IX | 45.3 | X | 41.0 | X | 41.0 | X | 43.2 | XI | 43.2 | XI | 38.3 | XI | 38.3 | XI | 38.3 | XI |
| 4 | Taste | 50.1 | VI | 64.5 | I | 77.5 | I | 71.1 | I | 49.0 | VIII | 48.9 | VII | 48.9 | VII | 58.9 | III | 58.9 | III | 59.2 | III | 59.2 | III | 59.2 | III |
| 5 | University brand | 44.1 | IX | 50.1 | V | 34.2 | XII | 50.9 | V | 39.8 | XI | 38.1 | XI | 38.1 | XI | 52.3 | V | 52.3 | V | 48.1 | VI | 48.1 | VI | 48.1 | VI |
| 6 | Freshness | 66.6 | II | 61.0 | III | 61.0 | III | 62.6 | II | 67.0 | II | 66.6 | II | 66.6 | II | 63.5 | II | 63.5 | II | 64.1 | II | 64.1 | II | 64.1 | II |
| 7 | Availability | 42.7 | X | 49.0 | VIII | 55.6 | V | 47.4 | VI | 47.8 | IX | 47.7 | IX | 47.7 | IX | 45.7 | VIII | 45.7 | VIII | 43.8 | IX | 43.8 | IX | 43.8 | IX |
| 8 | Nutritional value | 51.3 | V | 49.4 | VI | 40.0 | IX | 47.4 | VI | 52.7 | IV | 54.1 | IV | 54.1 | IV | 49.6 | VI | 49.6 | VI | 46.4 | VII | 46.4 | VII | 46.4 | VII |
| 9 | Value for money | 45.9 | VIII | 49.3 | VII | 48.6 | VI | 42.4 | VIII | 49.0 | VII | 54.6 | III | 54.6 | III | 44.6 | X | 44.6 | X | 45.0 | VIII | 45.0 | VIII | 45.0 | VIII |
| 10 | Attitude of staff | 27.3 | XII | 34.9 | XII | 36.6 | XI | 35.5 | XI | 27.0 | XII | 27.7 | XII | 27.7 | XII | 29.5 | XII | 29.5 | XII | 30.5 | XII | 30.5 | XII | 30.5 | XII |
| 11 | Follows food standards | 47.2 | VII | 42.0 | X | 46.4 | VII | 37.7 | X | 50.3 | VI | 52.7 | VI | 52.7 | VI | 45.3 | IX | 45.3 | IX | 42.3 | X | 42.3 | X | 42.3 | X |
| 12 | No adulteration | 56.9 | III | 45.3 | IX | 43.1 | VIII | 43.8 | VII | 53.8 | III | 53.9 | V | 53.9 | V | 48.3 | VII | 48.3 | VII | 51.5 | V | 51.5 | V | 51.5 | V |

Table 3: Preference of respondents for various sources of dairy products

| Sources | Mostly | Sometimes | Occasionally | Total |
|--------------------------|------------|------------|--------------|--------------|
| University retail outlet | 58 (29.00) | 66 (33.00) | 76 (38.00) | 200 (100.00) |
| Small retail outlet | 48 (24.00) | 80 (40.00) | 72 (36.00) | 200 (100.00) |
| Supermarket | 94 (47.00) | 69 (34.50) | 37 (18.50) | 200 (100.00) |
| Specialized outlet | 84 (42.00) | 81 (40.50) | 35 (17.50) | 200 (100.00) |

Figures in parentheses indicate percentage to respective total

Table 4: Frequency of dairy products purchase from University retail outlets

| Products | Daily | Once a week | More than 2 times a week | Occasional / irregular | Total |
|-----------------------------------|-----------|-------------|--------------------------|------------------------|-------------|
| Fluid milk (Pasteurized raw milk) | 45(29.61) | 22(14.47) | 32(21.05) | 53(34.87) | 152(100.00) |
| Flavoured milk | 56(38.62) | 36(24.83) | 21(14.48) | 32(22.07) | 145(100.00) |
| Butter milk | 41(36.94) | 16(14.41) | 36(32.43) | 18(16.22) | 111(100.00) |
| Ice cream | 65(43.33) | 27(18.00) | 42(28.00) | 16(10.67) | 150(100.00) |
| Ghee | - | - | - | 160(100.00) | 160(100.00) |
| Paneer | - | 42(33.33) | 14(11.11) | 70(55.56) | 126(100.00) |
| Khoa | - | 12(6.98) | 6(3.49) | 154(89.53) | 172(100.00) |
| Chocobar | 26(33.33) | 11(14.10) | 10(12.82) | 31(39.74) | 78(100.00) |

Figures in parentheses indicate percentage to respective total

revealed that majority of the respondents purchase the dairy product from small retail outlets.

Frequency of dairy products purchase from University retail outlets

The respondents were classified on the basis of their purchase frequency. It was observed that consumers bought dairy products in one of the four frequencies, viz., daily, once a week, more than 2 times a week and occasional/irregular. Majority of the respondents were purchasing fluid milk and chocobar occasionally / irregularly. This might be due to its non-availability. In case of flavoured milk, butter milk and ice cream, consumers purchased daily as they are refreshment products. This might be due to the inborn product quality and the climate of the city. Similar study conducted by Savitha (2017) showed the same results. There was zero purchase of paneer, ghee and khoa on daily basis. This result was in accordance with the study conducted by Kumari *et al.* (2018).

CONCLUSION

The present study carried out to assess the consumer preference for different dairy products available at University retail outlets revealed that majority of the respondents (76%) preferred pasteurized raw milk sold at university retail outlet due to its freshness and quality. Overall, majority of the respondents preferred khoa (86.0%) followed by ghee (80.0%), ice cream (75.0%), flavoured milk (72.5%), paneer (63.0%), butter milk (55.5%) and chocobar (39.0%). Overall, product safety and taste were considered as the most

important reason for buying dairy products at university retail outlets. Overall, attitude of staff and shopping environment were the least important reason for buying dairy products at university retail outlets. University outlets were ranked third in consumer preference for source of dairy products after supermarket and specialized outlets. Most of them were purchasing fluid milk and chocobar occasionally whereas most of the respondents purchase flavoured milk, butter milk and ice cream daily as they are refreshment products. Hence, in developing countries like India, where the per capita income is on rise, there will be a definite increase in demand for variety of dairy products. This kind of studies on consumer preference for dairy products should be repeated at various time intervals to understand the changing pattern and fashion on taste and preference for quality attributes of dairy products, so as to make changes in the dairy production system and the further processing technologies.

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