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Research Article

Consumer Purchase Patterns for Millet-Based Food Products: An Empirical Analysis of Awareness, Attitude and Buying Behaviour

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Abstract

Millet is a nutrient-rich, climate-resilient cereal with significant potential to support nutritional security, sustainable agriculture, and diversified food systems in India. This study examines consumer buying behaviour, awareness, preferences, satisfaction, and market trends associated with millet-based food products. A descriptive research design was adopted, using primary data collected through a structured questionnaire from 105 respondents selected through convenience sampling. The data were analysed using percentage analysis, the chi-square test, and Karl Pearson's coefficient of correlation. The findings indicate strong consumer interest in millet products, with 96% of respondents expressing a preference for purchasing them and 93% perceiving millets as healthier than other grains. Health benefits were the major motivation for consumption, while friends and family were identified as the strongest influence on purchasing decisions. However, 79% of respondents reported difficulty finding millet products locally, indicating an important market-access constraint. The statistical analysis further established significant relationships between age and purchase-influencing factors and between awareness of health benefits and perceptions of millet healthiness. A positive correlation was also observed between knowledge of millet products and their perceived health benefits. The study concludes that improving product availability, consumer awareness, product variety, packaging, quality assurance, and market visibility can strengthen millet adoption and contribute to better nutrition and sustainable agricultural development.

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KEYWORDS: Millets, Consumer Behaviour, Consumer Awareness, Millet Products, Nutritional Benefits, Sustainable Agriculture, Purchase Behaviour, Market Trends, Health Benefits, Food Security.

1. INTRODUCTION

Agriculture continues to be the backbone of the Indian economy, accounting for a large share of the country's GDP and supporting livelihoods across the nation. Over centuries, the sector has evolved through improved implements, cropping methods, and domestication practices, and in doing so it has driven growth in a number of allied industries. Among the many crops grown in India, millets occupy a special place. Consumed across age groups, from infants to the elderly, millets are valued for the role they play in a healthy diet.

Millets are a diverse family of small-seeded grasses cultivated worldwide as cereal crops and food grains. Unlike many other staples, millet cultivation does not rely heavily on chemical fertilisers, and the crop is comparatively resistant to storage pests. Its rich genetic diversity, together with its low input requirements, has led many observers to describe millets as a "super food" and to view millet farming as a pathway toward sustainable agriculture and improved nutrition security. This paper focuses on millets because, in recent decades, everyday dietary habits have drifted away from the grains our ancestors once depended on. Revisiting millets, therefore, felt like a timely and worthwhile subject of study.

2. Statement of the Problem

Despite the nutritional and environmental case for millets, most consumers remain only partially aware of millet-based products, and this gap in awareness translates into subdued market demand. Interest in millets has been rising because of their nutrient density, their lower ecological footprint, and their potential contribution to food security, yet the category continues to be underutilised and under-marketed. This study sets out to identify the obstacles that limit the promotion of millet products and to suggest practical ways of overcoming them.

3. OBJECTIVES OF THE STUDY

- To identify the factors that shape buying behaviour toward selected instant, millet-based food products.
- To outline the health benefits linked to millet consumption, including better digestion, lower cardiovascular risk, and improved diabetes management.
- To understand prevailing market trends for millet products — their popularity, availability, and consumer preference patterns — both within India and internationally.
- To gauge consumer preferences regarding taste, texture, packaging, and price sensitivity through surveys.
- To examine market size, growth potential, and distribution channels for millet-based products.

4. RESEARCH METHODOLOGY

The study follows a descriptive research design, which provides a structured framework for gathering and interpreting information relevant to the research questions.

4.1 Sample Design

A non-probability, convenience-sampling approach was adopted. Respondents were selected on the basis of ease of access rather than random selection. While this method is economical and quick to administer, it carries the risk of sampling bias and can limit how far the findings can be generalised to the wider population.

4.2 Sample Size

Responses were gathered from a total of 105 individuals.

4.3 Data Collection

Primary data were collected using a structured questionnaire designed to cover all the relevant dimensions of the study in a systematic manner.

4.4 Analytical Tools

- Simple percentage analysis
- Chi-square test
- Karl Pearson's coefficient of correlation

5. Scope of the Study

- The study centres on consumer satisfaction with respect to purchasing behaviour toward millet products.
- It examines product availability, perceived quality, and health attributes of millets in detail.
- It seeks to understand the difficulties consumers face in assessing the quality of millet products in the market.
- It also touches on the cultural relevance of millets across regions, their bearing on food security, and their contribution to agricultural diversity, along with the opportunities and challenges involved in scaling up millet promotion and production.

6. Limitations of the Study

- Locating respondents who actually use millet products proved difficult given how thinly they are represented in the broader consumer market.
- Even after identifying respondents, framing the questionnaire was constrained by limited prior research, variation in target-audience understanding, and gaps in awareness around nutrition.
- Although complete responses were obtained for every question, the depth of information available for deeper analysis was limited.
- Consequently, the analysis and conclusions drawn are constrained by the information available.
- The short duration available for the study also limited how far the recommendations could be developed.

7. REVIEW OF LITERATURE

Robert (2023) describes millet as an umbrella term covering several small-grained cereal grasses that, despite originating from different plant species, share a common set of features. The category is typically split into "large millets" (sorghum and pearl millet) and "small millets" (finger, barnyard, little, kodo,

foxtail, and proso millet), with finger millet often discussed as a category of its own.

Bommy and Maheswari (2023) note that browntop millet is another variety grown extensively in southern India, particularly Karnataka. They describe millets as "nutri-cereals" or SmartFoods because of their high nutrient density and their relevance to tackling malnutrition. Pearl millet, for instance, is a strong source of iron, zinc, and folic acid — nutrients especially important for adolescent girls and women — while finger millet supplies roughly three times the calcium found in milk, which matters for maternal and child health. Millets are also rich in antioxidants and are considered useful in managing diabetes and heart disease, both of which are becoming more prevalent in India. ICRISAT (2016) similarly points out that Indian millets support food, nutrition, fodder, fibre, health, livelihood, and ecological security. According to the National Nutrition Monitoring Bureau (2006), millet consumption has traditionally been higher in states such as Gujarat, Karnataka, and Maharashtra, while remaining minimal in Kerala, Odisha, West Bengal, and Tamil Nadu, where rice dominates the diet.

Radhika et al. (2022) observe that cereals supply roughly 70–80% of the total energy intake of Indians, yet a study on urban dietary patterns in Chennai found that millets contributed only about 2% of total daily calories. Ranjita et al. (2022) argue for renewed attention to millets given their potential in managing diabetes, obesity, and high cholesterol, adding that combining millets with conventional cereals and dairy, along with modern processing techniques, opens new possibilities for product development.

Samuel (2021) notes that minor millets — foxtail, little, kodo, proso, and barnyard — along with major millets such as sorghum, bajra, and ragi, are steadily finding their way into both rural and urban food baskets. Being cheaper than rice or wheat while offering better nutrition, newer millet-based recipes also show promise as protein- and mineral-rich supplementary foods that could help address childhood malnutrition (Rajput, 2019). Ballolli et al. (2021) developed fortified barnyard millet cookies enriched with nuts and dried fruit, which were well received for their crisp texture, pleasant aroma, and taste. Separately, finger-millet-flour-based noodles have been found to be nutritionally beneficial and to produce a favourable effect on blood sugar levels.

8. Background: Millets Through History

Millet ranks among the earliest cultivated grains, with archaeological evidence pointing to cultivation stretching back more than 7,000 years. It served as a dietary staple in ancient China, India, Egypt, and across Africa, and was widely grown

throughout Africa, Asia, and Europe before rice and wheat became dominant. It remains a major crop in arid and semi-arid parts of Africa today, and continues to feature prominently in diets across India, China, and Southeast Asia.

Domestication is believed to have begun in China around 7000 BCE, with African domestication following around 5000 BCE, particularly in the Sahel belt. Millet reached the Indian subcontinent by roughly 2000 BCE, where it became integral to dishes such as roti and dosa, and it was introduced to Europe around 500 BCE, gaining particular importance in ancient Greece and later in Eastern Europe. Millet was also a common food during periods of scarcity in the Roman Empire, and it travelled to the Americas with European colonisers from the fifteenth century onward, though it never achieved the same scale of cultivation there as corn or wheat.

Millet's popularity waned in the West over the twentieth century even as it remained a dietary mainstay across Africa and Asia. In the twenty-first century, however, it has re-emerged in Western markets as a gluten-free, nutrient-dense grain, finding its way into cereals, snack foods, and gluten-free flour blends. Today it continues to be valued worldwide for its nutritional profile and its versatility in the kitchen, appearing in forms ranging from flour and flakes to whole grains.

9. Millet Products Available in the Market

- Millet flour (used in baking and for pancakes)
- Whole millet grains (used in salads, pilafs, and porridges)
- Millet flakes (a breakfast-cereal or granola ingredient, similar to oat flakes)
- Millet pasta (a gluten-free alternative made from millet flour)
- Millet bread (gluten-free, made using millet flour)
- Millet snacks (puffed millet snacks, millet bars)
- Millet-based beverages (such as millet milk)
- Millet-based desserts (such as puddings and cakes)

Common Types of Millets

- Pearl millet
- Foxtail millet
- Proso millet
- Finger millet
- Little millet
- Kodo millet
- Barnyard millet
- Sorghum

10. Analysis and Interpretation

Demographic and behavioural data collected from the 105 respondents are summarised below.

Category	Options	Respondents	Percentage (%)
Gender	Male	27	26
	Female	78	74
Age	Below 18 years	26	25
	18–30 years	65	62
	30–40 years	13	12
	Above 40 years	1	1

Likelihood to try new millet products	Likely	32	30
	Very likely	53	50
	Neutral	20	20
Influence on purchase decision	Friends & family	47	45
	Advertisement	33	31
	Availability	18	17
	Others	7	7

A clear majority of respondents (74%) are female, with male respondents making up the remaining 26%. In terms of age, most respondents (62%) fall in the 18–30 age bracket, followed by 25% who are below 18; only a small proportion are aged 30–40 or above 40.

Regarding openness to trying new millet products, half of the respondents (50%) describe themselves as very likely to do so, while the remainder are either likely or neutral. Friends and family emerge as the most influential factor in purchase decisions (45%), followed by advertising (31%) and product availability (17%), with a small remainder citing other influences. Snacking is the most common way, respondents

consume millets (42%), followed by millet bread, pasta, and beverages.

11. Chi-Square Test

11.1 Age of Respondents and Purchase-Influencing Factor

Null Hypothesis (H0): Age of respondents has no significant association with the factor that influences their millet purchase decisions.

Alternative Hypothesis (H1): Age of respondents is significantly associated with the factor that influences their millet purchase decisions.

Age Group	Health Benefits	Taste	Availability	Total
Below 18	26	0	0	26
18–30	23	42	0	65
30–40	0	0	13	13
Above 40	0	0	1	1
Total	49	42	14	105

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	141.000	6	.000
Likelihood Ratio	123.602	6	.000
Linear-by-Linear Association	67.477	1	.000
N of Valid Cases	105		

With a significance value of .000 ($p < 0.05$), the null hypothesis is rejected in favour of the alternative hypothesis at the 95% confidence level. This confirms that a respondent's age is significantly associated with the factor that drives their millet purchase decisions.

11.2 Awareness of Health Benefits and Perception of Millets as Healthier

Null Hypothesis (H0): There is no significant relationship between awareness of millets' health benefits and the perception that millet products are healthier than other grains.

Alternative Hypothesis (H1): There is a significant relationship between the two.

Aware of Health Benefits	Perceive Millets as Healthier — Yes	Perceive Millets as Healthier — No	Total
Yes	94	7	101
No	4	0	4
Total	98	7	105

The Pearson Chi-Square value is .297 with an associated significance of .000 ($p < 0.05$), leading to rejection of the null hypothesis at the 95% confidence level. This indicates a significant relationship between awareness of health benefits and the perception that millet products are healthier than other grains.

12. Karl Pearson's Coefficient of Correlation

Knowledge of Millet Products and Perceived Healthiness

Null Hypothesis (H0): No correlation exists between knowledge of millet products and the perception that millets are healthier than other grains.

Alternative Hypothesis (H1): A correlation exists between the two variables.

The computed correlation coefficient is .470 (significant at the 0.01 level, two-tailed, $n = 105$), leading to rejection of the null hypothesis. This indicates a positive but modest correlation between how much respondents know about millet products and how strongly they perceive millets as healthier than other grains.

13. Key Findings

- 74% of respondents are female and 26% are male.
- 62% of respondents are aged 18–30, 25% are below 18, and the remainder fall in the 30–40 or above-40 brackets.

- 82% of respondents are unmarried and 18% are married.
- 54% reside in urban areas, 22% in rural areas, and 21% in semi-urban areas.
- 48% consume millet products weekly, with the rest consuming monthly, daily, or occasionally.
- 47% purchase millets from supermarkets, 40% from health-food stores, and 13% from farmers' markets.
- 64% prefer medium-sized packaging, followed by small (23%), large (12%), and bulk sizes.
- 96% express a preference for purchasing millets, with a small minority uninterested.
- 57% cite health benefits as their primary reason for consuming millets, 31% cite taste, and the rest cite weight management.
- 45% are most influenced by friends and family, 31% by advertising, and the remainder by product availability.
- 94% are aware of the environmental sustainability associated with millets.
- 74% are willing to pay a premium for organic millet products.
- 62% sometimes check product labels for ingredients, 30% always do, and the rest do so occasionally or rarely.
- 57% pay close attention to nutritional content when choosing millet products.
- 93% perceive millet products as healthier than other grains.
- 42% consume millets primarily as snacks, with the rest via bread, pasta, and beverages.
- Self-rated knowledge of millet products clusters around the middle of the scale, with 37% and 27% rating themselves 3 and 4 respectively.
- 79% report difficulty finding millet products locally.
- 40% report being satisfied or somewhat satisfied with millet product availability, while the rest are neutral or dissatisfied.
- The chi-square analysis confirms a significant relationship between age and the factor influencing purchase decisions, and between health-benefit awareness and the perception of millets as healthier.

14. Suggestions

- Improve shelf and online visibility of millet products across supermarkets and e-commerce platforms.
- Broaden the product range to include snacks, ready-to-eat meals, and baked items catering to varied tastes.
- Run targeted awareness campaigns highlighting the fibre, protein, and micronutrient content of millets.
- Organise in-store or community tasting sessions so consumers can experience the product directly.
- Collaborate with chefs to develop and showcase innovative millet-based recipes.
- Provide cooking demonstrations and recipe cards to make everyday use of millets easier.
- Strengthen quality-control processes to ensure consistent freshness and build consumer trust.
- Adopt transparent labelling covering nutrition facts, certifications, and ingredient sourcing.

- Build partnerships with local millet farmers to support sustainable cultivation and local livelihoods.
- Set up ongoing feedback channels — surveys, reviews, social media — to refine products based on consumer input.

15. CONCLUSION

This study has surveyed the range of millet varieties available and the nutritional value they bring to the table. Major millets such as sorghum, finger millet, and pearl millet, alongside minor varieties like kodo and barnyard millet, contribute meaningful amounts of calcium, iron, fibre, and protein to the diet. Consumer awareness — shaped substantially by social media and peer influence — emerges as a decisive factor in millet adoption. Millet products are increasingly recognised for their health value and versatility, appealing to a broad consumer base, including those seeking gluten-free options. To strengthen consumer engagement with millet products further, the study recommends improving visibility, broadening the product range, promoting health benefits more actively, and reinforcing quality assurance. Community partnerships, chef collaborations, and practical cooking guidance can further ease the integration of millets into daily meals. Taken together, millets represent a nutritious and sustainable alternative to conventional grains, and their broader adoption — supported by the strategies outlined here — can advance both public health and environmental goals.

REFERENCES

1. Robert K. The encyclopedia of nutrition and good health. 2nd ed. New Delhi: Viva Books Pvt. Ltd.; 2023.
2. Bommy R, Maheswari S. Promotion of millets cultivation through consumption. *Int J Curr Res Acad Rev*. 2023;Special Issue 3:74-80.
3. ICRISAT. Smart food millet recipes. Patancheru, Telangana: International Crops Research Institute for the Semi-Arid Tropics; 2016.
4. National Nutrition Monitoring Bureau. Diet and nutritional status of rural population and prevalence of hypertension among adults in rural areas. NNMB Technical Report 24. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research; 2006.
5. Gopalan C, Rama Sastri BV, Balasubramanian SC. Nutritive value of Indian foods. Hyderabad: National Institute of Nutrition, Indian Council of Medical Research; 2009.
6. Radhika G, et al. Dietary profile of urban adult population in South India in the context of chronic disease epidemiology (CURES-68). *J Public Health Nutr*. 2022;14(4):591-598.
7. Ranjita S, et al. Ready-to-cook millet flakes based on minor millets for modern consumers. *J Food Sci Technol*. 2022;53(2):1312-1318.
8. Sudha A, Priyenka Devi KS, Sangeetha V, Sangeetha A. Development of fermented millet sprout milk beverage

- based on physicochemical property studies and consumer acceptability data. J Sci Ind Res. 2016;75(Apr):239-243.
9. Samuel A. Eat millets, pay less, stay healthier, save earth. India Climate Dialogue. 2021:1-12.
 10. Rajput N. Development and acceptability of novel food products from millets for school children. Int J Curr Microbiol Appl Sci. 2019;8(4):2631-2638.
 11. Ballolli U, et al. Storage quality evaluation of iron-enriched garden cress seed and barnyard millet cookies. Int J Curr Microbiol Appl Sci. 2021;8(10):223-236.

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