

Consumers Perspectives on Adoption and Promotion of Millet-Based Products

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ABSTRACT

This study explores consumer attitudes towards millet-based foods and identifies strategies to enhance their market penetration. Findings reveal widespread awareness of millets and a positive perception of their health benefits. However, challenges such as limited availability and price sensitivity hinder widespread adoption. The research aims to analyse factors influencing consumer purchasing behaviour towards millet-based products, examining health outcomes and consumer satisfaction associated with these foods. Furthermore, it seeks to understand consumer preferences in the context of purchasing millet-based foods and snacks, thereby identifying emerging market opportunities in this sector. Recommendations include expanding educational efforts, improving distribution channels, emphasizing health benefits in marketing, offering competitive pricing, diversifying product offerings, and innovating new millet-based products. Addressing these recommendations can unlock the market potential of millet-based foods, promoting healthier diets and economic growth in the food industry. A total sample of 273 is taken from Consumers. The data have been collected using Structured Questionnaire. For the analysis purpose various tools are used such as Pie chart, Bar chart, Ranking, SPSS (Statistical Package for Social Sciences) technique such as Chi Square and Correlation are used.

Keywords-- Purchasing Behaviour, Consumer Attitudes, Consumer Preferences, Market Opportunities, Competitive Pricing, Product Diversification

I. INTRODUCTION

Now a days, consumers have shown a notable inclination towards healthier food choices. This trend is driven by an increasing awareness of the importance of nutrition and wellness, a desire for more sustainable and ethically sourced products, and a growing prevalence of lifestyle-related health conditions such as obesity, diabetes, and heart disease. As consumers become more health-conscious, the demand for nutritious, natural, and minimally processed foods has surged. Among the various

healthy food options, ancient grains such as millet have gained prominence due to their exceptional nutritional profile and health benefits. Millet, a group of highly variable small-seeded grasses, is a staple crop in many parts of the world, particularly in Africa and Asia. It is rich in essential nutrients, including proteins, Fiber, vitamins, and minerals, making it an attractive choice for health-conscious consumers. The grain is naturally gluten-free, making it suitable for individuals with celiac disease or gluten sensitivity. Additionally, millet has a low glycaemic index, which helps in managing blood sugar levels, making it an excellent option for people with diabetes. Beyond their nutritional benefits, millets are incredibly versatile in the kitchen. They can be used in a wide range of dishes, from Savory pilaffs and porridges to baked goods and desserts. With their mild, nutty flavour and pleasing texture, millets add depth and character to any recipe, elevating both taste and nutrition. As awareness of the health and environmental benefits of millets continues to grow, there has been a surge in the availability and popularity of millet-based food products. From breakfast cereals and snacks to flours and pasta, manufacturers are incorporating millets into an array of innovative and delicious offerings, catering to the evolving preferences of health-conscious consumers. The increasing popularity of millet-based products reflects broader consumer trends towards plant-based diets and functional foods that offer specific health benefits beyond basic nutrition. These products include a variety of snacks, ready-to-eat meals, breakfast cereals, and beverages, catering to diverse consumer needs and preferences. The rising demand for such products presents a unique opportunity for food manufacturers and retailers to innovate and expand their offerings in the health food market. Millets are a diverse group of small-seeded grasses, widely grown around the world as cereal crops or grains for fodder and human food.

II. LITERATURE REVIEW

Several studies explore consumer attitudes and behaviors towards millet and functional foods, revealing diverse insights into consumer preferences, purchasing patterns, and the impact of various factors on these behaviors. Denk (2016) found that consumers preferred fermented over unfermented pearl millet flour. Hidayat et al. (2021) examined switching behavior towards healthy foods and found that subjective norms had minimal influence. Shirahatti et al. (2022) highlighted the significant impact of consumer intention and buying behavior on satisfaction with millet products. Lavuri (2019) emphasized the importance of effective product packaging in attracting consumers. Nagadeepa and Singh (2023) reported that millet consumption supports health and immunity. Pravallika et al. (2020) assessed market potential for ready-to-eat (RTE) and ready-to-cook (RTC) millet products, noting their fair acceptance. Reddy and Patel (2023) observed that blending millet with wheat flour increases appeal and frequency of purchase. Chrysochou et al. (2012) found that quality assurance labels, like Designation of Origin (DOL), enhance brand loyalty but are less critical than other attributes. Hidayat et al. (2019) and Rizwana et al. (2022) showed that switching intention and awareness of nutritional benefits influence millet consumption. Johnson (2019) noted that health awareness campaigns boost millet product consumption. Verbeke (2005) and Rodriguez-Bermudez & Zapata-Lugo (2014) identified that demographic, cognitive, and attitudinal factors drive functional food acceptance. Msuya and Adong (2021) revealed that consumers are willing to pay more for nutritionally enhanced sorghum foods, influenced by income and awareness. Gupta (2021) found socioeconomic factors significantly impact consumer behavior towards millet. Patel (2020) highlighted the importance of nutrition labeling in shaping consumer choices. Chen (2019) and Krystallis & Chrysochoidis (2005) noted that familiarity, taste preferences, and product labeling affect consumer adoption and willingness to pay. Lastly, Ongudi et al. (2017) and Barreiro-Hurle et al. (2010) discovered that awareness, nutritional knowledge, and label formats play crucial roles in consumer choices and willingness to pay for biofortified millet and healthier food options.

III. PRIOR APPROACH

Consumer Awareness and Health Perception

Prior research has highlighted that consumers generally recognize the health benefits of millets, particularly their nutritional value and potential in managing lifestyle diseases like diabetes and obesity.

However, the depth of awareness varies significantly across different regions and demographic groups.

Regional and Cultural Influence

Millet consumption has been traditionally higher in rural areas and specific states such as Rajasthan, Maharashtra, Karnataka, and Tamil Nadu. These areas have a cultural affinity towards millets, driven by historical dietary practices. However, in urban areas, there has been a noticeable decline in millet consumption, attributed to a shift towards more convenient, processed foods.

Market Challenges

Despite the known benefits, millet-based foods face several market challenges. Limited availability in urban markets, lack of widespread consumer awareness, and competition with more dominant grains like rice and wheat have constrained the growth of millets in the mainstream market. Additionally, the traditional image of millets as a "poor man's food" has further hindered their adoption.

Packaging and Product Innovation

Previous approaches have identified that consumers prefer medium-sized packaging for millet-based products, reflecting a cautious but growing interest in these foods. Moreover, there is a recognized potential for product innovation, particularly in creating ready-to-eat snacks, breakfast cereals, and other convenience foods that appeal to urban, health-conscious consumers.

Government Initiatives and Support

The Indian government's initiatives, such as promoting millet cultivation through the National Food Security Mission (NFSM) and declaring 2023 as the International Year of Millets, have been pivotal in boosting millet production and awareness. These efforts aim to reposition millets from traditional staples to mainstream health foods.

IV. RESEARCH METHODOLOGY

4.1. Data Collection

4.1.1. Research Design

The descriptive type of research design is used in this study.

4.1.2. Nature of Data

Primary data and Secondary data are used in this study.

4.1.3. Primary Data

The information for the research was collected from respondents using structured questionnaire through direct survey.

4.1.4. Secondary Data

Secondary data for this research was obtained from journals, literature, and various websites.

4.1.5. Method of Data Collection

The primary data was collected through the direct survey method questionnaire.

4.1.6. Data Collecting Instrument

Structured Questionnaire was used as the data collection instrument.

4.2. Sampling Design

4.2.1. Population

The population size is unknown. Adults (aged 18 and above) who purchase and consume Snacks.

4.2.2. Sample Size

The sample size is 273 and it is collected from consumers.

4.2.3. Sampling Method

The Sampling Method used in this research is a convenience sampling method.

4.2.4. Tools used for Analysis

Various tools/methods are used for the purpose of analyzing consumer responses towards various factors. Tools such as Pie chart, Bar chart, Chi-Square, Ranking, Correlation.

4.3. Objectives

- To know about the millets and Healthy Food awareness among the people.
- To know about the Acceptance of millets-based foods and snacks among the consumers.
- To analyse the factor Influencing buying behaviour of consumer towards the millets-based food Product.
- To Identify Health outcomes and consumer satisfaction with millets-based foods and snacks.
- To Understand consumer preferences for purchasing millets-based foods and snacks.
- To Identify Market opportunities for millets-based foods and snacks.

V. DATA ANALYSIS AND RESULTS

5.1. Demographic Characteristics of the Sample

The survey results show that most respondents are aged 18-25 (107 people), followed by those aged 26-35 and 36-45 (54 each), 46-55 (47), and 56 and above (11). Out of 273 respondents, 159 are male and 114 are female. Regarding occupations, 86 are private employees, 77 are students, 34 are homemakers, 29 are self-employed, 36 are public employees, 7 are retired, and 4 are unemployed. In terms of monthly household income, 137 respondents earn Rs. 30,001-50,000, 61 earn Rs. 50,001-70,000, 41 earn Rs. 10,001-30,000, 29 earn below Rs. 10,000, and 5 earn above Rs. 70,000. In terms of Location 131 respondents live in urban areas, 115 in suburban areas, and 27 in rural areas.

5.2. To Know about the Millets and Healthy Food Awareness among the People

Correlation between respondents' Familiarity with the concept of healthy food products. vs. Likelihood of including millets-based foods in the diet if they were more widely available. While observing the results of the correlation it shows that, significant moderate positive correlation ($r = 0.438$)

Nearly everyone surveyed is aware of millets and millet-based products, with 271 out of 273 respondents having heard of them. People are most familiar with Finger Millet (Ragi) and Pearl Millet (Kambu). Lesser-known varieties include Proso Millet (Pani Varagu) and Sorghum (Cholam). Many respondents have at least a basic understanding of healthy food concepts, though some lack in-depth knowledge.

5.3. Acceptance of Millets-based Foods and Snacks among the Consumers

Correlation between respondents' Frequency of consuming healthy foods in the family vs Perceptions of Millet's Health Benefits Compared to Rice and Wheat. While observing the results of the correlation it shows that, there is a significant negative correlation ($r = -0.424$). As well as Correlation between respondents' Frequency of consuming millet-based foods and snacks vs Perceptions of Millet's Health Benefits Compared to millet-based foods and snacks to be healthier compared to other snacks. While observing the results of the correlation it shows that, there is a significant positive correlation ($r = 0.392$).

Overall, Weekly consumption is more common than daily. Families who prioritize regular consumption of healthy foods may perceive millet as less healthy in comparison to other grains such as rice and wheat. Majority of the respondents, view millet-based foods and snacks as healthier than other snack options. Additionally, many respondents indicated they would incorporate millet-based foods into their regular diets if they were more readily available.

5.4. To Analyze the Factor Influencing Buying Behaviour of Consumer towards the Millets-Based Food Product

By analysing the average calculation Health benefits are the primary reason people choose millet-based foods. Family members have the strongest influence on purchasing decisions. Price is an important factor for many respondents when deciding to purchase millet-based products.

5.5. Health Outcomes and Consumer Satisfaction with Millets-Based Foods and Snacks

Correlation between Consumers Satisfaction with Health Outcomes from Millets-Based Foods vs Likelihood of Recommending Millets-Based Foods to Others Based on Health Outcomes. While observing the results of the correlation it shows that, there is a strong positive

relationship ($r = 0.579$).

Overall, many respondents have observed significant health benefits from consuming millet-based foods. Most respondents' express satisfaction or high satisfaction with the health outcomes from millet-based foods, reflecting positive consumer experiences. Additionally, many respondents are likely or very likely to recommend millet-based foods to others because of their positive health effects.

5.6. Understanding Consumer Preferences for Purchasing Millets-Based Foods and Snacks

Through the chart analysis Overall, Consumers prefer to buy millet-based foods primarily from farmers' markets. Most of the consumers prefer medium-sized packaging for millet-based foods. In terms of flavours, sweet varieties are the most preferred among millet based snacks by consumers.

5.7. Identifying Market Opportunities for Millets-based Foods and Snacks

By analysing the average calculation Overall, Consumers perceive ready-to-eat snacks as having the highest market potential among millet-based products. Improving product availability, reducing prices, enhancing taste, and diversifying product offerings could significantly boost consumer purchases. Addressing key barriers effectively has the potential to increase consumer adoption and consumption of millet-based products. There is growing demand for millet-based products due to consumer interest in healthy and sustainable food options. Meeting consumer preferences, addressing key barriers and expanding product availability can drive further market growth.

VI. OUR APPROACH

Targeted Consumer Analysis

We conducted a detailed survey with a sample size of 273 consumers, focusing on a diverse demographic mix to capture a broad spectrum of attitudes towards millet-based foods. Our structured questionnaire was designed to assess not only the level of awareness and health perceptions but also the specific factors influencing purchasing decisions.

Behavioral Insights through Statistical Tools

To gain precise insights into consumer behavior, we employed advanced statistical techniques such as Chi-Square tests and Correlation analysis using SPSS (Statistical Package for Social Sciences). These tools allowed us to identify significant relationships between consumer demographics, purchasing behavior, and satisfaction levels with millet-based products.

Exploring Market Challenges

Our study places a strong emphasis on understanding the barriers to wider adoption of millet-

based foods, such as limited availability, price sensitivity, and the traditional image of millets. By analyzing consumer feedback and market data, we sought to uncover the root causes of these challenges and propose solutions.

Consumer Preferences and Market Opportunities

We delved into consumer preferences for millet-based products, including packaging choices, preferred product types, and purchasing locations. This analysis helped us identify emerging market opportunities, particularly in the development of innovative millet-based snacks and ready-to-eat foods that cater to modern, urban lifestyles.

Strategic Recommendations for Market Penetration

Based on our findings, we formulated a set of strategic recommendations aimed at enhancing the market penetration of millet-based foods. These include expanding educational efforts to raise awareness, improving distribution channels to ensure better availability, emphasizing health benefits in marketing campaigns, offering competitive pricing, and diversifying product offerings to meet varied consumer tastes.

Holistic Approach to Market Development

Our approach integrates consumer insights with practical market strategies, aiming to unlock the full potential of millet-based foods. By addressing both consumer behavior and market dynamics, our study contributes to the broader goal of promoting healthier diets and fostering economic growth in the food industry.

VII. CONCLUSION

The survey reveals a strong awareness of millets and healthy foods among the respondents, with most being familiar with popular millet varieties like Finger Millet (Ragi) and Pearl Millet (Kambu). Although consumption of millet-based foods is typically occasional rather than daily, People generally believe that millet-based foods and snacks as healthier than other snack options. Health considerations are the primary driver of millet consumption, with family influence and price also playing significant roles in purchasing decisions. Most respondents are satisfied with the health outcomes from millet-based foods, and many are likely to recommend them due to positive experiences. To enhance market penetration, there is an opportunity to increase product variety, especially in ready-to-eat snacks, breakfast cereals, and beverages. Improving availability, reducing prices, and offering better taste options could further encourage consumer adoption. To grow the market, more product variety, better availability, and improved taste are needed. Expanding into new areas and addressing issues like availability, knowledge, and price can also help boost millet consumption. Overall, there's a big opportunity to increase the popularity of millet-based foods. By expanding product

variety and improving availability, affordability, and taste options are key opportunities to enhance consumer adoption of millet-based foods.

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