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**Ashwini A Bandwal**
P.G. Students, Section of Animal
Husbandry & Dairy
Science, College of Agriculture,
Nagpur, Maharashtra, India

**AS Ingole**
Ex Professor, Section of Animal
Husbandry & Dairy Science,
College of Agriculture, Nagpur,
Maharashtra, India

**Bhavana R Wankhade**
Assistant Professor, Section of
Animal Husbandry & Dairy
Science, College of Agriculture,
Nagpur, Maharashtra, India

**RM Zinjarde**
Assistant Professor, Section of
Animal Husbandry & Dairy
Science, College of Agriculture,
Nagpur, Maharashtra, India

**Mona J Bulle**
P.G. Students, Section of Animal
Husbandry & Dairy Science,
College of Agriculture, Nagpur,
Maharashtra, India

**AB Motghare**
Assistant Professor, Department
of Veterinary Science, College of
Agriculture, Nagpur,
Maharashtra, India

# Study on consumption pattern of milk and milk products across different socio-economic groups in Deoli Tahsil of Wardha district

## Ashwini A Bandwal, AS Ingole, Bhavana R Wankhade, RM Zinjarde, Mona J Bulle and AB Motghare

**Abstract**
The present investigation entitled "Consumption pattern of milk and milk products across different socio-economic groups in Deoli tahsil of Wardha district" was undertaken across the different socio-economic groups to study the consumption pattern of milk and milk products of consumers. This was done by personally interviewing randomly selected 10 village and from each village 20 households i.e., 200 respondents. Findings indicated that majority of consumers were of middle age (27.76%) having secondary education (29%) with income 30,000-1 lac (51.50%). Most of the consumers (68%) have nuclear family with up to 5 members (56%) belonging to service sector (33.50%) followed by farmers (32%). 53% consumers were non-vegetarian and purchase milk through home delivery (40.5%) having liking for cow milk (59.55%) during morning hours (44.32%) mostly utilized as tea (32.6%). Consumers preferred chocolate, ice-cream, ghee, shrikhand, paneer, Pedha and lassi in milk products.

**Keywords:** Milk, milk products, consumption pattern, socio-economic groups

## 1. Introduction
The analysis of consumption pattern for consumer items particularly essentials items like milk and milk products is of great strategic importance in the formulation of development plans in growing economy. In recent years, economic development of India has experienced a marked change in the dietary pattern of its population. However, several interacting factors like household size and consumption, occupation, prices increasing number of working women, rise in per capita income, changing lifestyle and increasing level of affluences in the middle-income group also brought about the changes in food consumption pattern. Food expenditure pattern is an excellent indicator of economic well-being of people. According to NDDB report (2019), it was observed that percentage share of milk in total consumption was 37% followed by curd (13%), tea and coffee (10%), ghee (8%), buttermilk (4%), butter (3%), paneer (3%), lassi (2%) and other milk products contributes 20 percent. During the period 2016 to 2020, the market size of butter is expected to grow by 14.5%, curd by 14.4%, paneer by 14.1%, and ghee by 14.1% among others. As of 2018, fluid milk consumption was 3 projected at 67.7 million tonnes and was growing at a rate of 6-7 million tonnes annually. (Gandhi *et al.* 2020) [3]. However, the pattern of milk consumption presents spatial and temporal variation due to the differences in the socio-economic aspects, tastes and food habits of people across different agro-climatic regions and variation in milk availability in the area. With higher growth of the economy, rising population, and increased health consciousness among the population, the demand for milk and milk products is increasing, leading to more proportion of income to be spent on milk and milk products. As household size and composition, level of income, prices, food habits and social customs and resource endowments vary across the country, such differences are likely to influence the consumption pattern of milk and milk products significantly. Keeping these in view the present paper will help in formulating the future marketing strategies and help in the proper development and implementation of the food policies in the Deoli tahsil as well as state. Lack of region-specific approach and little attention in studying consumer behavior with respect to milk and milk products in earlier studies demanded a detail research investigation into consumption pattern of milk and milk products in Deoli tahsil of Wardha district.

**Corresponding Author**
**Ashwini A Bandwal**
Section of Animal Husbandry &
Dairy Science, College of
Agriculture, Nagpur,
Maharashtra, India

## 2. Materials and Methods

The study was carried around Deoli tahsil of Wardha district during the year 2020-2021. Ten villages viz., Pulgaon, Malkapur, Deoli, Adegaon, Borgaon, Sonora, Bhidi, Fattepur, Vijaygopal, Andori that represents the complete tahsil. From each village 20 households were selected which represents the entire village. Thus, total 200 households were selected. The respondent milk consumers were personally interviewed in friendly and informal manner. The questions were asked in local language so as to get the accurate answers and when the consumers were unable to answer some options or a range was given them to choose and response.

Observations were taken on the basis of the questionnaire which was quite elaborate and include various aspects like age, occupation, education, annual income, type and size of family, type of diet and sources of milk, preference of cow and buffalo milk, time of drinking milk, utilization pattern of milk, daily per capita consumption and consumer preference for milk products. Simple percentage and frequency were used to find out relationship between selected variables. All the categories and scales of observation tables taken were in line with Kamble (2010) [5].

## 3. Results and Discussion

The results of the present investigation are presented below

### 3.1 Basic characteristics of consumers

i) Age: - Majority of consumers were in category of middle age (27.76 per cent) followed by adult (22.85 per cent). Nearly half of the consumers belong to adult and middle age i.e., of around 25-50 years (50.61 per cent). About 40% of the consumers belong to children, teenager and adolescent i.e., below 25 years. The remaining consumer belong to old age group (9.55 per cent). More or less similar observations were noticed by Ahuja and Sharma (2014) [1].

ii) Education: - Majority of consumers (29.00 per cent) had attained secondary college level education and around (25.00 per cent) consumers belong to higher secondary group. While nearly (17.00 per cent) consumer each of primary and college level education. Whereas the group of consumers who are illiterate are around (12.00 per cent). Similar observations were recorded by Selvakumar and Yoganandan (2018) [9].

iii) Annual Income: - 18.50 per cent of the consumers had annual income up to Rs. 30,000 whereas, 51.50 per cent of them had income between 30,000-1,00,000. In other words, it could be stated that nearly half of the families 51.50 per cent. Around 30.00 per cent of consumer belong to more than 1,00,000. Similar results were observed by Kamble (2010) [5].

iv) Family type: - Around three forth of the consumers (68.0 per cent) belongs to nuclear family while one-fourth (32.00 per cent) of them belongs to joint family. Similar observations were recorded by Kadam (2016) [4].

v) Family size: - Households coming under the category of small family (56.00 per cent) was more as compare to those under large family (44.00 per cent). More or less similar observations were noticed by Ahuja and Sharma (2014) [1].

vi) Occupation: - Consumer of milk and milk products are mostly on service (33.50 per cent) followed by farmers (32.00 per cent). Around (18.00 per cent) consumers were businessmen and (14.00 per cent) of the consumers were laborer. Very few consumers were found to be unemployed (2.50 per cent). Similar observations were recorded by Kadam (2016) [4].

vii) Type of diet: - There was a greater number of non-vegetarian consumers 53.00 per cent followed by 47.00 per cent vegetarian. More or less similar observations were observed by Mathuriya (2013) [7].

viii) Source of milk: - Majority of family prefer to get milk deliver by home i.e., Milk delivered by the milkman in loose form (40.50 per cent) followed by the private local vendor (33.00 per cent). Sale shops were considered as the next important source of milk (24.00 per cent) mostly in town. Similar observations were noticed by Kamble (2010) [5].

### 3.2 Pattern of milk consumption

i. **Preference of cow and buffalo milk:** From the Table 2, it is cleared that more than half of the consumers (59.55 per cent) preferred cow milk over buffalo milk (40.26 per cent). In those who prefer cow milk were (78.26 per cent) of children, (58.22 per cent) of teenager, (61.73 per cent) of adolescent, (53.12 per cent) of adult, (55.62 per cent) of the middle age group and out of old there are (68.22 per cent) consumers prefer cow milk over buffalo. While those having liking for buffalo milk were (21.73% per cent) children, (41.77 per cent) teenagers, (38.26 per cent) adolescent, (46.87 per cent) adult, (44.37 per cent) middle and (31.77 per cent) belonging to old age group. It is observed from the Table 9, that there was remarkable liking of cow milk in children i.e., (78.26 per cent) which was highest in all case. Whereas the other groups have more or less same liking for both types of milk but significantly more liking for cow milk. On contrary, Lucila *et al*. (2010) [6] in Assam.

ii. **Time of drinking milk:** From the above Table 3, it can be concluded that maximum number of consumers consume milk in mornings (44.32 per cent) while (37.91 per cent) consumers consume milk in evening whereas remaining (17.76 per cent) consumer consume milk both the times. Except adults (58.33 per cent) and old (44.34 per cent) consumer who mostly consume milk in evening. It was also observed that mostly teenagers preferred to have milk both the time and so the children. While middle age consumer mostly preferred milk in morning hours. Two major factors that affect the time of drinking milk were availability of milk was maximum in morning hours and most of the consumers prefer to start the day with the glass of milk or tea. The observations are in line with Kamble (2010) [5].

iii. **Utilization pattern of milk by the family:** It is cleared from Table 4, that out of total consumers, majority of them utilized milk for tea (32.60 per cent) followed by drinking (29.00 per cent), in meals (16.17 per cent), coffee (12.40 per cent), and others (9.83 per cent). In the above Table 11 in utilization pattern of milk, other utilization refers to regular removal of cream for making ghee at household level, used for making curd and in salads and occasional eating with chapati or rice. Utilization of milk was mostly dependent on the purpose, time, availability and income of the consumer. This result is in agreement with the results of Selvakumar and Yoganandan (2018) [9].

iv. **Consumer preferences for milk products:** It can be concluded from the above Table 5 that, initially children and teenagers prefer to have sweet milk product but later with time advances the start liking for fat rich and sour products such as ghee, lassi, shrikhand and paneer. It was observed that among western milk products only ice-cream was consumed in the area due to high prices of

products and little awareness about its use in diet. So far consumption of ice-cream is so common that consumers don't even consider it as a western product while many consumers like kulfi which is Indian version of ice-cream. Ice-cream was more popular among children and teenager while adults, middle age and old consumer prefer to have kulfi over ice-cream. More or less similar observations were observed by Roy *et al.* (2002) [8].

**Table 1:** Basic characteristics of consumers

| Sr. No. | Particulars | Frequency | Percentage |
|---|---|---|---|
| A. | **Age (in Years)** | | |
| 1. | Children (up to 13) | 92 | 8.21 |
| 2. | Teenager (13-19) | 158 | 14.10 |
| 3. | Adolescent (19-25) | 196 | 17.5 |
| 4. | Adult (35-50) | 256 | 22.85 |
| 5. | Middle age (above 50) | 311 | 27.76 |
| 6. | Old | 107 | 9.55 |
| | Total | 1120 | 100.00 |
| B. | **Education** | | |
| 1. | Illiterate | 24 | 12.0 |
| 2. | Primary (up to 7th std.) | 34 | 17.0 |
| 3. | Secondary (8-10th std.) | 58 | 29.0 |
| 4. | Higher secondary (11-12th ) | 50 | 25.0 |
| 5. | College level (above 12th ) | 34 | 17.0 |
| | Total | 200 | 100.00 |
| C. | **Annual income (Rs.)** | | |
| 1. | Below 30,000 | 37 | 18.50 |
| 2. | 30,000-60,000 | 103 | 51.50 |
| 3. | More than 60,000 | 60 | 30.00 |
| | Total | 200 | 100.00 |
| D. | **Type of family** | | |
| 1. | Nuclear family | 136 | 68.00 |
| 2. | Joint family | 64 | 32.00 |
| | Total | 200 | 100.00 |
| E. | **Family size** | | |
| 1. | Small family (up to 5) | 112 | 56.0 |
| 2. | Large family (above 5) | 88 | 44.0 |
| | Total | 200 | 100.00 |
| F. | **Occupation** | | |
| 1. | Labourer | 28 | 14.00 |
| 2. | Service | 67 | 33.50 |
| 3. | Businessmen | 36 | 18.00 |
| 4. | Unemployed | 5 | 2.50 |
| 5. | Farmers | 64 | 32.00 |
| | Total | 200 | 100.00 |
| G. | **Type of diet** | | |
| 1. | Vegetarian | 94 | 47 |
| 2. | Non-vegetarian | 106 | 53 |
| | Total | 200 | 100.00 |
| H. | **Sources of milk** | | |
| 1. | Co-operative dairy society | 4 | 2.00 |
| 2. | Private local vendor | 66 | 33.00 |
| 3. | Sale shop | 49 | 24.50 |
| 4. | Home delivery through milk producer | 81 | 40.50 |
| | Total | 200 | 100.00 |

**Table 2:** Distribution of consumers according to preference of cow and buffalo milk

| Sr. No. | Category | Frequency | | Percentage | |
|---|---|---|---|---|---|
| | | Cow milk | Buffalo milk | Cow milk | Buffalo milk |
| 1. | Children | 72 | 20 | 78.26 | 21.73 |
| 2. | Teenagers | 92 | 66 | 58.22 | 41.77 |
| 3. | Adolescent | 121 | 75 | 61.73 | 38.26 |
| 4. | Adult | 136 | 120 | 53.12 | 46.87 |
| 5. | Middle age | 173 | 138 | 55.62 | 44.37 |
| 6. | Old | 73 | 34 | 68.22 | 31.77 |
| | Total | 667 | 451 | 59.55 | 40.26 |

**Table 3:** Distribution of consumers according to period of day for drinking milk

| Sr. No. | Category | Frequency | | | Percentage | | |
|---|---|---|---|---|---|---|---|
| | | M | E | B | M | E | B |
| 1. | Children | 56 | 38 | 24 | 47.45 | 32.20 | 20.33 |
| 2. | Teenagers | 72 | 42 | 39 | 47.05 | 27.45 | 25.49 |
| 3. | Adolescent | 89 | 77 | 31 | 45.18 | 39.09 | 15.73 |
| 4. | Adult | 32 | 56 | 8 | 33.33 | 58.33 | 8.33 |
| 5. | Middle age | 46 | 24 | 9 | 58.22 | 30.38 | 11.40 |
| 6. | Old | 37 | 47 | 22 | 34.90 | 44.34 | 20.75 |
| | Total | 332 | 284 | 133 | 44.32 | 37.91 | 17.76 |

(M- Morning E- Evening B- Both the time in a day)

**Table 4:** Distribution of consumers according to the utilization pattern of milk by the family in various income groups

| Sr. No. | Income group | Utilization pattern of milk (%) | | | | |
|---|---|---|---|---|---|---|
| | | Drinking | Tea | Coffee | Meals | Others |
| 1. | Up to 30,000 | 23.80 | 46.50 | 3.20 | 22.5 | 4.00 |
| 2. | 30,000 -1 lac | 28.70 | 34.30 | 7.50 | 18.00 | 11.5 |
| 3. | More than 1 lac | 34.50 | 17.00 | 26.50 | 11.60 | 10.40 |
| | Total | 29.00 | 32.60 | 12.40 | 16.17 | 9.83 |

**Table 5:** Consumer preferences for milk products

| Age group | Preferences of milk products |
|---|---|
| Children | Ice-cream, milk chocolates, paneer |
| Teenagers | Ice-cream, burfi, shrikhand |
| Adolescents | Ghee, dahi, paneer |
| Adults | Lassi, ghee, Pedha |
| Middle age | Shrikhand, dahi, paneer |
| Old | Ghee, paneer, dahi |

## 4. Conclusions
The findings indicated that majority of consumers were of middle age (27.76%) having secondary education (29%) with income 30,000-1 lac (51.50%). Most of the consumers (68%) have nuclear family with up to 5 members (56%) belonging to service sector (33.50%) followed by farmers (32%). 53% consumers were non-vegetarian and purchase milk through home delivery (40.5%) having liking for cow milk (59.55%) during morning hours (44.32%) mostly utilized as tea (32.6%). Majority of families utilize spoiled milk for kalakand (45%) and reported improper storage facilities as reason of spoilage (38%). Consumers preferred chocolate, ice-cream, ghee, shrikhand, paneer, Pedha and lassi in milk products. The priority should be given to involve all the strata of consumers irrespective of their age, education, economic condition, etc for development in dairy industry and increase per capita milk consumption. Personal and socio-economic conditions, facilities available, and availability of milk affects the pattern of milk consumption and age, education, income, occupation and family size affect the consumption pattern of milk and milk products in different regions of Deoli tahsil of Wardha district.

## 5. Acknowledgements

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