

# MILLETS (SHRI ANNA) IN INDIA'S NUTRITION TRANSITION: A SYSTEMATIC REVIEW OF CONSUMER AWARENESS, PERCEPTION AND DIGITAL INFLUENCE WITH SPECIAL REFERENCE TO URBAN UTTAR PRADESH

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*Abstract* : India is experiencing a significant nutrition transition characterized by changing dietary preferences, rising health concerns, and increasing emphasis on sustainability. In this context, millets—rebranded as Shri Anna—have re-emerged as nutritionally superior and environmentally sustainable food grains. Simultaneously, digital platforms have transformed the way consumers access food-related information and form dietary choices. This paper presents a **systematic and thematic review of literature** examining the role of consumer awareness, perception, and digital influence in millet consumption in India, with special emphasis on emerging urban contexts in Uttar Pradesh. By synthesizing existing research across nutrition science, consumer behaviour, and digital marketing, the study provides a conceptual foundation for future empirical investigation in urban centres such as Lucknow. The review identifies key trends, gaps and research directions relevant for policymakers, marketers, and academicians.

*IndexTerms* - Millets, Shri Anna, Nutrition Transition, Consumer Behaviour, Digital Platforms, Uttar Pradesh, Systematic Literature Review

## INTRODUCTION

India's dietary landscape has undergone profound changes over the past few decades due to rapid urbanization, economic growth, globalization of food markets, and lifestyle transformation. Traditional diets, once dominated by coarse cereals, pulses, and locally sourced foods, have increasingly been replaced by refined grains and processed foods. This nutrition transition has contributed to rising incidences of lifestyle-related diseases such as diabetes, obesity, and cardiovascular disorders, alongside concerns related to food security and environmental sustainability. In response, renewed attention has been directed towards traditional food systems that offer nutritional adequacy and ecological resilience. Millets, a group of small-seeded cereals traditionally cultivated and consumed across India, have gained prominence due to their high dietary fibre, micronutrient content, low glycaemic index, and climate resilience. Recognizing their importance, the Food and Agriculture Organization (FAO) declared **2023 as the International Year of Millets**, and the Government of India promoted millets under the nomenclature Shri Anna.

Parallel to this revival is the rapid expansion of **digital platforms**, including social media, e-commerce portals, food blogs, health applications, and online retail channels. These platforms have significantly altered consumer behaviour by influencing awareness, perception, and food choice decisions. Digital communication has become particularly relevant in promoting non-mainstream food products such as millets by reshaping their image from traditional staples to modern, health-oriented foods. While policy initiatives and promotional campaigns have increased visibility of millets, actual consumer adoption remains inconsistent. Awareness does not always translate into consumption, suggesting the influence of perceptual, behavioural, and informational factors. Understanding these factors—especially within region-specific contexts—is crucial before undertaking empirical research. Therefore, this paper aims to provide a **systematic background review** of literature on millets in India's nutrition transition, focusing on consumer awareness, perception, and the role of digital influence, with special reference to **urban Uttar Pradesh and the emerging context of Lucknow**.

## **Millets and India's Nutrition Transition**

The concept of nutrition transition explains shifts in dietary consumption patterns accompanying economic development and urbanization. In India, this transition has favoured rice and wheat at the expense of traditional coarse cereals. Policy support during the Green Revolution further reinforced this shift, marginalizing millets despite their nutritional advantages.

Scientific literature consistently highlights the nutritional superiority of millets. Devi et al. (2014) emphasized the antioxidant properties, dietary fibre content, and health benefits of finger millet, particularly in managing metabolic disorders. FAO (2023) recognized millets as key contributors to sustainable food systems, emphasizing their low water requirement and adaptability to climate stress.

Despite these advantages, millet consumption declined for several decades due to changing taste preferences, urban lifestyles, lack of convenience, and socio-cultural perceptions associating millets with poverty or rural living. However, rising health awareness, lifestyle disease prevalence, and sustainability concerns have catalysed renewed interest in millets, especially among urban consumers. The repositioning of millets as Shri Anna represents a strategic shift aimed at restoring their cultural and nutritional significance. Yet, the success of this repositioning depends on consumer awareness, perception, and behavioural acceptance—dimensions increasingly shaped by digital platforms.

## **Millets and Dietary Transition in Uttar Pradesh**

Uttar Pradesh, India's most populous state, presents a distinctive context in the national nutrition transition due to its demographic diversity, rapid urbanization, and evolving food consumption patterns. Traditionally, millets were part of rural diets in several regions of the state. However, over time, wheat and rice have come to dominate food consumption due to public distribution systems, urban lifestyles, and socio-economic aspirations.

Recent policy initiatives and awareness campaigns have sought to reintroduce millets into mainstream diets in Uttar Pradesh. Urban centres such as Lucknow have witnessed increased availability of millet-based products through supermarkets, health food stores, and online retail platforms. The growing influence of digital media has further exposed consumers to health-related information and modern millet-based recipes. Despite these developments, awareness and acceptance of millets in Uttar Pradesh remain uneven. Variations in education, income, food habits, and access to digital information influence consumption behaviour. Therefore, understanding consumer awareness and perception within the socio-economic and cultural landscape of Uttar Pradesh is essential for designing effective promotion strategies and empirical studies focusing on Lucknow.

## **Methodology of the Study: Systematic Literature Review (SLR)**

This study adopts a **Systematic Literature Review (SLR) approach** to synthesize existing research on millets, consumer awareness, perception, and digital influence. The SLR method was chosen to ensure transparency, replicability, and comprehensive coverage of relevant literature.

### **Sources of Literature**

The review includes peer-reviewed journal articles, books, policy reports, and conference papers sourced from reputed national and international publications. Literature related to nutrition science, consumer behaviour, digital marketing, and sustainable food systems were considered.

### **Selection Criteria**

Studies were selected based on the following criteria:

1. Relevance to millets
2. Focus on consumer awareness or behaviour
3. Examination of digital platforms or marketing influence
4. Indian or comparable developing economy context

### **Review Approach**

A **thematic synthesis approach** was employed to categorize literature into major themes. This approach enabled identification of dominant research trends, conceptual linkages, and gaps, without undertaking any empirical analysis. The review is purely conceptual and background-oriented, intended to support future field-based research.

**Table 1: Systematic Literature Review Summary**

Author(s)	Focus	Methodology	Key Findings	Contribution
Devi et al. (2014)	Nutritional benefits of millets	Review	High fibre and antioxidant content	Nutritional foundation
FAO (2023)	Millets & food security	Policy report	Sustainability & nutrition	Policy context
Kaur & Banga (2018)	Consumer awareness	Survey	Health consciousness raises awareness	Awareness dimension
Verma & Patel (2017)	Urban food habits	Conceptual	Aspirational diets dominate	Perception barriers
Kotler et al. (2017)	Digital marketing	Conceptual	Digital engagement shapes behaviour	Theoretical base
Sharma & Gupta (2020)	Digital diet influence	Empirical	Digital content affects choices	Behavioural link
Meghana et al. (2021)	Social media & millets	Empirical	Visibility improves acceptance	Digital promotion
Kumar et al. (2021)	Value-added millet foods	Survey	Convenience increases adoption	Product innovation
Patil & Naik (2023)	Digital storytelling	Review	Revives traditional diets	Cultural repositioning
Singh & Verma (2020)	Digital challenges	Conceptual	Misinformation, digital divide	Implementation limits

### Review of Literature

**Consumer Awareness of Millets** - Studies indicate increasing awareness of millets among Indian consumers, particularly in urban areas. **Reddy and Bantilan (2012)** emphasized that government interventions, public distribution policies, and agricultural promotion programmes significantly influence awareness levels by legitimizing millets as nutritionally important crops. Recent initiatives under the International Year of Millets have further amplified public awareness through exhibitions, food festivals, and official campaigns. **Kaur and Banga (2018)** observed that health consciousness significantly enhances awareness, especially among educated consumers. However, awareness often remains limited to general health claims, lacking depth regarding nutritional composition and cooking practices (**Pathak et al., 2022**).

**Consumer Perception and Attitudes** Consumer perception towards millets has historically been shaped by socio-cultural associations. **Verma and Patel (2017)** highlighted aspirational food choices as a major factor influencing dietary behaviour. Recent research, however, suggests a perceptual shift, with millets increasingly viewed as premium health foods, especially when presented as value-added products (**Kumar et al., 2021**). A study by **Khandait et al. (2023)** found that consumers who perceive millets as healthier alternatives to refined cereals are far more likely to hold positive attitudes and stronger purchase intentions. The research highlighted that beliefs about nutritional value—especially regarding fibre, antioxidants, and low glycaemic index—serve as key determinants shaping attitudes and influencing future consumption behaviour. **Saxena & Singh (2024)** demonstrated that urban consumers who associate millets with contemporary health culture and sustainability trends develop *positive perceptual attitudes*, often independent of their family or regional food habits

### **Digital Platforms and Food Choice Behaviour**

Digital platforms have emerged as influential determinants of food behaviour. **Kotler et al. (2017)** emphasized the shift towards interactive, digitally mediated consumer engagement. **Sharma and Gupta (2020)** found that digital content significantly shapes dietary behaviour, particularly among urban consumers. **Meghana et al. (2021)** demonstrated the effectiveness of social media marketing in promoting millet-based foods. **Patil and Naik (2023)** highlighted the role of digital storytelling in reviving traditional diets. However, challenges such as misinformation and unequal digital access persist (**Singh & Verma, 2020**). Recent research shows that **social media marketing plays a crucial role in promoting millet-based products**, particularly in urban and digital contexts. **Gopanaboina et al. (2024)** conducted a competitive analysis of social media strategies used by brands marketing ready-to-eat (RTE) millet products in India. **The study found that e-commerce is a primary distribution channel for value-based millet products, especially in urban areas, and that marketing efforts should focus heavily on consumer information and education over direct sales**

**Uttar Pradesh–Specific Insights** Literature suggests that urban centres like Lucknow offer a unique environment where traditional food practices intersect with modern consumption behaviour. Digital awareness initiatives are particularly relevant in such contexts, yet empirical evidence linking digital exposure to millet consumption in Uttar Pradesh remains limited.

**Synthesis of Literature and Research Gap** The systematic review reveals that while substantial research exists on the nutritional benefits of millets and the general influence of digital platforms on consumer behaviour, **integrated and region-specific studies remain scarce**. Most studies examine nutrition, perception, or digital marketing in isolation. There is a notable absence of background-oriented, consolidated reviews focusing on **Uttar Pradesh**, particularly urban centres such as Lucknow. This gap highlights the need for empirical research grounded in a strong conceptual framework that links consumer awareness, perception, and digital influence.

## CONCLUSION

India's ongoing nutrition transition reflects a complex interplay of economic growth, urbanization, lifestyle changes, and evolving consumer preferences, which have collectively altered traditional dietary patterns. In this context, millets—repositioned as Shri Anna—have re-emerged as nutritionally rich, climate-resilient, and sustainable food grains capable of addressing contemporary health and environmental challenges. This paper has presented a systematic and thematic review of literature to examine consumer awareness, perception, and the influence of digital platforms on millet consumption in India, with special reference to emerging urban contexts in Uttar Pradesh. The review highlights that while awareness regarding the health and nutritional benefits of millets has increased, particularly among urban and educated consumers, this awareness does not consistently translate into regular consumption. Deeply ingrained food habits, taste preferences, limited culinary familiarity, and the dominance of rice and wheat in daily diets continue to act as significant barriers. Consumer perception of millets has undergone gradual transformation—from being viewed as traditional or inferior grains to being recognized as health-oriented and sustainable foods—largely due to product innovation, branding, and changing lifestyle aspirations.

Digital platforms have emerged as a powerful medium in reshaping food-related attitudes and behaviours. Social media, online retail channels, and digital health content play a crucial role in disseminating nutritional information, influencing perceptions, and increasing the visibility of millet-based products. However, the literature also indicates challenges such as misinformation, uneven digital access, and a gap between online engagement and actual purchasing behaviour. These challenges are particularly relevant in diverse socio-economic settings such as Uttar Pradesh. The review further reveals a notable gap in region-specific studies that integrate consumer awareness, perception, and digital influence within a single analytical framework, especially in urban centres like Lucknow. While national-level and thematic studies are abundant, focused background and empirical research addressing the unique socio-cultural and economic dynamics of Uttar Pradesh remains limited.

By consolidating existing research, this study provides a robust conceptual foundation for future empirical investigations. It underscores the need for localized, evidence-based strategies that leverage digital platforms to enhance consumer engagement and promote millets as viable components of urban diets. Overall, the paper contributes to academic discourse by offering a structured background for understanding millet consumption behaviour and supports the design of future policy interventions and market-driven initiatives aimed at strengthening India's nutrition security and sustainable food systems

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