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Factors influencing the consumption expenditure on edible oil in North Gujarat

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Abstract

Edible oils are essential for cooking, nutrition, and cultural food practices, with global demand rising due to population growth, urbanization, and dietary changes. India, the fourth-largest oilseed producer, contributes significantly to global production with crops like groundnut, soybean, mustard, and sunflower. While 72% of cultivation remains rainfed, modern technologies have boosted productivity from 108.3 lakh tonnes in 1985-86 to 365.65 lakh tonnes in 2020-21. Consumption in India rose sharply, from 7.3 kg per capita in 1994-95 to 18.3 kg in 2014-15. Additionally, India has emerged as a major exporter, particularly in mustard seeds and oilseeds, with exports exceeding US\$ 1 billion in 2022-23.

Keywords: Edible oils, oilseeds, India, production, exports

Introduction

Edible oil plays a crucial role in our daily lives as a vital ingredient in cooking and food preparation. It is an essential component of various cuisines worldwide, providing flavour, texture and nutritional value to dishes. Edible oils are derived from plants or animals and their production, composition and consumption patterns vary across different cultures and regions.

The demand for edible oil has seen significant growth over the years, driven by factors such as population growth, changing dietary preferences, urbanization and increased awareness of healthy eating habits. Edible oil consumption is influenced by a combination of factors, including taste preferences, nutritional considerations, price, availability, brand reputation and cultural influences.

During the 1980s and 1990s, per capita consumption of edible oils was at 6-7 kg per person per year. India was more or less self-sufficient to cater to that need. According to government data after the 2000s, there was a boom in edible oil consumption throughout the country. The per capita consumption which was 7.3 kg/year in 1994-95 increased to 18.3 kg/year in 2014-15.

India is the 4th largest oilseeds producer in the world. It has 20.8 percent of the total area under cultivation globally, accounting for 10 percent of global production. The country produces groundnut, soybean, sunflower, sesamum, niger seed, mustard and safflower oilseeds.

Nearly 72 percent of the oilseeds area is restricted to rainfed farming done by small farmers which led to poor productivity. However, a breakthrough was realized in oilseed production through introducing latest crop production technologies. Consequently, the oilseed production grew to 365.65 tonnes in 2020-21 from 108.3 lakh tonnes in 1985-86.

India is one of the largest oilseed product exporters. The country exports soybeans, mustard seeds, groundnuts, sesame seeds, niger seeds, cotton seeds, castor seeds and sunflower and safflower seeds. In 2022-23, India exported mustard seeds worth US\$ 45.4 million. The total quantity exported during the same period was about 51.6 million kg. India is among the top exporter of mustard oilseeds, meals and flour and in 2022, it was the third-largest mustard seed exporting country. In 2022 India exported Rs. 8,310 crore (US\$ 1.01 billion) worth of Oilseeds, In 2022-23, the oilseed exports rose by over 20 percent to Rs. 10,900 crore (US\$ 1.33 billion). During 2023-24 (April-February), the oilseed exports amounted to US\$ 1.30 billion.

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India currently represents the world's largest importer of edible oil in the world. Almost of the total domestic consumption with the main imported varieties being crude palm oil and soybean oil is currently being fulfilled through imports. Palm oil (Crude + Refined) constitutes roughly around 62 percent of the total edible oils imported and are imported mainly from Indonesia and Malaysia, while Soyabean oil (22%) is imported from Argentina and Brazil as well as Sunflower oil (15%) is imported mainly from Ukraine and Russia.

The data from the Oilseeds Division of the Department of Agriculture and Respondents Welfare show import dependency will decrease to 23 percent in 2030-31 from 52 percent (2021-22), but India will still need edible oil from other countries. The outcome indicator presented by the Oilseeds Division shows the oilseeds area in the country will increase from 287.6 lakh hectares (2021-22) to 338.1 lakh hectares in 2030-31. The oilseeds production will also increase from 385 lakh tonnes in 2021-22 to 602.2 lakh tonnes in 2030-31.

Review of Literature

Akbay (2007) ^[1] study that investigated household cooking oil and fat consumption patterns in Turkey using data from household budget surveys. The almost ideal demand system was applied to estimate demand parameters and elasticities for five major types of oil, with price adjustments for quality and demographic variables incorporated. A two-stage generalized demand model was used to address the censoring of the dependent variable. The results showed that higher-income and more educated consumers consumed more quality and healthy oils, such as olive oil, compared to lower-income and less educated groups. Income elasticities indicated that lower-income consumers were more responsive to income changes and more price-sensitive to olive and corn oil than higher-income consumers.

Das (2013) ^[2] edible oil is a crucial cooking medium in India, including Tripura, where this study explores factors influencing consumer preferences when purchasing edible oil. Key factors identified include visible branding, health benefits, brand communication, packaging design, price and taste. The research also examined whether husbands and wives within the same family differ in their preferences and found no significant difference in their selection criteria. These findings highlight the shared priorities of consumers in choosing edible oil in Tripura.

Demir (2017) ^[3] conducted a study to examine the factors affecting household expenses on edible oils and fats in Turkey using a two stage Seemingly Unrelated Regression (SUR) model, based on 2012 data from the Turkish Statistical Institute. An empirical test confirmed the superiority of SUR over the Ordinary Least Squares (OLS) method. Household head and household characteristics were used to assess the likelihood and level of expenditure. The results showed that these factors played a significant role in influencing spending on edible oils and fats, though their effect on expenditure levels was less pronounced. It was also found that as total food expenditure increased, spending on butter, margarine, vegetable oils, olive oils and other fats also rose.

Euler *et al.* (2017) ^[4] examined the socioeconomic implications of oil palm expansion in Indonesia, particularly among smallholder farmers in Sumatra. Drawing on survey data and econometric analysis, the study demonstrates that oil palm cultivation significantly enhances household living standards and nutritional outcomes. Positive effects are

observed in both food and non-food expenditures, as well as in calorie intake and dietary diversity. These improvements are attributed primarily to farm size expansion, since oil palm cultivation is less labor-intensive than traditional crops such as rubber. The labor surplus is often reallocated to off-farm employment, thereby augmenting overall household income. Nonetheless, while benefits accrue across all income groups, wealthier households experience greater absolute gains, raising concerns about potential increases in socioeconomic inequality.

Methodology

After gathering all the completed schedules from the respondents, total responses for each item were gathered and tabulated. In order to use the Likert-scale for interpretation, weighted mean to represent each question was computed. To compute for the weighted mean, each value must be multiplied by its weight. Products should then be added to obtain the total value. The total weight should also be computed by adding all the weights. The total value is then divided by the total weight. Statistically, the weighted mean is calculated using the formula below:

$$\text{Weighted mean}(X) = \frac{(F_1X_1 + F_2X_2 + F_3X_3 + F_4X_4 + \dots F_nX_n)}{X_t}$$

Where:

F = Weight given to each response

X= Number of responses

X_t = Total number of responses

Sr. No.	Parameter
1	Brand name
2	Taste
3	Quality
4	Value of money/Price
5	Smell
6	Colour retention(oil)
7	Flavour retention(food)
8	Nutritional value
9	Packaging
10	Pack size
11	Advertisement influence
12	Free gifts/offers
13	Health benefits
14	Discounts
15	Smoking point
16	Availability

Results and Discussion

Factors influencing the consumption expenditure on edible oil

The analysis of various factors influencing household consumption expenditure on edible oil using the Likert scale method. Respondents rated different factors such as price, quality, brand preference, packaging and health concerns on a five-point scale ranging from "Strongly Disagree" to "Strongly Agree." The data reflects the level of agreement or disagreement with each factor's impact on purchasing decisions. This method helps in understanding consumer behavior patterns and identifying which factors play a more dominant role in influencing expenditure. The results indicate that factors like quality, health concerns and price were most strongly agreed upon by respondents, highlighting their significant influence on edible oil consumption.

Factors influencing the consumption expenditure on edible oil in rural area

Table 1 presents the factors influencing consumption expenditure on edible oil among rural households, based on responses measured using a five-point Likert scale. The analysis reveals that 'Value of Price' (Weighted Mean = 3.95)

is the most significant factor, followed closely by 'Brand Name' (WM = 3.94) and 'Quality' (WM = 3.87), indicating that rural consumers are highly influenced by affordability, brand reliability and product quality when purchasing edible oil.

Table 1: Distribution of consumer according factors influencing the consumption expenditure on edible oil in rural areas (n=120)

Sr. No.	Factors	SA	A	N	DA	SDA	WM	Rank
1	Brand name	54	32	18	5	11	3.94	II
2	Taste	8	34	56	20	2	3.22	VIII
3	Quality	44	37	24	9	6	3.87	III
4	Price	44	36	33	4	3	3.95	I
5	Smell	13	7	56	33	11	2.82	XIII
6	Colour retention	4	14	65	34	3	2.85	XI
7	Flavour retention	4	11	61	33	11	2.70	XIV
8	Nutritional value	39	9	41	27	4	3.43	VII
9	Packeging	35	26	45	6	8	3.62	VI
10	Pack size	45	27	35	10	3	3.84	IV
11	Advertisement influence	10	18	50	26	15	2.83	XII
12	Free gifts/Offer	4	12	23	59	22	2.31	XV
13	Health benefits	44	30	21	23	2	3.76	V
14	Discounts	14	25	53	22	6	3.16	IX
15	Smoking points	6	29	55	20	10	3.00	X
16	Availability	15	32	50	10	13	3.22	VIII

'Pack Size' and 'Health Benefits' also received relatively high mean scores, showing their importance in decision-making. On the other hand, factors such as 'Free Gifts/Offers' (WM = 2.31), 'Flavour Retention' (WM = 2.70) and 'Smell' (WM = 2.82) were ranked the lowest, indicating that these attributes have minimal impact on purchasing decisions in rural areas. Middle-ranking factors include 'Packaging' (WM = 3.62), 'Nutritional Value' (WM = 3.43) and 'Availability' (WM = 3.22), suggesting that while they play a role, they are not

primary determinants. The findings suggest that rural consumers prioritize economic and health-related aspects over promotional strategies or sensory characteristics. This indicates a practical and value-driven approach to household spending on edible oil, shaped largely by price sensitivity and perceived quality.

Factors influencing the consumption expenditure on edible oil in urban area

Table 2: Distribution of consumer according factors influencing the consumption expenditure on edible oil in urban areas (n=120)

Sr. No.	Factors	SA	A	N	DA	SDA	WM	Rank
1	Brand name	56	30	12	13	9	3.93	I
2	Taste	12	41	44	20	3	3.33	VIII
3	Quality	41	41	27	6	5	3.89	III
4	Price	54	26	19	18	3	3.92	II
5	Smell	7	23	66	24	0	3.11	IX
6	Colour retention	1	15	65	27	12	2.72	XIV
7	Flavour retention	6	20	63	26	5	2.97	XIII
8	Nutritional value	38	18	42	20	2	3.58	VII
9	Packeging	35	19	56	4	6	3.61	VI
10	Pack size	33	44	35	8	0	3.85	IV
11	Advertisement influence	8	18	39	41	14	2.71	XV
12	Free gifts/Offer	10	11	24	45	30	2.38	XVI
13	Health benefits	34	38	23	22	3	3.65	V
14	Discounts	12	24	44	34	6	3.02	XI
15	Smoking points	6	26	61	15	12	2.99	XII
16	Availability	5	32	59	13	11	3.06	X

Table 2 presents the distribution of urban consumers according to the factors influencing their expenditure on edible oil, assessed using a five-point Likert scale. The data reveals that 'Brand Name' is the most influential factor among urban households with the highest weighted mean (WM) of 3.93, followed closely by 'Value of Price' (WM = 3.92) and 'Quality' (WM = 3.89). This indicates that urban consumers give high importance to brand trust, product value and quality when selecting edible oil. 'Pack Size' (WM = 3.85) and 'Health Benefits' (WM = 3.65) also received higher ranks, showing the importance of convenience and health awareness

in urban buying behavior. Moderately important factors include 'Packaging' (WM = 3.61), 'Nutritional Value' (WM = 3.58) and 'Taste' (WM = 3.33). In contrast, lower-weighted factors such as 'Free Gifts/Offers' (WM = 2.38), 'Advertisement Influence' (WM = 2.71) and 'Colour Retention' (WM = 2.72) were ranked lower, reflecting their limited influence on purchasing decisions in urban settings. Overall, the findings suggest that urban consumers are more brand-and quality-conscious with a strong focus on health and value for money, while being less influenced by promotional tactics and sensory traits like smell or color. This indicates a

more informed and preference-driven buying behavior among urban consumers compared to their rural counterparts.

Conclusion

The most critical factors influencing purchasing decisions are price, brand name, and product quality. Health-related concerns also play a role, especially in urban areas. Promotional strategies such as advertisements or free gifts have minimal influence, showing that practical factors outweigh marketing gimmicks.

References

1. Akbay C. Urban households' cooking oil and fat consumption patterns in Turkey: quality vs. quantity. *Qual Quant.* 2007;41(6):851-867.
2. Das M. Factors affecting the purchase of staple goods: An empirical study of edible oil purchase in Tripura. 2013;33(4):78-184.
3. Demir N. Factors influencing household edible oils and fats in Turkish economy. *J Anim Plant Sci.* 2017;27(6):2003-2013.
4. Euler M, Krishna V, Schwarze S, Siregar H, Qaim M. Oil palm adoption, household welfare, and nutrition among smallholder farmers in Indonesia. *World Dev.* 2017;93(1):219-235.