Consumer Preference Towards Millet-Based Food Products Over Junk Foods

[1]Dr.J. Prateeba Devi, [2]Mr.G. Sandhosh Raj
[1]Assistant Professor (Sr. Grade), [2]MBA, Student,
[1,2]Mepco School of Management Studies,
[1,2]Mepco Schlenk engineering College Sivakasi-62005, Tamil Nadu, India
[1]prateebba@mepcoeng.ac.in, [2]sandhoshraj4@gmail.com
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Abstract- The rising consumption of junk foods has emerged as a critical public health concern, contributing to lifestyle-related disorders such as obesity, diabetes, and cardiovascular diseases. In contrast, millets once a staple in Indian diets are regaining attention as a sustainable, nutrient-dense alternative to processed foods. This study aims to investigate consumer preferences towards millet-based products in comparison with junk foods, focusing on influencing factors, spending patterns, and demographic determinants. A descriptive research design was employed, and data were collected from 400 respondents across Virudhunagar, Kalligudi, Sivakasi, and Madurai of Tamil Nadu using a structured questionnaire. Findings revealed that 50% of respondents consume millet-based foods daily, while 46% never consume junk food, suggesting a strong shift towards healthier eating. Health consciousness, family influence, cultural traditions, and perceived benefits emerged as dominant motivators for millet consumption. Statistical analysis confirmed significant associations between demographic factors and food choices, with income strongly influencing millet expenditure, while junk food spending showed no significant income-based variation. The study highlights the potential of millet-based products to replace junk foods in modern diets, provided issues of availability, pricing, and consumer awareness are adequately addressed. These insights have strong implications for policymakers, food industries, and health advocates in promoting sustainable, health-oriented dietary practices in India.

Index-Terms: Millets, Consumer Behavior, Health Consciousness, Food Preferences

I. INTRODUCTION

The increasing popularity of junk foods has become a global concern due to their adverse health implications. Junk foods, characterized by high levels of refined sugars, saturated fats, and additives, have been strongly associated with obesity, diabetes, hypertension, and other lifestyle-related disorders (WHO, 2023). In India, particularly among youth and working populations, the consumption of chips, carbonated beverages, chocolates, and fast foods has rapidly increased due to taste preferences, convenience, and aggressive marketing campaigns (WHO, 2023).In contrast, there is renewed attention towards millets, often referred to as "nutri-cereals," which were once staple grains in many Indian households. Millets including pearl millet (bajra), finger millet (ragi), foxtail millet, and sorghum are nutritionally rich, being high in fiber, protein, minerals (iron, calcium, magnesium), and antioxidants. Studies have shown that millet-based diets help in reducing cholesterol, controlling blood sugar, and improving gut health (Springer, 2024). Beyond health, millets are environmentally sustainable crops, requiring less water and chemical input while thriving in semi-arid regions (FAO, 2023). Recognizing their significance, the United Nations declared 2023 as the International Year of Millets, with India playing a leading role in advocating millet consumption globally (UN, 2023). Tamil Nadu, one of the leading millet-producing states, has a strong cultural tradition of incorporating millet-based dishes in everyday diets. However, despite these benefits, millet consumption has been declining in urban and semi-urban areas due to modern food habits, limited market availability, and consumer perceptions that millets are "traditional" or "inferior" foods compared to packaged junk alternatives (Times of India, 2025). In recent years, however, the demand for millets has revived as consumers become more health-conscious and increasingly aware of lifestyle-related diseases. Government campaigns, NGOs, and food entrepreneurs are actively promoting millet-based products in urban markets, schools, and restaurants (BMC Public Health, 2023). This study investigates consumer preferences towards millet-based foods over junk foods, particularly in Tamil Nadu, by analyzing socio-demographic factors, spending patterns, and key motivators such as health consciousness, family influence, and cultural practices.

II. OBJECTIVES OF THE STUDY

1. To understand the food behavior of the respondents.
2. To identify the factors influencing the customers to prefer Millet based food products.
3. To know the customers opinion about the Millet based food products.
4. To find the customers preference towards Millet based food products.

III. RESEARCH METHODOLOGY

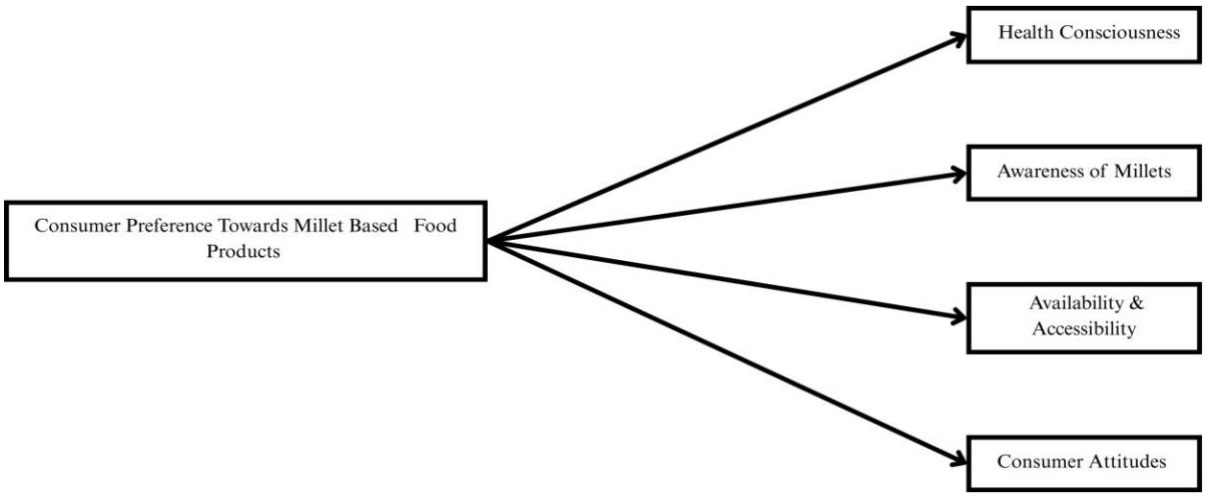
Component	Description
Research Design	Descriptive research design focusing on consumer preferences between millet-based foods and junk foods
Population	Individuals aged 18 years and above
Sample Size	400 respondents
Sampling Method	Convenience sampling
Sampling Period	June 10, 2025 to September 30, 2025
Locations	Virudhunagar (216), Kalligudi (52), Sivakasi (37), Madurai (95)
Data Collection	Structured questionnaire
Analysis Tools	Percentage analysis, Cross tab, ANOVA, Regression, Mean Average

3.1 Sources of Data

The study is based on both primary and secondary data:

Primary Data: Collected through a structured questionnaire administered to 400 respondents across Virudhunagar, Kalligudi, Sivakasi, and Madurai districts in Tamil Nadu. The questionnaire covered demographic characteristics, food consumption patterns, expenditure behaviour, influencing factors, and perceptions towards millet-based products and junk foods. Secondary Data: Drawn from published journals, books, government reports, online databases, and earlier research studies. These sources provided theoretical foundations, contextual insights on millet consumption patterns, nutritional benefits, and comparative perspectives on junk food consumption across different populations.

3.2 Research Model



IV. FINDINGS AND RESULT

4.1. Demographic Profile of Respondents

Table 1: Demographic Characteristics of Respondents

Characteristic	Category	Frequency	Percentage %
Gender	Male	272	68
	Female	128	32
Age Group	18-25 years	180	45
	26-35 years	73	18.25
	36-45 years	57	14.25
	46-55 years	41	10.25
	Above 55 years	49	12.25
Location	Rural	186	46.50
	Urban	138	34.50
	Semi-urban	76	19
Education	Below 10th	95	23.75
	12th Standard	54	13.50
	Diploma & ITI	19	4.75
	Undergraduates (UG)	177	44.25
	Postgraduates (PG)	55	13.75
Occupation	Student	113	28.25
	Private Employee	110	27.50
	Housewife	73	18.25
	Self-Employed	70	17.50
	Government Employee	15	3.75
	Retired	15	3.75
	Professional	4	1
Income	Below ₹20,000	60	15
	₹20,001 - ₹40,000	200	50
	₹40,001 - ₹60,000	109	27.25
	Above ₹60,000	31	7.75

Interpretation: Table 1 shows that the study sample is dominated by males (68%), youth aged 18–25 years (45%), rural residents (46.5%), and undergraduates (44.25%), with students (28.25%) and private employees (27.5%) forming the major occupational groups, and half of the respondents earning between ₹20,001–₹40,000, indicating a young, rural, middle-income profile.

4.2. Food Consumption Behavior

Table 2: Frequency of Junk Food and Millet-Based Food Consumption

Consumption Frequency	Junk Food	Millet-Based Food
	Percentage %	Percentage %
Daily	2	50
Frequently	7	22
Occasionally	21	22
Rarely	26	5
Never	46	1
Total	100	100

Interpretation: Table 2 shows that nearly half of the respondents (46%) never consume junk food, while a majority (50%) consume millet-based foods daily. This indicates a clear preference for healthier millet-based products over junk foods.

Table 3: Monthly Spending on Junk Food vs. Millet-Based Food

Spending Range (₹)	Junk Food	Millet-Based Food
	Percentage %	Percentage %
Less than ₹500	57	5
₹501 – ₹900	20	10
₹901 – ₹1200	18	26
₹1201 – ₹2000	2	19
More than ₹2000	3	40
Total	100	100

Interpretation: Table 3 shows that most respondents (57%) spend less than ₹500 on junk food, whereas 40% spend more than ₹2000 on millet-based foods. This reflects a stronger financial commitment toward healthier millet-based products.

4.3. Relationship Between Demographics and Food Consumption

Table 4: Relationship Between Age and Junk Food Consumption

Age Group	Never	Rarely	Occasionally	Frequently	Daily	Total
18-25	22	58	73	23	4	180
26-35	33	28	8	2	2	73
36-45	43	10	2	2	0	57
46-55	36	5	0	0	0	41
Above 55	48	1	0	0	0	49
Total	182	102	83	27	6	400

Interpretation: Table 4 shows that younger respondents (18–25 years) exhibit the highest level of junk food consumption, while older age groups (36 years and above) largely avoid junk food. This reflects a decline in junk food intake with increasing age.

Table 5: Relationship Between Gender and Junk Food Consumption

Gender	Never	Rarely	Occasionally	Frequently	Daily	Total
Female	92	25	7	4	0	128
Male	90	77	76	23	6	272
Total	182	102	83	27	6	400

Interpretation: Table 5 shows that female respondents exhibit lower junk food consumption, with 72% never consuming it, whereas males report higher levels of occasional to daily intake. This indicates a greater preference for junk food among men.

Table 6: Relationship between respondents' gender and millet-based food consumption

Gender	Daily	Frequently	Occasionally	Rarely	Never	Total
Female	84	22	19	3	0	128
Male	117	68	69	16	2	272
Total	201	90	88	19	2	400

Interpretation: Table 6 shows that daily millet consumption is higher among females (66%) compared to males (43%). This indicates that women are more consistent in incorporating millet-based foods into their diets.

Table 7: Relationship Between Age and Millet-Based Food Consumption

Age Group	Daily	Frequently	Occasionally	Rarely	Never	Total
18-25	62	45	58	15	0	180
26-35	35	22	14	2	0	73
36-45	38	13	5	1	0	57
46-55	25	10	6	0	0	41
Above 55	41	0	5	1	2	49
Total	201	90	88	19	2	400

Interpretation: Table 7 shows that millet consumption increases with age, as older groups (36 years and above) exhibit higher daily intake, while younger respondents (18–25 years) display more varied and less consistent consumption patterns.

4.4 Differences in Monthly Spending on Junk Food and Millet-Based Food Across Income Groups

Table 8: ANOVA Summary for Monthly Food Expenditure by Income Level

Dependent Variable	Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Sig.
Monthly Spending on Junk Food	Between Groups	6.740	3	2.247	2.305	0.076

	Within Groups	385.900	396	.974		
	Total	392.640	399			
Monthly Spending on Millet-Based Food	Between Groups	12.759	3	4.253	3.032	029
	Within Groups	555.551	396	1.403		
	Total	568.310	399			

Interpretation: Table 8 shows that the ANOVA results indicate no significant difference in junk food spending across income groups ($p = 0.076 > 0.05$), whereas millet-based food spending varies significantly with income ($p = 0.029 < 0.05$). This indicates that higher-income groups spend more on millet-based foods

4.5 Most influential factor for the decision to consume millet-based foods

Table 9: Most Influential Factors for Consuming Millet-Based Foods

Particulars	Frequency	Percentage %
My own personal preference	140	26
Parents' or family members' preference	185	46
Friends' or peer influence	8	2
Doctor or dietitian's advice	18	5
Social media or advertisements	7	2
Community or cultural practices	78	19
Total	400	100

Interpretation: Table 9 shows that parents' or family members' preference (46%) is the strongest influence on millet consumption, followed by personal preference (26%) and cultural practices (19%). External factors such as peers, doctors, and advertisements play only a minor role.\

4.6 Main factor that influences the respondent's decision to buy millet-based foods

Table 10: Main factors influencing the decision to buy millet-based foods

Particulars	Frequency	Percentage%
Health benefits	168	42
Taste and flavor	40	10
Doctor or nutritionist recommendation	22	5
Traditional or cultural preference	55	14
Availability in the market	12	3
Affordable price	3	1
Influence from family or friends	99	25
Government promotions or awareness campaigns	1	0

Total	400	100%

Interpretation: Table 10 shows that health benefits (42%) are the primary reason for purchasing millet-based foods, followed by family or friends' influence (25%) and cultural preference (14%). Factors such as affordability, availability, and government promotions have minimal effect.

4.7 Analysis of relationship between demographic factor and most influencing factor for the decision to consume millet-based foods

Table 11: Age with the Influencing Factor for Consuming Millet-Based Foods

Influencing Factor	18–25	26–35	36–45	46–55	Above 55	Total
Own Personal Preference	35	28	20	13	8	104
Parents/Family Preference	126	27	16	8	8	185
Friends Preference	3	2	1	1	1	8
Doctor/Dietitian Advice	6	5	4	0	3	18
Advertisement	5	2	0	0	0	7
Community/Cultural Practices	5	9	16	19	29	78
Total	180	73	57	41	49	400

Interpretation: Table 11 shows that younger respondents (18–25 years) are primarily influenced by parents or family members (70%), while older age groups, particularly those above 55 years, are more guided by cultural practices (59%). This indicates that family shapes the choices of younger individuals, whereas tradition influences the preferences of older respondents.

Table 12: Gender with the Influencing Factor for Consuming Millet-Based Foods

Most Influencing Factor	Female	Male	Total
Own Personal Preference	25	79	104
Parents/Family Preference	58	127	185
Friends Preference	2	6	8
Doctor/Dietitian Advice	5	13	18
Advertisement	1	6	7
Community/Cultural Practices	37	41	78
Total	128	272	400

Interpretation: Table 12 shows that family preference (185) is the most influential factor in consuming millet-based foods, followed by personal preference (104) and cultural practices (78).

4.8 Analysis of relationship between demographic factor and main factor influencing the respondent's decision to buy millet-based foods

Table 13: Age with the Influences on the Decision to Purchase Millet-Based Foods

Factor Influencing	18–25	26–35	36–45	46–55	Above 55	Total

Health Benefits	53	49	30	19	17	168
Taste	35	4	1	0	0	40
Doctor's Advice	6	8	4	2	2	22
Traditional	5	3	9	13	25	55
Availability	9	0	2	1	0	12
Affordable Price	3	0	0	0	0	3
Influence by Family/Friends	69	9	11	5	5	99
Promotions	0	0	0	1	0	1
Total	180	73	57	41	49	400

Interpretation: Table 13 shows that health benefits (168) and family or friends' influence (99) are the primary factors influencing purchase decisions across different age groups, while tradition (55) plays a significant role among older respondents.

Table 14: Gender with the Influences on the Decision to Purchase Millet-Based Foods

Factor Influencing	Female	Male	Total
Health Benefits	56	112	168
Taste	3	37	40
Doctor's Advice	5	17	22
Traditional	28	27	55
Availability	4	8	12
Affordable Price	0	3	3
Influence by Family/Friends	31	68	99
Promotions	1	0	1
Total	128	272	400

Interpretation: Table 14 shows that health benefits (168) are the top factor influencing both genders to purchase millet-based foods, followed by family or friends' influence (99) and traditional preference (55)

4.9 Factors influencing the respondence preference for millet-based foods

H_0 (Null Hypothesis):

There is no significant influence of Health, Awareness, Perceived Benefits, Availability, and Consumer Attitudes on customers preference towards millet-based food products.

H_1 (Alternative Hypothesis):

There is a significant influence of Health, Awareness, Perceived Benefits, Availability, and Consumer Attitudes on customers preference towards millet-based food products

Table 15: Factors influencing the respondence preference for millet-based foods

Factor	Significance Value	Null Hypothesis	Interpretation
Health Consciousness	0.000	Rejected	There is a highly significant relationship.
Awareness of Millets	0.034	Rejected	There is a significant relationship.
Perceived Benefits of Millet-Based Foods	0.000	Rejected	There is a highly significant relationship.
Availability	0.000	Rejected	There is a highly significant relationship.
Consumer Attitudes	0.000	Rejected	There is a highly significant relationship.

Interpretation: Table 15 shows that regression and hypothesis testing confirm that health consciousness, perceived benefits, availability, and consumer attitudes have a highly significant effect on millet-based food preferences, while awareness of millets has a significant but comparatively weaker influence. This indicates that consumer preference is primarily shaped by health-driven and attitudinal factors rather than mere awareness alone.

4.10 Key factors to preference millet bases food products

Table 16: Key factors to preference millet bases food products

Key Factors	Mean	Rank
Perceived Benefits	4.52	1
Awareness of Millets	4.32	2
Availability & Accessibility	4.17	3
Health Consciousness	4.14	4
Consumer Attitudes	4.01	5

Interpretation: Table 15 shows that perceived benefits (4.52) rank highest among the factors influencing preference for millet-based foods, followed by awareness (4.32) and availability (4.17)

V. CONCLUSION

The study demonstrates that consumer preferences are steadily shifting from junk foods toward millet-based products, largely driven by health consciousness, cultural traditions, and family influence. The analysis revealed that younger populations still show higher junk food consumption, while older age groups and educated respondents strongly prefer millets. Income also plays a role, with higher-income respondents spending more on millet-based foods, underscoring the importance of affordability and accessibility in wider adoption. Regression and hypothesis testing further confirmed that health benefits, perceived advantages, consumer attitudes, and product availability are highly significant factors influencing millet consumption,

whereas government promotions and affordability had only limited influence. This highlights the need for targeted interventions that improve awareness, expand market accessibility, and enhance product innovation. The findings carry important implications for policymakers, health advocates, and the food industry. By strengthening promotion campaigns, supporting millet farmers, and developing convenient ready-to-eat products, stakeholders can foster sustainable dietary transitions. Overall, millet-based foods present a viable, nutritious, and eco-friendly alternative to junk foods, capable of addressing both lifestyle-related health challenges and sustainable food security in the future.

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